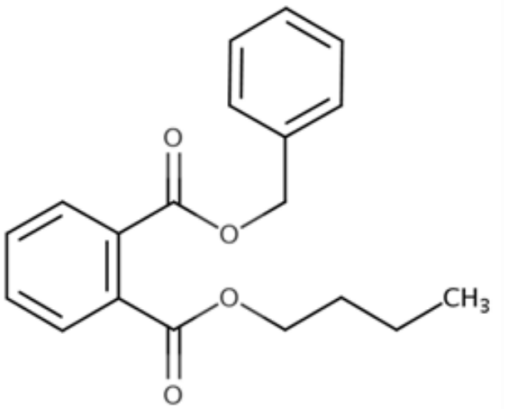
United States
Environmental Protection Agency

July 2025
Office of Chemical Safety and
Pollution Prevention

Data Extraction Information for Environmental Hazard and Human Health Hazard Animal Toxicology and Epidemiology for Butyl benzyl phthalate (BBP) (1,2-Benzenedicarboxylic acid, 1-butyl 2-(phenylmethyl) ester)

Systematic Review Support Document for the Draft Risk Evaluation

CASRN: 85-68-7



July 2025

This supplemental file contains information regarding the data extraction results relevant to the *Draft Environmental Hazard Assessment for Butyl benzyl phthalate (BBP)* and the *Draft Human Health Hazard Assessment for Butyl benzyl phthalate (BBP)*. EPA used the TSCA systematic review process described in the *Draft Systematic Review Protocol Supporting TSCA Risk Evaluations for Chemical Substances* (also referred to as the '2021 Draft Systematic Review Protocol'). Any updated steps in the systematic review process for data extraction since the publication of the 2021 Draft Systematic Review Protocol are described in the *Draft Risk Evaluation for Butyl benzyl phthalate (BBP) – Systematic Review Protocol*. EPA conducted data extraction based on author-reported descriptions and results; additional analyses (*e.g.*, statistical analyses performed during data integration into the risk evaluation) potentially conducted by EPA are not contained in this supplemental file.

Environmental Hazard Data Extraction: As explained in Section 6.4 of the 2021 Draft Systematic Review Protocol, key study details (*e.g.*, exposure duration vs. study duration) were extracted from references that underwent data quality evaluation; these study details are available in the tables below. The study details and respective endpoints were organized by first the chemical, then relevant habitat (*i.e.*, aquatic vs. terrestrial), followed by taxa categories (*e.g.*, vertebrates, invertebrates, vegetation), taxonomic groups (*e.g.*, fish, amphibian, mammalian, avian, worms, vascular plants), individual species, and finally exposure duration.

All the references that underwent data quality evaluation using the environmental hazard data quality metrics were extracted regardless of metric ranking and are included in this supplemental file. In the environmental hazard data extraction table, for some studies there were hazard health outcomes with multiple health effect levels extracted from ECOTOX; if all the data for one same health outcome were the same except for the health effect level (*e.g.*, LOEL level), multiple data extraction rows were combined into a single row in the table. All the extracted environmental hazard data will also be available in the ECOTOXicology Knowledgebase (ECOTOX) database; moreover, additional data sources and experimental details for these studies will also be available in ECOTOX.

Data Extraction of Rodent Data for the Application of Environmental Hazard: For DEHP, toxicity data gaps were identified for mammalian wildlife relevant to the terrestrial compartment of the environmental hazard assessment. This table includes rodent data for DEHP, which were used as proxy for mammalian wildlife. The rodent data were evaluated following the human health hazard animal toxicity evaluation and extraction process; however, additional data for health outcomes most relevant for environmental hazard assessment were extracted and are listed here.

Human Health Hazard Animal Toxicity Extraction: This supplemental file contains data extraction information for references that underwent data quality evaluation. Listed references with data extractions (1) met PECO screening criteria, (2) were published prior to 2014 which was the preferred literature cutoff date by EPA for data reported in previous assessments, and (3) reported human equivalent dose (HED) derived from points of departure (POD) that contained lowest-observable-effect levels (LOEL) greater than an order of magnitude of the lowest HED lowest-observable-adverse-effect level (LOAEL) identified across existing assessments. For a detailed description on these three criteria, see the *Draft Risk Evaluation for Butyl benzyl phthalate (BBP) – Systematic Review Protocol*. Data from references that were within an order of magnitude of the existing assessment HED were extracted and detailed data were extracted from each individual health outcome within each organ/system. Any co-critical effects were reported along with OQD for the health outcome. A detailed summary statement of each study is reported along with the major limitations as identified by the reviewer and any guidelines used.

Epidemiological Study Information Extraction: All epidemiology references that met PECO screening criteria and further filtering criteria and had an overall quality determination of High, Medium, or Low were extracted as detailed in Section 6.4 of the 2021 Draft Systematic Review Protocol and the *Draft Risk Evaluation for Butyl benzyl phthalate (BBP) – Systematic Review Protocol*. The data extracted include the measured health effect or endpoint, a description of the study population, the specific exposure compound measured and summary levels of exposure, the method of exposure measurement, and a summary of the results. Each health outcome assessed in a reference is extracted separately, and as such, each reference may have more than one record in the data extraction tables, with each record categorized by health outcome.

Table of Contents

HERO ID	Reference	Page
Environmental Hazard		**15**
Butyl benzyl phthalate		
Habitat: Aquatic Taxa: Fish		
	Cymatogaster aggregata (Shiner Perch)	
790034	Ozretich, R. J., Randall, R. C., Boese, B. L., Schroeder, W. P., Smith, J. R. (1983). Acute toxicity of butylbenzyl phthalate to Shiner perch (Cymatogaster aggregata). Archives of Environmental Contamination and Toxicology 12(6):655-660.	**15**
	Cyprinodon variegatus (Sheepshead Minnow)	
1321996	Adams, W. J., Biddinger, G. R., Robillard, K. A., Gorsuch, J. W. (1995). A summary of the acute toxicity of 14 phthalate esters to representative aquatic organisms. Environmental Toxicology and Chemistry 14(9):1569-1574.	**17**
10617114	Bionomics,, EG&G (1979). Acute toxicity of S-160 to sheepshead minnows (Cyprinodon variegatus).	**17**
1316224	Bionomics,, Springborn (1984). Acute toxicity of thirteen phthalate esters to the sheepshead minnow (Cyprinodon variegatus) (final report).	**20**
18110	Heitmuller, P. T., Hollister, T. A., Parrish, P. R. (1981). Acute toxicity of 54 industrial chemicals to sheepshead minnows (Cyprinodon variegatus). Bulletin of Environmental Contamination and Toxicology 27(5):596-604.	**22**
	Danio rerio (Zebra Danio)	
10064182	Battelle, (2018). Fish short-term reproduction assay of benzyl butyl phthalate with zebrafish.	**24**
2298079	Chen, X., Xu, S., Tan, T., Lee, S. T., Cheng, S. H., Lee, F., F.W., Xu, L., S.J., Ho, K. C. (2014). Toxicity and estrogenic endocrine disrupting activity of phthalates and their mixtures. International Journal of Environmental Research and Public Health 11(3):3156-3168.	**32**
4728379	Roy, N. M., Zambrzycka, E., Santangelo, J. (2017). Butyl benzyl phthalate (BBP) induces caudal defects during embryonic development. Environmental Toxicology and Pharmacology 56:129-135.	**32**
5490285	Sun, G., Liu, K. (2017). Developmental toxicity and cardiac effects of butyl benzyl phthalate in zebrafish embryos. Aquatic Toxicology 192(9):165-170.	**33**
	Fundulus heteroclitus (Mummichog)	
1935997	Kaplan, E., L.A., Nabel, M., Cleef-Toedt, Van, K., Proffitt, A. R., Pylypiw, H. M., Jr (2013). Impact of benzyl butyl phthalate on shoaling behavior in Fundulus heteroclitus (mummichog) populations. Marine Environmental Research 86(Elsevier):70-75.	**36**
	Gasterosteus aculeatus (Threespine Stickleback)	
789690	Wibe, A. E., Billing, A., Rosenqvist, G., Jenssen, B. M. (2002). Butyl benzyl phthalate affects shoaling behavior and bottom-dwelling behavior in threespine stickleback. Environmental Research 89(2):180-187.	**38**
789532	Wibe, A. E., Fjeld, E., Rosenqvist, G., Jenssen, B. M. (2004). Postexposure effects of DDE and butylbenzylphthalate on feeding behavior in threespine stickleback. Ecotoxicology and Environmental Safety 57(2):213-219.	**39**
	Lepomis macrochirus (Bluegill)	
18050	Barrows, M. E., Petrocelli, S. R., Macek, K. J., Carroll, J. J. (1980). Bioconcentration and elimination of selected water pollutants by bluegill sunfish (Lepomis macrochirus). :379-392.	**40**
2140000	Bionomics,, EG&G (1979). [Sanitized] Acute toxicity of S-160 to Bluegill (Lepomis macrochirus).	**40**

Table of Contents

18064 Buccafusco, R. J., Ells, S. J., Leblanc, G. A. (1981). Acute toxicity of priority pollutants to bluegill (Lepomis macrochirus). Bulletin of Environmental Contamination and Toxicology 26(4):446-452. **43**

1359448 Carr, K. H., Coyle, G. T., Kimerle, R. A. (1997). Bioconcentration of (14C)butyl benzyl phthalate in bluegill sunfish (Lepomis macrochirus). Environmental Toxicology and Chemistry 16(10):2200-2203. **43**

1359250 Monsanto, (1983). Bioconcentration, distribution and elimination of 14C-labeled santicizer 160 by bluegill (Lepomis macrochirus). **45**

Oncorhynchus mykiss (Rainbow Trout)

1321996 Adams, W. J., Biddinger, G. R., Robillard, K. A., Gorsuch, J. W. (1995). A summary of the acute toxicity of 14 phthalate esters to representative aquatic organisms. Environmental Toxicology and Chemistry 14(9):1569-1574. **46**

2139998 Bionomics,, EG&G (1979). [Sanitized] Acute toxicity of S-160 to Rainbow trout (Salmo gairdneri). **46**

5530771 Bionomics,, EG&G (1983). Acute toxicity of fourteen phthalate esters to rainbow trout (Salmo gairdneri) under flow-through conditions (final report) report no BW-83-3-1373. **48**

680120 Rhodes, J. E., Adams, W. J., Biddinger, G. R., Robillard, K. A., Gorsuch, J. W. (1995). Chronic toxicity of 14 phthalate esters to Daphnia magna and rainbow trout (Oncorhynchus mykiss). Environmental Toxicology and Chemistry 14(11):1967-1976. **50**

Oryzias latipes (Japanese Medaka)

10064181 Battelle, (2018). Fish short-term reproduction assay of benzyl butyl phthalate with Japanese medaka. **50**

Oryzias melastigma (Indian Medaka)

2298079 Chen, X., Xu, S., Tan, T., Lee, S. T., Cheng, S. H., Lee, F., F.W., Xu, L., S.J., Ho, K. C. (2014). Toxicity and estrogenic endocrine disrupting activity of phthalates and their mixtures. International Journal of Environmental Research and Public Health 11(3):3156-3168. **57**

Parophrys vetulus (English Sole)

1337257 Randall, R. C., Ozretich, R. J., Boese, B. L. (1983). The acute toxicity of butyl benzyl phthalate to the saltwater fish English sole, Parophrys vetulus. Environmental Science & Technology 17(11):670-672. **57**

Pimephales promelas (Fathead Minnow)

5353208 ABC, (2008). Determination of the effect of butyl benzyl phthalate (BBP) on the development, growth and reproduction of the fathead minnow (Pimephales promelas). **58**

1321996 Adams, W. J., Biddinger, G. R., Robillard, K. A., Gorsuch, J. W. (1995). A summary of the acute toxicity of 14 phthalate esters to representative aquatic organisms. Environmental Toxicology and Chemistry 14(9):1569-1574. **64**

11581733 Bencic, D. C., Flick, R. W., Bell, M. E., Henderson, W. M., Huang, W., Purucker, S. T., Glinski, D. A., Blackwell, B. R., Christen, C. H., Stacy, E. H., Biales, A. D. (2024). A multiomics study following acute exposures to phthalates in larval fathead minnows (Pimephales promelas) – The potential application of omics data in risk evaluations under TSCA (internal use only). **64**

1316188 Bionomics,, EG&G (1983). Acute toxicity of fourteen phthalate esters to fathead minnows. **67**

1316189 Bionomics,, EG&G (1984). Acute toxicity of thirteen phthalate esters to fathead minnows (Pimephales promelas) under flow-through conditions. **68**

2139996 Bionomics,, EG&G (1979). [Sanitized] Acute toxicity of S-160 to Fathead minnow (Pimephales promalas). **70**

2140001 Bionomics,, EG&G (1979). [Sanitized] Acute toxicity of S-160 in hard water to Fathead minnow (Pimephales promalas). **72**

1464882 Harries, J. E., Runnalls, T., Hill, E., Harris, C. A., Maddix, S., Sumpter, J. P., Tyler, C. R. (2000). Development of a reproductive performance test for endocrine disrupting chemicals using pair-breeding fathead minnows (Pimephales promelas). Environmental Science & Technology 34(14):3003-3011. **74**

Sander lucioperca (Zander)

2298076 Jarmołowicz, S., Demska-Zakęś, K., Zakęś, Z. (2014). Impact of butyl benzyl phthalate on development of the reproductive system of European pikeperch, Sander lucioperca (L.). Acta Veterinaria Hungarica 62(3):397-407. **77**

Habitat: Aquatic Taxa: Arthropods

Americamysis bahia (Opossum Shrimp)

1321996 Adams, W. J., Biddinger, G. R., Robillard, K. A., Gorsuch, J. W. (1995). A summary of the acute toxicity of 14 phthalate esters to representative aquatic organisms. Environmental Toxicology and Chemistry 14(9):1569-1574. **81**

1359176 Bionomics,, EG&G (1979). Acute toxicity study with santicizer 160 in mysid shrimp (Mysidopsis bahia) with cover letter dated 100692 and attachment. **81**

5530739 Bionomics,, Springborn (1988). Acute toxicity of benzyl butyl phthalate to mysid shrimp (Mysidopsis bahia) under flow-through conditions with cover letter dated 011888. **84**

6574650 Bionomics,, Springborn (1986). Chronic toxicity of butylbenzyl phthalate to mysid shrimp (Mysidopsis bahia) [Bionomics Report #BW-86-7-2074]. **87**

Chironomus tentans (Midge)

679312 Call, D. J., Markee, T. P., Geiger, D. L., Brooke, L. T., Vandeventer, F. A., Cox, D. A., Genisot, K. I., Robillard, K. A., Gorsuch, J. W., Parkerton, T. F., Reiley, M. C., Ankley, G. T., Mount, D. R. (2001). An assessment of the toxicity of phthalate esters to freshwater benthos. 1. Aqueous exposures. Environmental Toxicology and Chemistry 20(8):1798-1804. **91**

1359257 Monsanto, (1982). Acute toxicity of santicizer 160 to Chironomus tentans. **92**

1359238 SRI International, (1984). Acute toxicity studies on S-160 using two midge species as the test organisms. **95**

Daphnia magna (Water Flea)

1321996 Adams, W. J., Biddinger, G. R., Robillard, K. A., Gorsuch, J. W. (1995). A summary of the acute toxicity of 14 phthalate esters to representative aquatic organisms. Environmental Toxicology and Chemistry 14(9):1569-1574. **95**

5353206 Barera, Y., Adams, W. J. (1983). Resolving some practical questions about Daphnia acute toxicity tests. :509-518. **95**

5353200 Bionomics,, EG&G (1979). [Sanitized] The chronic toxicity of Santicizer 160 (BN-78-1384327-1) to the water flea (Daphnia magna). **102**

1316195 Bionomics,, Springborn (1984). Chronic toxicity of fourteen phthalate esters to Daphnia magna with cover letter dated 032585. :95. **106**

1316223 Bionomics,, Springborn (1984). Acute toxicity of fourteen phthalate esters to Daphnia magna (final report). **114**

789536 Jonsson, S., Baun, A. (2003). Toxicity of mono- and diesters of o-phthalic esters to a crustacean, a green alga, and a bacterium. Environmental Toxicology and Chemistry 22(12):3037-3043. **115**

1359249 Monsanto, (1983). Santicizer 160 (S-160) natural water die-away toxicity test with Daphnia magna. **115**

1359268 Monsanto, (1983). Chronic toxicity of santicizer 160 to daphnia magna: 21-day chronic renewal study. **119**

2140006 Monsanto, (1986). [Sanitized] A measure of the acute toxicity of butyl benzyl phthalate metabolites to Daphnia magna. **126**

680120 Rhodes, J. E., Adams, W. J., Biddinger, G. R., Robillard, K. A., Gorsuch, J. W. (1995). Chronic toxicity of 14 phthalate esters to Daphnia magna and rainbow trout (Oncorhynchus mykiss). Environmental Toxicology and Chemistry 14(11):1967-1976. **127**

Farfantepenaeus duorarum (Northern Pink Shrimp)

1359218 Bionomics,, Springborn (1986). Acute toxicity of butylbenzyl phthalate to pink shrimp (Penaeus duorarum) under flow-through conditions. **128**

Hexagenia sp. (Mayfly)

Table of Contents

1359195 Analytical Bio-Chemistry Labs, (1986). Flow-through Acute Toxicity Study of Benzyl Butyl Phthalate to the Mayfly, Hexagenia Sp. with Attached Protocol and Cover Letter dated 092586. **129**

Hyalella azteca (Scud)

679312 Call, D. J., Markee, T. P., Geiger, D. L., Brooke, L. T., Vandeventer, F. A., Cox, D. A., Genisot, K. I., Robillard, K. A., Gorsuch, J. W., Parkerton, T. F., Reiley, M. C., Ankley, G. T., Mount, D. R. (2001). An assessment of the toxicity of phthalate esters to freshwater benthos. 1. Aqueous exposures. Environmental Toxicology and Chemistry 20(8):1798-1804. **130**

6574639 Chemical Manufacturers Association, (1996). Letter from Monsanto submitting butyl benzene phthalate LC50 results. **131**

7325945 Lake Superior Research Institute, (1997). Sediment toxicity testing program for phthalate esters. **131**

Macrobrachium rosenbergii (Giant River Prawn)

789598 Sung, H. H., Kao, W. Y., Su, Y. J. (2003). Effects and toxicity of phthalate esters to hemocytes of giant freshwater prawn, Macrobrachium rosenbergii. Aquatic Toxicology 64(1):25-37. **132**

Moina macrocopa (Water Flea)

788149 Wang, J. X., Xi, Y. L., Hu, K., Liu, X. B. (2011). Effect of butyl benzyl phthalate on life table-demography of two successive generations of cladoceran Moina macrocopa Straus. Journal of Environmental Biology 32(1):17-22. **134**

Paratanytarsus dissimilis (Midge)

1359238 SRI International, (1984). Acute toxicity studies on S-160 using two midge species as the test organisms. **139**

Paratanytarsus parthenogeneticus (Midge)

1321996 Adams, W. J., Biddinger, G. R., Robillard, K. A., Gorsuch, J. W. (1995). A summary of the acute toxicity of 14 phthalate esters to representative aquatic organisms. Environmental Toxicology and Chemistry 14(9):1569-1574. **141**

1359274 Monsanto, (1983). Acute toxicity of santicizer 160 to the midge paratanytarsus parthenogenetica with cover letter. **142**

Procambarus sp. (Crayfish)

5497664 Analytical Bio-Chemistry Labs, (1986). Flow-through acute toxicity report - 96 hr flow-through toxicity study of benzyl butyl phthalate to the freshwater crayfish, procambarus sp (final report) w-attach and letter 072888. **142**

Habitat: Aquatic Taxa: Worms

Lumbriculus variegatus (Oligochaete, Worm)

679312 Call, D. J., Markee, T. P., Geiger, D. L., Brooke, L. T., Vandeventer, F. A., Cox, D. A., Genisot, K. I., Robillard, K. A., Gorsuch, J. W., Parkerton, T. F., Reiley, M. C., Ankley, G. T., Mount, D. R. (2001). An assessment of the toxicity of phthalate esters to freshwater benthos. 1. Aqueous exposures. Environmental Toxicology and Chemistry 20(8):1798-1804. **144**

7325945 Lake Superior Research Institute, (1997). Sediment toxicity testing program for phthalate esters. **144**

Nereis virens (Polychaete Worm)

6574648 Bionomics,, Springborn (1986). Acute toxicity of butylbenzyl phthalate to polychaetes (Nereis/Neanthes virens) under flow-through conditions [Bionomics Report #BW-86-7-2094]. **145**

Habitat: Aquatic Taxa: Mollusks

Crassostrea virginica (American Or Virginia Oyster)

6574644 Bionomics,, Springborn (1986). Acute toxicity of 14C-butyl benzyl phthalate to eastern oysters (Crassostrea virginica). **146**

6574651 Bionomics,, Springborn (1986). Uptake and elimination of 14C-residue by eastern oysters (Crassostrea virginica) exposed to butylbenzyl phthalate (BBP) [Bionomics Report #BW-86-2114]. **146**

Haliotis diversicolor ssp. supertexta (Taiwan Abalone)

697762 Liu, Y., Guan, Y., Yang, Z., Cai, Z., Mizuno, T., Tsuno, H., Zhu, W., Zhang, X. (2009). Toxicity of seven phthalate esters to embryonic development of the abalone Haliotis diversicolor supertexta. Ecotoxicology 18(3):293-303. **149**

Habitat: Aquatic Taxa: Non-vascular plants

Chlorella vulgaris (Green Algae)

10617118 Ecotox,, Carolina (1997). Effect of butyl benzyl phthalate (Santicizer 160) on the growth and reproduction of Chlorella vulgaris. **151**

Desmodesmus subspicatus (Green Algae)

10617116 Ecotox,, Carolina (1995). The toxicity of butyl benzyl phthalate (Santicizer 160) to Scenedesmus subspicatus. **153**

Fistulifera pelliculosa (Diatom)

10617117 Ecotox,, Carolina (1995). [Redacted] The toxicity of butyl benzyl phthalate (Santicizer 160) to Navicula pelliculosa. **157**

Karenia brevis (Dinoflagellate)

3230225 Liu, N., Wen, F., Li, F., Zheng, X., Liang, Z., Zheng, H. (2016). Inhibitory mechanism of phthalate esters on Karenia brevis. Chemosphere 155:498-508. **161**

Raphidocelis subcapitata (Green Algae)

789536 Jonsson, S., Baun, A. (2003). Toxicity of mono- and diesters of o-phthalic esters to a crustacean, a green alga, and a bacterium. Environmental Toxicology and Chemistry 22(12):3037-3043. **163**

Selenastrum capricornutum (Green Algae)

1321996 Adams, W. J., Biddinger, G. R., Robillard, K. A., Gorsuch, J. W. (1995). A summary of the acute toxicity of 14 phthalate esters to representative aquatic organisms. Environmental Toxicology and Chemistry 14(9):1569-1574. **163**

1316196 Bionomics,, Springborn (1984). FYI Submission: Toxicity of fourteen phthalate esters to the freshwater green alga Selenastrum capricornutum. **164**

1359173 Monsanto, (1985). Initial submission: Acute toxicity of S-160 to the freshwater green alga, Selenastrum capricornutum with cover letter dated 081492. **164**

1359180 Monsanto, (1980). Initial submission: 14-day algal bottle assay (Selenastrum capricornutum) with cover letter dated 08/14/92. **165**

Habitat: Aquatic Taxa: Other Invertebrates

Brachionus calyciflorus (Rotifer)

3070931 Cruciani, V., Iovine, C., Thomé, J. P., Joaquim-Justo, C. (2015). Impact of three phthalate esters on the sexual reproduction of the Monogonont rotifer, Brachionus calyciflorus. Ecotoxicology 25(1):192-200. **167**

1336226 Zhao, L. L., Xi, Y. L., Huang, L., Zha, C. W. (2009). Effects of three phthalate esters on the life-table demography of freshwater rotifer Brachionus calyciflorus Pallas. Aquatic Ecology 43(2):395-402. **170**

Hydra littoralis (Hydra)

1359223 Analytical Bio-Chemistry Labs, (1986). Final report of the flow-through acute toxicity of butyl benzyl phthalate to hydra littoralis. **172**

Habitat: Aquatic Taxa: Amphibian

Xenopus laevis (African Clawed Frog)

10063055 Battelle, (2018). 21-d Amphibian Metamorphosis Assay (AMA) of benzyl butyl phthalate with African clawed frog, Xenopus laevis. **175**

Habitat: Terrestrial Taxa: Vascular plants

Brassica rapa (Bird Rape)

675180 Gorsuch, J. W., Staples, C. A., Brown, D., Enste-Diefenbach, R. (2008). Vapor-phase toxicity of butylbenzyl phthalate to three plant species: white mustard, chinese cabbage, and white clover. Bulletin of Environmental Contamination and Toxicology 81(2):220-224. **190**

Ipomoea aquatica (Swamp Morningglory)

807145 Chen, W. C., Huang, H. C., Wang, Y. S., Yen, J. H. (2011). Effect of benzyl butyl phthalate on physiology and proteome characterization of water celery (Ipomoea aquatica Forsk.). Ecotoxicology and Environmental Safety 74(5):1325-1330. **190**

Sinapis alba (White Mustard)

675180 Gorsuch, J. W., Staples, C. A., Brown, D., Enste-Diefenbach, R. (2008). Vapor-phase toxicity of butylbenzyl phthalate to three plant species: white mustard, chinese cabbage, and white clover. Bulletin of Environmental Contamination and Toxicology 81(2):220-224. **191**

Trifolium repens (Dutch Clover)

675180 Gorsuch, J. W., Staples, C. A., Brown, D., Enste-Diefenbach, R. (2008). Vapor-phase toxicity of butylbenzyl phthalate to three plant species: white mustard, chinese cabbage, and white clover. Bulletin of Environmental Contamination and Toxicology 81(2):220-224. **191**

Habitat: Terrestrial Taxa: Mammalian

Rattus norvegicus (Norway Rat)

689975 Hotchkiss, A. K., Parks-Saldutti, L. G., Ostby, J. S., Lambright, C., Furr, J., Vandenbergh, J. G., Gray, L. E., Jr (2004). A mixture of the "antiandrogens" linuron and butyl benzyl phthalate alters sexual differentiation of the male rat in a cumulative fashion. Biology of Reproduction 71(6):1852-1861. **192**

Habitat: Terrestrial Taxa: Worms

Caenorhabditis elegans (Nematode)

1249864 Kwon, H. C., Roh, J. Y., Lim, D., Choi, J., Kwon, J. H. (2011). Maintaining the constant exposure condition for an acute caenorhabditis elegans mortality test using passive dosing. Environmental Health and Toxicology 26:e2011015. **202**

5043459 Shin, N., Cuenca, L., Karthikraj, R., Kannan, K., Colaiácovo, M. P. (2019). Assessing effects of germline exposure to environmental toxicants by high-throughput screening in C. elegans. Pl o S Genetics 15(2):e1007975. **203**

Habitat: Terrestrial Taxa: Avian

Gallus gallus (Chicken)

1359174 University of Arizona, (1978). Initial submission: Evaluation of butyl benzyl phthalate with laying hens with cover letter dated 080792. **204**

Habitat: Terrestrial Taxa: Arthropods

Lasius niger (Black Garden Ant)

2345940 Cuvillier-Hot, V., Salin, K., Devers, S., Tasiemski, A., Schaffner, P., Boulay, R., Billiard, S., Lenoir, A. (2014). Impact of ecological doses of the most widespread phthalate on a terrestrial species, the ant Lasius niger. Environmental Research 131:104-110. **205**

2347468 Lenoir, A., Touchard, A., Devers, S., Christidès, J. P., Boulay, R., Cuvillier-Hot, V. (2014). Ant cuticular response to phthalate pollution. Environmental Science and Pollution Research 21(23):13446-13451. **205**

Data Extraction of Rodent Data for the Application of Environmental Hazard **207**

1359183 TNO (CIVO) (1993). Dietary one-generation reproduction study with butyl benzyl phthalate in rats with cover letter dated 040793. **207**

Human Health Hazard Animal Toxicology 208

Butyl benzyl phthalate

Short-term (>1-30 days)

2219796 Ahmad, R., Gautam, A. K., Verma, Y., Sedha, S., Kumar, S. (2014). Effects of in utero di-butyl phthalate and butyl benzyl phthalate exposure on offspring development and male reproduction of rat. Environmental Science and Pollution Research 21(4):3156-3165. 208

1325511 BIBRA, (1986). Rat liver and lipid effects of representative phthalate esters with EPA acknowlegement letter. 209

697382 Kwack, S., Kim, K., Kim, H., Lee, B. (2009). Comparative toxicological evaluation of phthalate diesters and metabolites in Sprague-Dawley male rats for risk assessment. Journal of Toxicology and Environmental Health, Part A: Current Issues 72(21-22):1446-1454. 212

673292 Lee, B. M., Koo, H. J. (2007). Hershberger assay for antiandrogenic effects of phthalates. Journal of Toxicology and Environmental Health, Part A: Current Issues 70(15-16):1365-1370. 217

Reproductive/Developmental

674931 Aso, S., Ehara, H., Miyata, K., Hosyuyama, S., Shiraishi, K., Umano, T., Minobe, Y. (2005). A two-generation reproductive toxicity study of butyl benzyl phthalate in rats. Journal of Toxicological Sciences 30(Special Issue):S39-S58. 226

2510906 Furr, J. R., Lambright, C. S., Wilson, V. S., Foster, P. M., Gray, L. E., Jr (2014). A short-term in vivo screen using fetal testosterone production, a key event in the phthalate adverse outcome pathway, to predict disruption of sexual differentiation. Toxicological Sciences 140(2):403-424. 227

9419406 Gray, L. E., Jr, Lambright, C. S., Conley, J. M., Evans, N., Furr, J. R., Hannas, B. R., Wilson, V. S., Sampson, H., Foster, P. M. D. (2021). Genomic and Hormonal Biomarkers of Phthalate-Induced Male Rat Reproductive Developmental Toxicity Part II: A Targeted RT-qPCR Array Approach That Defines a Unique Adverse Outcome Pathway. Toxicological Sciences 182(2):195-214. 227

675335 Nagao, T., Ohta, R., Marumo, H., Shindo, T., Yoshimura, S., Ono, H. (2000). Effect of butyl benzyl phthalate in Sprague-Dawley rats after gavage administration: A two-generation reproductive study. Reproductive Toxicology 14(6):513-532. 228

1359183 TNO (CIVO), (1993). Dietary one-generation reproduction study with butyl benzyl phthalate in rats with cover letter dated 040793. 229

675462 Tyl, R. W., Myers, C. B., Marr, M. C., Fail, P. A., Seely, J. C., Brine, D. R., Barter, R. A., Butala, J. H. (2004). Reproductive toxicity evaluation of dietary butyl benzyl phthalate (BBP) in rats. Reproductive Toxicology 18(2):241-264. 230

Human Health Hazard Epidemiology 235

Butyl benzyl phthalate

7502437 Wang, C. W., Chen, S. C., Wu, D. W., Chen, H. C., Lin, H. H., Su, H., Shiea, J. T., Lin, W. Y., Hung, C. H., Kuo, C. H. (2021). Effect of dermal phthalate levels on lung function tests in residential area near a petrochemical complex. Environmental Science and Pollution Research 28(21):27333-27344. 235

Metabolite: Mono-benzyl phthalate (MBzP)

5043613 Agier, L., Basagaña, X., Maitre, L., Granum, B., Bird, P. K., Casas, M., Oftedal, B., Wright, J., Andrusaityte, S., Castro, de, M., Cequier, E., Chatzi, L., Donaire-Gonzalez, D., Grazuleviciene, R., Haug, L. S., Sakhi, A. K., Leventakou, V., Mceachan, R., Nieuwenhuijsen, M., Petraviciene, I., Robinson, O., Roumeliotaki, T., Sunyer, J., Tamayo-Uria, I., Thomsen, C., Urquiza, J., Valentin, A., Slama, R., Vrijheid, M., Siroux, V. (2019). Early-life exposome and lung function in children in Europe: an analysis of data from the longitudinal, population-based HELIX cohort. The Lancet Planetary Health 3(2):e81-e92. 236

5499157 Al-Saleh, I., Coskun, S., Al-Doush, I., Abduljabbar, M., Al-Rouqi, R., Al-Rajudi, T., Al-Hassan, S. (2019). Couples exposure to phthalates and its influence on in vitro fertilization outcomes. Chemosphere 226:597-606. 237

Table of Contents

4728683	Albert, O., Huang, J. Y., Aleksa, K., Hales, B. F., Goodyer, C. G., Robaire, B., Chevrier, J., Chan, P. (2018). Exposure to polybrominated diphenyl ethers and phthalates in healthy men living in the greater Montreal area: A study of hormonal balance and semen quality. Environment International 116:165-175.	**239**
4829277	Amin, M. M., Ebrahimpour, K., Parastar, S., Shoshtari-Yeganeh, B., Hashemi, M., Mansourian, M., Poursafa, P., Fallah, Z., Rafiei, N., Kelishadi, R. (2018). Association of urinary concentrations of phthalate metabolites with cardiometabolic risk factors and obesity in children and adolescents. Chemosphere 211:547-556.	**239**
4728682	Amin, M. M., Parastar, S., Ebrahimpour, K., Shoshtari-Yeganeh, B., Hashemi, M., Mansourian, M., Kelishadi, R. (2018). Association of urinary phthalate metabolites concentrations with body mass index and waist circumference. Environmental Science and Pollution Research 25(11):11143-11151.	**243**
4829228	Arbuckle, T. E., Agarwal, A., Macpherson, S. H., Fraser, W. D., Sathyanarayana, S., Ramsay, T., Dodds, L., Muckle, G., Fisher, M., Foster, W., Walker, M., Monnier, P. (2018). Prenatal exposure to phthalates and phenols and infant endocrine-sensitive outcomes: The MIREC study. Environment International 120:572-583.	**245**
5039985	Balalian, A. A., Whyatt, R. M., Liu, X., Insel, B. J., Rauh, V. A., Herbstman, J., Factor-Litvak, P. (2019). Prenatal and childhood exposure to phthalates and motor skills at age 11 years. Environmental Research 171:416-427.	**248**
4829221	Berger, K., Eskenazi, B., Kogut, K., Parra, K., Lustig, R. H., Greenspan, L. C., Holland, N., Calafat, A. M., Ye, X., Harley, K. G. (2018). Association of Prenatal Urinary Concentrations of Phthalates and Bisphenol A and Pubertal Timing in Boys and Girls. Environmental Health Perspectives 126(9):97004.	**252**
5494469	Bloom, M. S., Wenzel, A. G., Brock, J. W., Kucklick, J. R., Wineland, R. J., Cruze, L., Unal, E. R., Yucel, R. M., Jiyessova, A., Newman, R. B. (2019). Racial disparity in maternal phthalates exposure; Association with racial disparity in fetal growth and birth outcomes. Environment International 127:473-486.	**259**
5043345	Bornehag, C. G., Lindh, C., Reichenberg, A., Wikström, S., Hallerback, Unenge, M., Evans, S. F., Sathyanarayana, S., Barrett, E. S., Nguyen, N., R.H., Bush, N. R., Swan, S. H. (2018). Association of prenatal phthalate exposure with language development in early childhood. JAMA Pediatrics 172(12):1169-1176.	**263**
4728664	Boss, J., Zhai, J., Aung, M. T., Ferguson, K. K., Johns, L. E., Mcelrath, T. F., Meeker, J. D., Mukherjee, B. (2018). Associations between mixtures of urinary phthalate metabolites with gestational age at delivery: a time to event analysis using summative phthalate risk scores. Environmental Health 17(1):56.	**265**
4728666	Buckley, J. P., Quirós-Alcalá, L., Teitelbaum, S. L., Calafat, A. M., Wolff, M. S., Engel, S. M. (2018). Associations of prenatal environmental phenol and phthalate biomarkers with respiratory and allergic diseases among children aged 6 and 7years. Environment International 115:79-88.	**268**
10294569	Burns, J. S., Sergeyev, O., Lee, M. M., Williams, P. L., Mínguez-Alarcón, L., Plaku-Alakbarova, B., Sokolov, S., Kovalev, S., Koch, H. M., Lebedev, A. T., Hauser, R., Korrick, S. A., Study, R.C. (2022). Associations of prepubertal urinary phthalate metabolite concentrations with pubertal onset among a longitudinal cohort of boys. Environmental Research 212(Pt A):113218.	**269**
5499417	Chang, W. H., Tsai, Y. S., Wang, J. Y., Chen, H. L., Yang, W. H., Lee, C. C. (2019). Sex hormones and oxidative stress mediated phthalate-induced effects in prostatic enlargement. Environment International 126:184-192.	**273**
5041222	Chen, J., Zhou, X., Zhang, H., Liu, Y., Cao, C., Dong, R., Yuan, Y., Wang, M., Lu, Y., Wu, M., Li, S., Chen, B. (2019). Association between urinary concentration of phthalate metabolites and impaired renal function in Shanghai adults. Environmental Pollution 245:149-162.	**279**
5043528	Chin, H. B., Jukic, A. M., Wilcox, A. J., Weinberg, C. R., Ferguson, K. K., Calafat, A. M., Mcconnaughey, D. R., Baird, D. D. (2019). Association of urinary concentrations of phthalate metabolites and bisphenol A with early pregnancy endpoints. Environmental Research 168:254-260.	**281**
7978495	Choi, G., Keil, A. P., Villanger, G. D., Richardson, D. B., Daniels, J. L., Hoffman, K., Sakhi, A. K., Thomsen, C., Herring, A. H., Drover, M., S.S., Nethery, R., Aase, H., Engel, S. M. (2021). Pregnancy exposure to common-detect organophosphate esters and phthalates and maternal thyroid function. Science of the Total Environment 782:146709.	**282**
8010273	Choi, G., Villanger, G. D., Drover, M., S.S., Sakhi, A. K., Thomsen, C., Nethery, R. C., Zeiner, P., Knudsen, G. P., Reichborn-Kjennerud, T., Øvergaard, K. R., Herring, A. H., Skogan, A. H., Biele, G., Aase, H., Engel, S. M. (2021). Prenatal phthalate exposures and executive function in preschool children. Environment International 149:106403.	**291**

4728651	Dales, R. E., Kauri, L. M., Cakmak, S. (2018). The associations between phthalate exposure and insulin resistance, β-cell function and blood glucose control in a population-based sample. Science of the Total Environment 612:1287-1292.	**294**
8204339	Daniel, S., Balalian, A. A., Insel, B. J., Liu, X., Whyatt, R. M., Calafat, A. M., Rauh, V. A., Perera, F. P., Hoepner, L. A., Herbstman, J., Factor-Litvak, P. (2020). Prenatal and early childhood exposure to phthalates and childhood behavior at age 7 years. Environment International 143:105894.	**296**
6957610	Daniel, S., Balalian, A. A., Whyatt, R. M., Liu, X., Rauh, V., Herbstman, J., Factor-Litvak, P. (2020). Perinatal phthalates exposure decreases fine-motor functions in 11-year-old girls: Results from weighted Quantile sum regression. Environment International 136:105424.	**305**
5559180	Dong, R., Wu, Y., Chen, J., Wu, M., Li, S., Chen, B. (2019). Lactational exposure to phthalates impaired the neurodevelopmental function of infants at 9months in a pilot prospective study. Chemosphere 226:351-359.	**309**
9387317	Dries, v.d., M. A., Guxens, M., Spaan, S., Ferguson, K. K., Philips, E., Santos, S., Jaddoe, V., V.W., Ghassabian, A., Trasande, L., Tiemeier, H., Pronk, A. (2020). Phthalate and bisphenol exposure during pregnancy and offspring nonverbal IQ. Environmental Health Perspectives 128(7):77009.	**317**
5512126	Durmaz, E., Erkekoglu, P., Asci, A., Akçurin, S., Bircan, I., Kocer-Gumusel, B. (2018). Urinary phthalate metabolite concentrations in girls with premature thelarche. Environmental Toxicology and Pharmacology 59:172-181.	**323**
7978460	Dzwilewski, C., K.L., Woodbury, M. L., Aguiar, A., Shoaff, J., Merced-Nieves, F., Korrick, S. A., Schantz, S. L. (2021). Associations of prenatal exposure to phthalates with measures of cognition in 7.5-month-old infants. NeuroToxicology 84:84-95.	**328**
4728558	Engel, S. M., Villanger, G. D., Nethery, R. C., Thomsen, C., Sakhi, A. K., Drover, M., S.S., Hoppin, J. A., Zeiner, P., Knudsen, G. P., Reichborn-Kjennerud, T., Herring, A. H., Aase, H. (2018). Prenatal phthalates, maternal thyroid function, and risk of attention-deficit hyperactivity disorder in the Norwegian mother and child cohort. Environmental Health Perspectives 126(5):57004.	**329**
6717805	England-Mason, G., Martin, J. W., Macdonald, A., Kinniburgh, D., Giesbrecht, G. F., Letourneau, N., Dewey, D. (2020). Similar names, different results: Consistency of the associations between prenatal exposure to phthalates and parent-ratings of behavior problems in preschool children. Environment International 142:105892.	**330**
9354255	Evans, S. F., Raymond, S., Sethuram, S., Barrett, E. S., Bush, N. R., Nguyen, R., Sathyanarayana, S., Swan, S. H. (2021). Associations between prenatal phthalate exposure and sex-typed play behavior in preschool age boys and girls. Environmental Research 192:110264.	**355**
5433529	Gaston, S. A., Tulve, N. S. (2019). Urinary phthalate metabolites and metabolic syndrome in U.S. adolescents: Cross-sectional results from the National Health and Nutrition Examination Survey (2003-2014) data. International Journal of Hygiene and Environmental Health 222(2):195-204.	**362**
5514974	Heggeseth, B. C., Holland, N., Eskenazi, B., Kogut, K., Harley, K. G. (2019). Heterogeneity in childhood body mass trajectories in relation to prenatal phthalate exposure. Environmental Research 175:22-33.	**367**
5750709	Huang, H. B., Kuo, P. H., Su, P. H., Sun, C. W., Chen, W. J., Wang, S. L. (2019). Prenatal and childhood exposure to phthalate diesters and neurobehavioral development in a 15-year follow-up birth cohort study. Environmental Research 172:569-577.	**370**
4728501	Huang, L. L., Zhou, B., Ai, S. H., Yang, P., Chen, Y. J., Liu, C., Deng, Y. L., Lu, Q., Miao, X. P., Lu, W. Q., Wang, Y. X., Zeng, Q. (2018). Prenatal phthalate exposure, birth outcomes and DNA methylation of Alu and LINE-1 repetitive elements: A pilot study in China. Chemosphere 206:759-765.	**392**
6815846	Hyland, C., Mora, A. M., Kogut, K., Calafat, A. M., Harley, K., Deardorff, J., Holland, N., Eskenazi, B., Sagiv, S. K. (2019). Prenatal exposure to phthalates and neurodevelopment in the CHAMACOS cohort.	**394**
4728454	James-Todd, T. M., Chiu, Y. H., Messerlian, C., Mínguez-Alarcón, L., Ford, J. B., Keller, M., Petrozza, J., Williams, P. L., Ye, X., Calafat, A. M., Hauser, R., Team, E.S. (2018). Trimester-specific phthalate concentrations and glucose levels among women from a fertility clinic. Environmental Health 17(1):55.	**398**
5933662	Jankowska, A., Polańska, K., Hanke, W., Wesołowska, E., Ligocka, D., Waszkowska, M., Stańczak, A., Tartaglione, A. M., Mirabella, F., Chiarotti, F., Garí, M., Calamandrei, G. (2019). Prenatal and early postnatal phthalate exposure and child neurodevelopment at age of 7 years - Polish Mother and Child Cohort. Environmental Research 177:108626.	**398**

5932896 Jankowska, A., Polańska, K., Koch, H. M., Pälmke, C., Waszkowska, M., Stańczak, A., Wesołowska, E., Hanke, W., Bose-O'Reilly, S., Calamandrei, G., Garí, M. (2019). Phthalate exposure and neurodevelopmental outcomes in early school age children from Poland. Environmental Research 179(Pt B):108829. **399**

4728517 Jiang, M., Li, Y., Zhang, B., Zhou, A., Zhu, Y., Li, J., Zhao, H., Chen, L., Hu, J., Wu, C., Peng, Y., Liao, J., Xia, Z., Cai, Z., Chen, X., Xu, B., Xia, W., Xu, S. (2018). Urinary concentrations of phthalate metabolites associated with changes in clinical hemostatic and hematologic parameters in pregnant women. Environment International 120:34-42. **401**

9559555 Kamai, E. M., Villanger, G. D., Nethery, R. C., Thomsen, C., Sakhi, A. K., Drover, M., S.S., Hoppin, J. A., Knudsen, G. P., Reichborn-Kjennerud, T., Zeiner, P., Overgaard, K., Herring, A. H., Aase, H., Engel, S. M. (2021). Gestational phthalate exposure and preschool attention deficit hyperactivity disorder in Norway. Environmental Epidemiology 5(4):e161. **404**

9415898 Kim, J. I., Lee, J., Lee, K. S., Lee, Y. A., Shin, C. H., Hong, Y. C., Kim, B. N., Lim, Y. H. (2021). Association of phthalate exposure with autistic traits in children. Environment International 157:106775. **405**

5433079 Ko, N. Y., Lo, Y. C., Huang, P. C., Huang, Y. C., Chang, J. L., Huang, H. B. (2019). Changes in insulin resistance mediate the associations between phthalate exposure and metabolic syndrome. Environmental Research 175:434-441. **408**

5933569 Ku, H. Y., Tsai, T. L., Wang, P. L., Su, P. H., Sun, C. W., Wang, C. J., Wang, S. L. (2020). Prenatal and childhood phthalate exposure and attention deficit hyperactivity disorder traits in child temperament: A 12-year follow-up birth cohort study. Science of the Total Environment 699(Elsevier):134053. **409**

7274600 Lee, G., Kim, S., Bastiaensen, M., Malarvannan, G., Poma, G., Casero, N. C., Gys, C., Covaci, A., Lee, S., Lim, J. E., Mok, S., Moon, H. B., Choi, G., Choi, K. (2020). Exposure to organophosphate esters, phthalates, and alternative plasticizers in association with uterine fibroids. Environmental Research 189:109874. **415**

5556125 Lee, K. S., Lim, Y. H., Kim, K. N., Choi, Y. H., Hong, Y. C., Lee, N. (2018). Urinary phthalate metabolites concentrations and symptoms of depression in an elderly population. Science of the Total Environment 625:1191-1197. **416**

5053633 Li, N., Papandonatos, G. D., Calafat, A. M., Yolton, K., Lanphear, B. P., Chen, A., Braun, J. M. (2019). Identifying periods of susceptibility to the impact of phthalates on children's cognitive abilities. Environmental Research 172:604-614. **417**

9419532 Li, N., Papandonatos, G. D., Calafat, A. M., Yolton, K., Lanphear, B. P., Chen, A., Braun, J. M. (2020). Gestational and childhood exposure to phthalates and child behavior. Environment International 144:106036. **421**

4728516 Liao, K. W., Kuo, P. L., Huang, H. B., Chang, J. W., Chiang, H. C., Huang, P. C. (2018). Increased risk of phthalates exposure for recurrent pregnancy loss in reproductive-aged women. Environmental Pollution 241:969-977. **423**

4829246 Malits, J., Attina, T. M., Karthikraj, R., Kannan, K., Naidu, M., Furth, S., Warady, B. A., Vento, S., Trachtman, H., Trasande, L. (2018). Renal function and exposure to bisphenol A and phthalates in children with chronic kidney disease. Environmental Research 167:575-582. **424**

5432795 Martínez-Ibarra, A., Martínez-Razo, L. D., Vázquez-Martínez, E. R., Martínez-Cruz, N., Flores-Ramírez, R., García-Gómez, E., López-López, M., Ortega-González, C., Camacho-Arroyo, I., Cerbón, M. (2019). Unhealthy Levels of Phthalates and Bisphenol A in Mexican Pregnant Women with Gestational Diabetes and Its Association to Altered Expression of miRNAs Involved with Metabolic Disease. International Journal of Molecular Sciences 20(13):3343. **424**

7978907 Muerköster, A. P., Frederiksen, H., Juul, A., Andersson, A. M., Jensen, R. C., Glintborg, D., Kyhl, H. B., Andersen, M. S., Timmermann, G., C.A., Jensen, T. K. (2020). Maternal phthalate exposure associated with decreased testosterone/LH ratio in male offspring during mini-puberty. Odense Child Cohort. Environment International 144:106025. **426**

5742214 Mustieles, V., Mínguez-Alarcón, L., Christou, G., Ford, J. B., Dimitriadis, I., Hauser, R., Souter, I., Messerlian, C. (2019). Placental weight in relation to maternal and paternal preconception and prenatal urinary phthalate metabolite concentrations among subfertile couples. Environmental Research 169:272-279. **427**

6718069 Oulhote, Y., Lanphear, B., Braun, J. M., Webster, G. M., Arbuckle, T. E., Etzel, T., Forget-Dubois, N., Seguin, J. R., Bouchard, M. F., Macfarlane, A., Ouellet, E., Fraser, W., Muckle, G. (2020). Gestational Exposures to Phthalates and Folic Acid, and Autistic Traits in Canadian Children. Environmental Health Perspectives 128(2):27004. **428**

4728408 Parada, H., Gammon, M. D., Chen, J., Calafat, A. M., Neugut, A. I., Santella, R. M., Wolff, M. S., Teitelbaum, S. L. (2018). Urinary Phthalate Metabolite Concentrations and Breast Cancer Incidence and Survival following Breast Cancer: The Long Island Breast Cancer Study Project. Environmental Health Perspectives 126(4):47013. **434**

8350115	Patti, M. A., Newschaffer, C., Eliot, M., Hamra, G. B., Chen, A., Croen, L. A., Fallin, M. D., Hertz-Picciotto, I., Kalloo, G., Khoury, J. C., Lanphear, B. P., Lyall, K., Yolton, K., Braun, J. M. (2021). Gestational exposure to phthalates and social responsiveness scores in children using quantile regression: The EARLI and home studies. International Journal of Environmental Research and Public Health 18(3):17-Jan.	**439**
6967437	Qian, X.,i, Li, J., Xu, S., Wan, Y., Li, Y., Jiang, Y., Zhao, H., Zhou, Y., Liao, J., Liu, H., Sun, X., Liu, W., Peng, Y., Hu, C., Zhang, B.,in, Lu, S.,hi, Cai, Z., Xia, W.,ei (2019). Prenatal exposure to phthalates and neurocognitive development in children at two years of age. Environment International 131:105023.	**445**
5043615	Reeves, K. W., Santana, M. D., Manson, J. E., Hankinson, S. E., Zoeller, R. T., Bigelow, C., Sturgeon, S. R., Spiegelman, D., Tinker, L., Luo, J., Chen, B., Meliker, J., Bonner, M. R., Cote, M. L., Cheng, T. D., Calafat, A. M. (2019). Urinary phthalate biomarker concentrations and postmenopausal breast cancer risk. Journal of the National Cancer Institute 111(10):1059-1067.	**453**
5043451	Rodríguez-Carmona, Y., Cantoral, A., Trejo-Valdivia, B., Téllez-Rojo, M. M., Svensson, K., Peterson, K. E., Meeker, J. D., Schnaas, L., Solano, M., Watkins, D. J. (2019). Phthalate exposure during pregnancy and long-term weight gain in women. Environmental Research 169:26-32.	**455**
4728848	Romano, M. E., Eliot, M. N., Zoeller, R. T., Hoofnagle, A. N., Calafat, A. M., Karagas, M. R., Yolton, K., Chen, A., Lanphear, B. P., Braun, J. M. (2018). Maternal urinary phthalate metabolites during pregnancy and thyroid hormone concentrations in maternal and cord sera: The HOME Study. International Journal of Hygiene and Environmental Health 221(4):623-631.	**456**
5613207	Santana, Díaz, M. V., Hankinson, S. E., Bigelow, C., Sturgeon, , S. R., Zoeller, R. T., Tinker, L., Manson, E., J.A., Calafat, A. M., Meliker, , J. R., Reeves, K. W. (2019). Urinary concentrations of phthalate biomarkers and weight change among postmenopausal women: a prospective cohort study. Environmental Health 18(1):20.	**457**
8453074	Shen, C. Y., Weng, J., Tsai, J., Su, P., Chou, M. C., Wang, S. (2021). Prenatal exposure to endocrine-disrupting chemicals and subsequent brain structure changes revealed by voxel-based morphometry and generalized q-sampling MRI. International Journal of Environmental Research and Public Health 18(9):4798.	**461**
4829218	Shi, W., Lin, Z., Liao, C., Zhang, J., Liu, W., Wang, X., Cai, J., Zou, Z., Wang, H., Norback, D., Kan, H., Huang, C., Zhao, Z. (2018). Urinary phthalate metabolites in relation to childhood asthmatic and allergic symptoms in Shanghai. Environment International 121(Pt 1):276-286.	**463**
5114010	Shim, Y. H., Ock, J. W., Kim, Y. J., Kim, Y., Kim, S. Y., Kang, D. (2019). Association between heavy metals, bisphenol A, volatile organic compounds and phthalates and metabolic syndrome. International Journal of Environmental Research and Public Health 16(4):671.	**475**
5043457	Shin, H. M., Schmidt, R. J., Tancredi, D., Barkoski, J., Ozonoff, S., Bennett, D. H., Hertz-Picciotto, I. (2018). Prenatal exposure to phthalates and autism spectrum disorder in the MARBLES study. Environmental Health 17(1):85.	**478**
9419487	Shoaff, J. R., Coull, B., Weuve, J., Bellinger, D. C., Calafat, A. M., Schantz, S. L., Korrick, S. A. (2020). Association of exposure to endocrine-disrupting chemicals during adolescence with attention-deficit/hyperactivity disorder-related behaviors. JAMA Network Open 3(8):e2015041.	**479**
4728698	Shu, H., Wikstrom, S., Jönsson, G., B.A., Lindh, C. H., Svensson, Å., Nånberg, E., Bornehag, C. G. (2018). Prenatal phthalate exposure was associated with croup in Swedish infants. Acta Paediatrica 107(6):1011-1019.	**481**
4728712	Soomro, M. H., Baiz, N., Philippat, C., Vernet, C., Siroux, V., Maesano, Nichole, C., Sanyal, S., Slama, R., Bornehag, C. G., Annesi-Maesano, I. (2018). Prenatal exposure to phthalates and the development of eczema phenotypes in male children: results from the EDEN mother-child cohort study. Environmental Health Perspectives 126(2):27002.	**484**
4728797	Strassle, P. D., Smit, M., L.A., Hoppin, J. A. (2018). Endotoxin enhances respiratory effects of phthalates in adults: Results from NHANES 2005-6. Environmental Research 162:280-286.	**486**
4728711	Stroustrup, A., Bragg, J. B., Andra, S. S., Curtin, P. C., Spear, E. A., Sison, D. B., Just, A. C., Arora, M., Gennings, C. (2018). Neonatal intensive care unit phthalate exposure and preterm infant neurobehavioral performance. PLoS ONE 13(3):e0193835.	**487**
5432947	Su, T. C., Hwang, J. J., Sun, C. W., Wang, S. L. (2019). Urinary phthalate metabolites, coronary heart disease, and atherothrombotic markers. Ecotoxicology and Environmental Safety 173(Elsevier):37-44.	**487**
5494915	Su, T. C., Hwang, J. S., Torng, P. L., Wu, C., Lin, C. Y., Sung, F. C. (2019). Phthalate exposure increases subclinical atherosclerosis in young population. Environmental Pollution 250:586-593.	**490**

5933606	Tanner, E. M., Hallerbäck, M. U., Wikström, S., Lindh, C., Kiviranta, H., Gennings, C., Bornehag, C. G. (2020). Early prenatal exposure to suspected endocrine disruptor mixtures is associated with lower IQ at age seven. Environment International 134:105185.	**494**
4728602	Tian, M., Liu, L., Wang, H., Wang, X., Martin, F. L., Zhang, J.,ie, Huang, Q., Shen, H. (2018). Phthalates induce androgenic effects at exposure levels that can be environmentally relevant in humans. Environmental Science & Technology Letters 5(5):232-236.	**494**
9495379	Trasande, L., Liu, B., Bao, W. (2021). Phthalates and attributable mortality: A population-based longitudinal cohort study and cost analysis. Environmental Pollution 292:118021.	**495**
5041285	Vafeiadi, M., Myridakis, A., Roumeliotaki, T., Margetaki, K., Chalkiadaki, G., Dermitzaki, E., Venihaki, M., Sarri, K., Vassilaki, M., Leventakou, V., Stephanou, E. G., Kogevinas, M., Chatzi, L. (2018). Association of Early Life Exposure to Phthalates With Obesity and Cardiometabolic Traits in Childhood: Sex Specific Associations. Frontiers in Public Health 6(NOV):327.	**498**
4728615	Wang, X., Wang, L., Zhang, J., Yin, W., Hou, J., Zhang, Y., Hu, C., Wang, G., Zhang, R., Tao, Y., Yuan, J. (2018). Dose-response relationships between urinary phthalate metabolites and serum thyroid hormones among waste plastic recycling workers in China. Environmental Research 165:63-70.	**503**
4728614	Wang, Y. X., Zhou, B., Chen, Y. J., Liu, C., Huang, L. L., Liao, J. Q., Hu, X. J., Lu, W. Q., Zeng, Q., Pan, A. (2018). Thyroid function, phthalate exposure and semen quality: Exploring associations and mediation effects in reproductive-aged men. Environment International 116:278-285.	**504**
8348423	Watkins, D. J., Meeker, J. D., Tamayo-Ortiz, M., Sánchez, B. N., Schnaas, L., Peterson, K. E., Téllez-Rojo, M. M. (2021). Gestational and peripubertal phthalate exposure in relation to attention performance in childhood and adolescence. Environmental Research 196:110911.	**505**
6718530	Weng, J., Hong, C., Tasi, J., Shen, C. Y., Su, P., Wang, S. (2020). The association between prenatal endocrine-disrupting chemical exposure and altered resting-state brain fMRI in teenagers. Brain Structure and Function 225(5):1669-1684.	**508**
4728953	Wenzel, A. G., Bloom, M. S., Butts, C. D., Wineland, R. J., Brock, J. W., Cruze, L., Unal, E. R., Kucklick, J. R., Somerville, S. E., Newman, R. B. (2018). Influence of race on prenatal phthalate exposure and anogenital measurements among boys and girls. Environment International 110:61-70.	**509**
4728873	Yang, T. C., Peterson, K. E., Meeker, J. D., Sánchez, B. N., Zhang, Z., Cantoral, A., Solano, M., Tellez-Rojo, M. M. (2018). Exposure to Bisphenol A and phthalates metabolites in the third trimester of pregnancy and BMI trajectories. Pediatric Obesity 13(9):550-557.	**514**
4728493	Zhang, Y. W., Gao, H., Mao, L. J., Tao, X. Y., Ge, X., Huang, K., Zhu, P., Hao, J. H., Wang, Q. N., Xu, Y. Y., Jin, Z. X., Sheng, J., Xu, Y. Q., Yan, S. Q., Tao, X. G., Tao, F. B. (2018). Effects of the phthalate exposure during three gestation periods on birth weight and their gender differences: A birth cohort study in China. Science of the Total Environment 613-614:1573-1578.	**519**
9644525	Zhu, Y. D., Wu, X. Y., Yan, S. Q., Huang, K., Tong, J., Gao, H., Xie, Y., Tao, S. M., Ding, P., Zhu, P., Tao, F. B. (2020). Domain- and trimester-specific effect of prenatal phthalate exposure on preschooler cognitive development in the Ma'anshan Birth Cohort (MABC) study. Environment International 142:105882.	**522**
4829283	Zhu, Y. D., Zhu, B. B., Gao, H., Huang, K., Xu, Y. Y., Yan, S. Q., Zhou, S. S., Cai, X. X., Zhang, Q. F., Qi, J., Jin, Z. X., Sheng, J., Pan, W. J., Hao, J. H., Zhu, P., Tao, F. B. (2018). Repeated measures of prenatal phthalate exposure and maternal hemoglobin concentration trends: The Ma'anshan birth cohort (MABC) study. Environmental Pollution 242(Pt B):1033-1041.	**525**
5043589	Zota, A. R., Geller, R. J., Calafat, A. M., Marfori, C. Q., Baccarelli, A. A., Moawad, G. N. (2019). Phthalates exposure and uterine fibroid burden among women undergoing surgical treatment for fibroids: a preliminary study. Fertility and Sterility 111(1):112-121.	**536**
Metabolite: Monobutyl phthalate (MBP); Mono-benzyl phthalate (MBzP)		
5490441	Jahreis, S., Trump, S., Bauer, M., Bauer, T., Thürmann, L., Feltens, R., Wang, Q., Gu, L., Grützmann, K., Röder, S., Averbeck, M., Weichenhan, D., Plass, C., Sack, U., Borte, M., Dubourg, V., Schüürmann, G., Simon, J. C., Von, Martin, B., Hackermüller, J., Eils, R., Lehmann, I., Polte, T. (2018). Maternal phthalate exposure promotes allergic airway inflammation over 2 generations through epigenetic modifications. Journal of Allergy and Clinical Immunology 141(2):741-753.	**544**
Metabolite: Mono-benzyl phthalate (MBzP); as part of molar sum of High molecular weight phthalates		
6958936	England-Mason, G., Grohs, M. N., Reynolds, J. E., Macdonald, A., Kinniburgh, D., Liu, J., Martin, J. W., Lebel, C., Dewey, D. (2020). White matter microstructure mediates the association between prenatal exposure to phthalates and behavior problems in preschool children. Environmental Research 182:109093.	**545**

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Cymatogaster aggregata* (Shiner Perch), Juvenile, Not Reported, Wild (COLLECTED FROM YAQUINA BAY, OREGON, DURING THE SUMMER OF 1981)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0.002 mg/L / 0.226 mg/L / 0.296 mg/L / 0.45 mg/L / 0.58 mg/L / 0.82 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.51 (0.47-0.56) mg/L)	Mortality	High	790034
85-68-7	96 Hour(s), (8 Day(s))	*Cymatogaster aggregata* (Shiner Perch), Juvenile, Not Reported, Wild (COLLECTED FROM YAQUINA BAY, OREGON, DURING THE SUMMER OF 1981)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0.002 mg/L / 0.080 mg/L / 0.155 mg/L / 0.27 mg/L / 0.48 mg/L / 0.92 mg/L	Behavior (Behavior-Activity, general,Aggregation/Clumping, Response Site: Not reported)	NR (0.080-0.92 mg/L)	Behavioral	High	790034
85-68-7	96 Hour(s), (8 Day(s))	*Cymatogaster aggregata* (Shiner Perch), Juvenile, Not Reported, Wild (COLLECTED FROM YAQUINA BAY, OREGON, DURING THE SUMMER OF 1981)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0.002 mg/L / 0.080 mg/L / 0.155 mg/L / 0.27 mg/L / 0.48 mg/L / 0.92 mg/L	Physiology (Physiology-Cough,Pigmentation, Response Site: Not reported)	NR (0.080-0.92 mg/L)	Behavioral	High	790034
85-68-7	96 Hour(s), (96 Hour(s))	*Cymatogaster aggregata* (Shiner Perch), Juvenile, Not Reported, Wild (COLLECTED FROM YAQUINA BAY, OREGON, DURING THE SUMMER OF 1981)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0.0023 mg/L / 0.236 (0.226-0.246) mg/L / 0.30 (0.296-0.30) mg/L / 0.42 (0.393-0.45) mg/L / 0.57 (0.55-0.58) mg/L / 0.82 (0.82-0.83) mg/L	Biochemical (Hormone(s)-Dopamine, Response Site: Not reported)	NOEC (0.82 (0.82-0.83) mg/L)	Mechanistic: Neurotoxicology	High	790034

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Cymatogaster aggregata* (Shiner Perch), Juvenile, Not Reported, Wild (COLLECTED FROM YAQUINA BAY, OREGON, DURING THE SUMMER OF 1981)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0.0023 mg/L / 0.236 (0.226-0.246) mg/L / 0.30 (0.296-0.30) mg/L / 0.42 (0.393-0.45) mg/L / 0.57 (0.55-0.58) mg/L / 0.82 (0.82-0.83) mg/L	Biochemical (Hormone(s)-Norepinephrine, Response Site: Not reported)	NOEC (0.82 (0.82-0.83) mg/L)	Mechanistic: Neurotoxicology	High	790034
85-68-7	96 Hour(s), (96 Hour(s))	*Cymatogaster aggregata* (Shiner Perch), Juvenile, Not Reported, Wild (COLLECTED FROM YAQUINA BAY, OREGON, DURING THE SUMMER OF 1981)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0.0023 mg/L / 0.236 (0.226-0.246) mg/L / 0.30 (0.296-0.30) mg/L / 0.42 (0.393-0.45) mg/L / 0.57 (0.55-0.58) mg/L / 0.82 (0.82-0.83) mg/L	Biochemical (Hormone(s)-Epinephrine, Response Site: Not reported)	NR (0.236-0.82 mg/L)	Mechanistic: Neurotoxicology	High	790034
85-68-7	96 Hour(s), (96 Hour(s))	*Cymatogaster aggregata* (Shiner Perch), Juvenile, Not Reported, Wild (COLLECTED FROM YAQUINA BAY, OREGON, DURING THE SUMMER OF 1981)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0.0023 mg/L / 0.236 (0.226-0.246) mg/L / 0.30 (0.296-0.30) mg/L / 0.42 (0.393-0.45) mg/L / 0.57 (0.55-0.58) mg/L / 0.82 (0.82-0.83) mg/L	Physiology (Physiology-Cough,Pigmentation, Response Site: Not reported)	NR (0.236-0.82 mg/L)	Behavioral	High	790034
85-68-7	96 Hour(s), (96 Hour(s))	*Cymatogaster aggregata* (Shiner Perch), Juvenile, Not Reported, Wild (COLLECTED FROM YAQUINA BAY, OREGON, DURING THE SUMMER OF 1981)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0.002 mg/L / 0.246 mg/L / 0.30 mg/L / 0.393 mg/L / 0.55 mg/L / 0.83 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.51 (0.46-0.55) mg/L)	Mortality	High	790034

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Cymatogaster aggregata* (Shiner Perch), Juvenile, Not Reported, Wild (COLLECTED FROM YAQUINA BAY, OREGON, DURING THE SUMMER OF 1981)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0.0023 mg/L / 0.236 (0.226-0.246) mg/L / 0.30 (0.296-0.30) mg/L / 0.42 (0.393-0.45) mg/L / 0.57 (0.55-0.58) mg/L / 0.82 (0.82-0.83) mg/L	Behavior (Behavior-Activity, general,Aggregation/Clumping, Response Site: Not reported)	NR (0.236-0.82 mg/L)	Behavioral	High	790034
85-68-7	165 Hour(s), (8 Day(s))	*Cymatogaster aggregata* (Shiner Perch), Juvenile, Not Reported, Wild (COLLECTED FROM YAQUINA BAY, OREGON, DURING THE SUMMER OF 1981)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0.002 mg/L / 0.080 mg/L / 0.155 mg/L / 0.27 mg/L / 0.48 mg/L / 0.92 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.49 (0.45-0.56) mg/L)	Mortality	High	790034
85-68-7	96 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>0.68 mg/L)	Mortality	High	1321996
85-68-7	96 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (0.68 mg/L)	Mortality	High	1321996
85-68-7	24 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, Not Reported, Laboratory (HATCHED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.0 mg/L / 1.6 mg/L / 2.7 mg/L / 4.5 mg/L / 7.5 mg/L	Behavior (Behavior-Equilibrium, Response Site: Not reported)	NR (7.5 mg/L)	Behavioral	Medium	10617114

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, Not Reported, Laboratory (HATCHED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.0 mg/L / 1.6 mg/L / 2.7 mg/L / 4.5 mg/L / 7.5 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (~7.5 mg/L)	Mortality	High	10617114
85-68-7	48 Hour(s), (48 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, Not Reported, Laboratory (HATCHED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	100 ppm / 500 ppm / 1000 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (1000 ppm)	Mortality	High	10617114
85-68-7	48 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, Not Reported, Laboratory (HATCHED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.0 mg/L / 1.6 mg/L / 2.7 mg/L / 4.5 mg/L / 7.5 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (3.2 (2.5-4.0) mg/L)	Mortality	High	10617114
85-68-7	48 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, Not Reported, Laboratory (HATCHED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.0 mg/L / 1.6 mg/L / 2.7 mg/L / 4.5 mg/L / 7.5 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-LETH (7.5 mg/L)	Mortality	High	10617114

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24-48 Hour(s), (48 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, Not Reported, Laboratory (HATCHED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	1.0 ppm / 10 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	NR (1.0-10 ppm)	Mortality	High	10617114
85-68-7	72 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, Not Reported, Laboratory (HATCHED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.0 mg/L / 1.6 mg/L / 2.7 mg/L / 4.5 mg/L / 7.5 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (3.0 (2.4-3.9) mg/L)	Mortality	High	10617114
85-68-7	96 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, Not Reported, Laboratory (HATCHED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.0 mg/L / 1.6 mg/L / 2.7 mg/L / 4.5 mg/L / 7.5 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (3.0 (2.4-3.9) mg/L)	Mortality	High	10617114

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, <=10 Week(s), Not Reported, Laboratory (EITHER CULTURED AT LAB OR PURCHASED FROM A PROVEN HATCHERY IN MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.0001 ppm / 0.04 (0.01-0.06) ppm / 0.08 (0.02-0.10) ppm / 0.17 (0.02-0.25) ppm / 0.36 (0.01-0.44) ppm / 0.68 (0.02-0.80) ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>0.68 ppm)	Mortality	High	1316224
85-68-7	48 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, <=10 Week(s), Not Reported, Laboratory (EITHER CULTURED AT LAB OR PURCHASED FROM A PROVEN HATCHERY IN MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.0001 ppm / 0.04 (0.01-0.06) ppm / 0.08 (0.02-0.10) ppm / 0.17 (0.02-0.25) ppm / 0.36 (0.01-0.44) ppm / 0.68 (0.02-0.80) ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>0.68 ppm)	Mortality	High	1316224
85-68-7	72 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, <=10 Week(s), Not Reported, Laboratory (EITHER CULTURED AT LAB OR PURCHASED FROM A PROVEN HATCHERY IN MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.0001 ppm / 0.04 (0.01-0.06) ppm / 0.08 (0.02-0.10) ppm / 0.17 (0.02-0.25) ppm / 0.36 (0.01-0.44) ppm / 0.68 (0.02-0.80) ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>0.68 ppm)	Mortality	High	1316224

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, <=10 Week(s), Not Reported, Laboratory (EITHER CULTURED AT LAB OR PURCHASED FROM A PROVEN HATCHERY IN MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.0001 ppm / 0.04 (0.01-0.06) ppm / 0.08 (0.02-0.10) ppm / 0.17 (0.02-0.25) ppm / 0.36 (0.01-0.44) ppm / 0.68 (0.02-0.80) ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (0.68 ppm)	Mortality	High	1316224
85-68-7	96 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, <=10 Week(s), Not Reported, Laboratory (EITHER CULTURED AT LAB OR PURCHASED FROM A PROVEN HATCHERY IN MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.0001 ppm / 0.04 (0.01-0.06) ppm / 0.08 (0.02-0.10) ppm / 0.17 (0.02-0.25) ppm / 0.36 (0.01-0.44) ppm / 0.68 (0.02-0.80) ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (0.68 (0.02-0.80) ppm)	Mortality	High	1316224

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, 14-28 Days post-hatch, Not Reported, Laboratory (FROM EG AND G BIONOMICS RESEARCH LABORATORY OR EPA ENVIRONMENTAL RESEARCH LABORATORY, GULF BREEZE, FLORIDA)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	NR / NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (380 (310-430) mg/L)	Mortality	Medium	18110
85-68-7	48 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, 14-28 Days post-hatch, Not Reported, Laboratory (FROM EG AND G BIONOMICS RESEARCH LABORATORY OR EPA ENVIRONMENTAL RESEARCH LABORATORY, GULF BREEZE, FLORIDA)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	NR / NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (420 (380-460) mg/L)	Mortality	Medium	18110

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	72 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, 14-28 Days post-hatch, Not Reported, Laboratory (FROM EG AND G BIONOMICS RESEARCH LABORATORY OR EPA ENVIRONMENTAL RESEARCH LABORATORY, GULF BREEZE, FLORIDA)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	NR / NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (430 (390-470) mg/L)	Mortality	Medium	18110
85-68-7	96 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, 14-28 Days post-hatch, Not Reported, Laboratory (FROM EG AND G BIONOMICS RESEARCH LABORATORY OR EPA ENVIRONMENTAL RESEARCH LABORATORY, GULF BREEZE, FLORIDA)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	NR / NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (440 (410-470) mg/L)	Mortality	Medium	18110

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Cyprinodon variegatus* (Sheepshead Minnow), Juvenile, 14-28 Days post-hatch, Not Reported, Laboratory (FROM EG AND G BIONOMICS RESEARCH LABORATORY OR EPA ENVIRONMENTAL RESEARCH LABORATORY, GULF BREEZE, FLORIDA)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	NR / NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (360 mg/L)	Mortality	Medium	18110
85-68-7	0-4 Day(s), (4 Day(s))	*Danio rerio* (Zebra Danio), Not reported, Not Reported, Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.001 mg/L / 0.01 mg/L / 0.1 mg/L / 1.0 mg/L / 3.0 mg/L	Behavior (Behavior-Behavioral changes, general, Response Site: Not reported)	NR (0.001-3.0 mg/L)	Behavioral	Medium	10064182
85-68-7	0-4 Day(s), (4 Day(s))	*Danio rerio* (Zebra Danio), Not reported, Not Reported, Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.001 mg/L / 0.01 mg/L / 0.1 mg/L / 1.0 mg/L / 3.0 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NR (0.001-3.0 mg/L)	Mortality	Medium	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 3 Male organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Cellular (Histology-Degeneration,Histological changes, general,Granuloma,Infiltration,Vacuolization, Response Site: Liver,Testes,Thyroid)	NR (8.88-137 ug/L)	Endocrine	High	10064182

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Reproduction (Reproduction-Atretic follicle stage, Response Site: Ovaries)	NR (137 ug/L)	Reproductive/Teratogenic	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 3 Male organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Cellular (Histology-Degeneration,Histological changes, general,Granuloma,Infiltration,Vacuolization, Response Site: Liver,Testes,Thyroid)	NR (8.88-137 ug/L)	Reproductive/Teratogenic	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Reproduction (Reproduction-Fertilization, Response Site: Egg)	NOEC (8.88 ug/L)	Reproductive/Teratogenic	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 3 Male organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Cellular (Histology-Degeneration,Histological changes, general,Granuloma,Infiltration,Vacuolization, Response Site: Liver,Testes,Thyroid)	NR (8.88-137 ug/L)	Hepatic/Liver	High	10064182

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 3 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Cellular (Histology-Atresia,Debris,Histological changes, general,Granuloma,Infiltration,Vacuolization, Response Site: Liver,Ovaries,Thyroid)	NR (8.88-137 ug/L)	Endocrine	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 3 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Cellular (Histology-Atresia,Debris,Histological changes, general,Granuloma,Infiltration,Vacuolization, Response Site: Liver,Ovaries,Thyroid)	NR (8.88-137 ug/L)	Hepatic/Liver	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Male organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Reproduction (Reproduction-Spermatigonia, Response Site: Gonad(s))	NR (137 ug/L)	Reproductive/Teratogenic	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 3 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Cellular (Histology-Atresia,Debris,Histological changes, general,Granuloma,Infiltration,Vacuolization, Response Site: Liver,Ovaries,Thyroid)	NR (8.88-137 ug/L)	Reproductive/Teratogenic	High	10064182

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both, Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 10 Organism	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (137 ug/L)	Mortality	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 2 Male organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Growth (Morphology-Weight, Response Site: Gonad(s))	NR (8.88-137 ug/L)	Reproductive/Teratogenic	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 2 Male organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Growth (Morphology-Organ weight in relationship to body weight, Response Site: Gonad(s))	NR (8.88-137 ug/L)	Reproductive/Teratogenic	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Male organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Growth (Growth-Length, Response Site: Whole organism)	NR (8.88-137 ug/L)	Development/Growth	High	10064182

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Reproduction (Reproduction-Fecundity, Response Site: Not reported)	NOEC (20.0 ug/L)	Reproductive/Teratogenic	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Male organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Growth (Morphology-Stage, Response Site: Testes)	NR (137 ug/L)	Reproductive/Teratogenic	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 2 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Growth (Morphology-Organ weight in relationship to body weight, Response Site: Gonad(s))	NOEC (137 ug/L)	Reproductive/Teratogenic	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Male organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Growth (Growth-Weight, Response Site: Whole organism)	NOEC (137 ug/L)	Development/Growth	High	10064182

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Growth (Growth-Weight, Response Site: Whole organism)	NOEC (137 ug/L)	Development/Growth	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Growth (Growth-Length, Response Site: Whole organism)	NOEC (137 ug/L)	Development/Growth	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 2 Male organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Cellular (Genetics-Vitellogenin mRNA, Response Site: Liver)	NOEC (137 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Endocrine toxicity	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 2 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Cellular (Genetics-Vitellogenin mRNA, Response Site: Liver)	NOEC (137 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Endocrine toxicity	High	10064182

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Reproduction (Reproduction-Fecundity, Response Site: Not reported)	LOEC (53.4 ug/L)	Reproductive/Teratogenic	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 2 Male organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Biochemical (Biochemistry-Vitellogenin, Response Site: Plasma)	LOEC (53.4 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Endocrine toxicity	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 2 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Biochemical (Biochemistry-Vitellogenin, Response Site: Plasma)	LOEC (53.4 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Endocrine toxicity	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 2 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Growth (Morphology-Weight, Response Site: Gonad(s))	NOEC (137 ug/L)	Reproductive/Teratogenic	High	10064182

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 2 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Biochemical (Biochemistry-Vitellogenin, Response Site: Plasma)	NOEC (20.0 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Endocrine toxicity	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 2 Male organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Biochemical (Biochemistry-Vitellogenin, Response Site: Plasma)	NOEC (20.0 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Endocrine toxicity	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Growth (Morphology-Stage, Response Site: Ovaries)	NR (137 ug/L)	Reproductive/Teratogenic	High	10064182
85-68-7	21 Day(s), (21 Day(s))	*Danio rerio* (Zebra Danio), Sexually mature, 105 Days post fertilization, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 8.88 ug/L / 20.0 ug/L / 53.4 ug/L / 137 ug/L	Reproduction (Reproduction-Fertilization, Response Site: Egg)	LOEC (20.0 ug/L)	Reproductive/Teratogenic	High	10064182

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	72 Hour(s), (72 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4-128 Cell stage, Not Reported, Laboratory (PURCHASED FROM THE ZEBRAFISH INTERNATIONAL RESOURCE CENTER (ZIRC) AT THE UNIVERSITY OF OREGON, EUGENE, OR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 ppm / 0 ppm / 0.01 ppm / 0.06 ppm / 0.30 ppm / 0.60 ppm / 1.50 ppm / 10.00 ppm / 50.00 ppm / 100.00 ppm / 500.00 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.72 ppm)	Mortality	Medium	2298079
85-68-7	18 Hour(s), (18 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM / 10 uM / 20 uM / 30 uM	Growth (Morphology-Normal, Response Site: Forebrain,Hindbrain,Lens,Midbrain,Otic vesicle,Retina)	NR (10-30 uM)	Development/Growth	Medium	4728379
85-68-7	18 Hour(s), (18 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM / 10 uM / 20 uM / 30 uM	Growth (Morphology-Angiogenesis, Response Site: Somite,Tail)	NR (10-30 uM)	Development/Growth	Medium	4728379
85-68-7	18 Hour(s), (18 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM / 10 uM / 20 uM / 30 uM	Growth (Development-Deformation, Response Site: Not reported)	NR (10-30 uM)	Development/Growth	Medium	4728379
85-68-7	18 Hour(s), (18 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM / 10 uM / 20 uM / 30 uM	Cellular (Histology-Disorganization, Response Site: Somite)	NR (20-30 uM)	Mechanistic: Cell signaling/function; Cytotoxicity; Cardiovascular; Musculoskeletal	Medium	4728379

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	18 Hour(s), (18 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM / 10 uM / 20 uM / 30 uM	Cellular (Histology-Histological changes, general, Response Site: Somite)	NR (20-30 uM)	Mechanistic: Cell signaling/function; Cytotoxicity; Cardiovascular; Musculoskeletal	Medium	4728379
85-68-7	18 Hour(s), (18 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM / 10 uM / 20 uM / 30 uM	Cellular (Histology-Necrosis, Response Site: Cell)	NR (10-30 uM)	Mechanistic: Cell signaling/function; Cytotoxicity; Cardiovascular; Musculoskeletal	Medium	4728379
85-68-7	20 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Cellular (Genetics-T-box 5a mRNA, Response Site: Not reported)	NOEC (0.6 mg/L)	Mechanistic: Cell signaling/function; Cardiovascular	Medium	5490285
85-68-7	20 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Cellular (Genetics-Homeobox protein Nkx-2.5 mRNA, Response Site: Not reported)	NOEC (0.6 mg/L)	Mechanistic: Cell signaling/function; Cardiovascular	Medium	5490285
85-68-7	20 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Cellular (Genetics-Homeobox protein Nkx-2.5 mRNA, Response Site: Not reported)	LOEC (1.2 mg/L)	Mechanistic: Cell signaling/function; Cardiovascular	Medium	5490285
85-68-7	20 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Cellular (Genetics-T-box 5a mRNA, Response Site: Not reported)	LOEC (1.2 mg/L)	Mechanistic: Cell signaling/function; Cardiovascular	Medium	5490285
85-68-7	20 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (1.2 mg/L)	Mortality	Medium	5490285

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	44 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	LOEC (1.2 mg/L)	Mortality	Medium	5490285
85-68-7	44 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (0.6 mg/L)	Mortality	Medium	5490285
85-68-7	68 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Mortality (Mortality-Hatch, Response Site: Not reported)	NOEC (0.6 mg/L)	Mortality	Medium	5490285
85-68-7	68 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Growth (Morphology-Length, Response Site: Heart)	NOEC (0.1 mg/L)	Development/Growth	Medium	5490285
85-68-7	68 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Cellular (Genetics-Homeobox protein Nkx-2.5 mRNA, Response Site: Not reported)	LOEC (0.1 mg/L)	Mechanistic: Cell signaling/function; Cardiovascular	Medium	5490285
85-68-7	68 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Physiology (Physiology-Heart rate, Response Site: Heart)	NOEC (0.1 mg/L)	Development/Growth	Medium	5490285
85-68-7	68 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (0.6 mg/L)	Mortality	Medium	5490285

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	68 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	LOEC (1.2 mg/L)	Mortality	Medium	5490285
85-68-7	68 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Growth (Morphology-Abnormal, Response Site: Heart)	NOEC (0.1 mg/L)	Development/Growth	Medium	5490285
85-68-7	68 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Mortality (Mortality-Hatch, Response Site: Not reported)	LOEC (1.2 mg/L)	Mortality	Medium	5490285
85-68-7	68 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Physiology (Physiology-Heart rate, Response Site: Heart)	LOEC (0.6 mg/L)	Development/Growth	Medium	5490285
85-68-7	68 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Growth (Morphology-Length, Response Site: Heart)	LOEC (0.6 mg/L)	Development/Growth	Medium	5490285
85-68-7	68 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Growth (Morphology-Abnormal, Response Site: Not reported)	LOEC (0.6 mg/L)	Development/Growth	Medium	5490285
85-68-7	68 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Growth (Morphology-Abnormal, Response Site: Heart)	LOEC (0.6 mg/L)	Development/Growth	Medium	5490285

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	68 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Cellular (Genetics-T-box 5a mRNA, Response Site: Not reported)	LOEC (0.1 mg/L)	Mechanistic: Cell signaling/function; Cardiovascular	Medium	5490285
85-68-7	68 Hour(s), (68 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L / 0.6 mg/L / 1.2 mg/L	Growth (Morphology-Abnormal, Response Site: Not reported)	NOEC (0.1 mg/L)	Development/Growth	Medium	5490285
85-68-7	4 Week(s), (4 Week(s))	*Fundulus heteroclitus* (Mummichog), Not reported, Both, Wild (COLLECTED FROM MILFORD POINT ESTUARY, LONG ISLAND SOUND)	Salt water, Aqueous (aquatic habitat), Renewal, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.1 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR (0.1 mg/L)	Mortality	Medium	1935997
85-68-7	4 Week(s), (4 Week(s))	*Fundulus heteroclitus* (Mummichog), Not reported, Both, Wild (COLLECTED FROM MILFORD POINT ESTUARY, LONG ISLAND SOUND)	Salt water, Aqueous (aquatic habitat), Renewal, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.1 mg/L	Growth (Growth-Length, Response Site: Whole organism)	NOEC (0.1 mg/L)	Development/Growth	Medium	1935997
85-68-7	4 Week(s), (4 Week(s))	*Fundulus heteroclitus* (Mummichog), Not reported, Both, Wild (COLLECTED FROM MILFORD POINT ESTUARY, LONG ISLAND SOUND)	Salt water, Aqueous (aquatic habitat), Renewal, 20 Organism	Chemical analysis reported	0 mg/L / 0 mg/L / 0.1 mg/L	Behavior (Behavior-Aggression, Response Site: Not reported)	LOEC (0.1 mg/L)	Behavioral	Medium	1935997

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	4 Week(s), (4 Week(s))	*Fundulus heteroclitus* (Mummichog), Not reported, Both, Wild (COLLECTED FROM MILFORD POINT ESTUARY, LONG ISLAND SOUND)	Salt water, Aqueous (aquatic habitat), Renewal, 53 Organism	Chemical analysis reported	0 mg/L / 0 mg/L / 0.1 mg/L	Behavior (Behavior-Social activity, Response Site: Not reported)	LOEC (0.1 mg/L)	Behavioral	Medium	1935997
85-68-7	4 Week(s), (4 Week(s))	*Fundulus heteroclitus* (Mummichog), Not reported, Both, Wild (COLLECTED FROM MILFORD POINT ESTUARY, LONG ISLAND SOUND)	Salt water, Aqueous (aquatic habitat), Renewal, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.1 mg/L	Growth (Growth-Weight, Response Site: Whole organism)	LOEC (0.1 mg/L)	Development/Growth	Medium	1935997
85-68-7	4 Week(s), (4 Week(s))	*Fundulus heteroclitus* (Mummichog), Not reported, Both, Wild (COLLECTED FROM MILFORD POINT ESTUARY, LONG ISLAND SOUND)	Salt water, Aqueous (aquatic habitat), Renewal, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.1 mg/L	Growth (Morphology-Organ weight in relationship to body weight, Response Site: Not reported)	LOEC (0.1 mg/L)	Development/Growth	Medium	1935997
85-68-7	4 Week(s), (4 Week(s))	*Fundulus heteroclitus* (Mummichog), Not reported, Both, Wild (COLLECTED FROM MILFORD POINT ESTUARY, LONG ISLAND SOUND)	Salt water, Aqueous (aquatic habitat), Renewal, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.1 mg/L	Population (Population-Sex ratio, Response Site: Not reported)	NOEC (0.1 mg/L)	Reproductive/Teratogenic	Medium	1935997

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	26 Day(s), (26 Day(s))	*Gasterosteus aculeatus* (Three-spine Stickle-back), Not re-ported, Both, Wild (COLLECTED FROM KIND-SETHTJONNA LAKE, SOR-TRONDELAG COUNTY, NOR-WAY)	Fresh water, Aque-ous (aquatic habi-tat), Renewal, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L	Behavior (Behavior-Aggregation/Clumping, Response Site: Not reported)	LOEC (0.1 mg/L)	Behavioral	Medium	789690
85-68-7	26 Day(s), (26 Day(s))	*Gasterosteus aculeatus* (Three-spine Stickle-back), Not re-ported, Both, Wild (COLLECTED FROM KIND-SETHTJONNA LAKE, SOR-TRONDELAG COUNTY, NOR-WAY)	Fresh water, Aque-ous (aquatic habi-tat), Renewal, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L	Behavior (Behavior-Aggregation/Clumping, Response Site: Not reported)	NOEC (0.1 mg/L)	Behavioral	Medium	789690
85-68-7	26 Day(s), (26 Day(s))	*Gasterosteus aculeatus* (Three-spine Stickle-back), Not re-ported, Both, Wild (COLLECTED FROM KIND-SETHTJONNA LAKE, SOR-TRONDELAG COUNTY, NOR-WAY)	Fresh water, Aque-ous (aquatic habi-tat), Renewal, Not Reported	Unmeasured	0 mg/L / 0.1 mg/L	Accumulation (Accumulation-Residue, Re-sponse Site: Whole organ-ism)	NR (0.1 mg/L)	ADME (biotrans-formation)	Medium	789690

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	31 Day(s), (66 Day(s))	*Gasteros-teus aculeatus* (Threespine Stickleback), Not reported, Not Reported, Wild (LAKE MYRDALSVAT-NET, NORWAY)	Fresh water, Aque-ous (aquatic habi-tat), Renewal, Not Reported	Unmeasured	0 ug/L / 10 ug/L / 100 ug/L	Mortality (Mortality-Mortality, Re-sponse Site: Not reported)	NR (10-100 ug/L)	Mortality	Uninformative	789532
85-68-7	66 Day(s), (66 Day(s))	*Gasteros-teus aculeatus* (Threespine Stickleback), Not reported, Not Reported, Wild (LAKE MYRDALSVAT-NET, NORWAY)	Fresh water, Aque-ous (aquatic habi-tat), Renewal, Not Reported	Unmeasured	0 ug/L / 10 ug/L / 100 ug/L	Accumulation (Accumulation-Residue, Re-sponse Site: Not reported)	NR (10 ug/L)	ADME (biotrans-formation)	Uninformative	789532
85-68-7	66 Day(s), (66 Day(s))	*Gasteros-teus aculeatus* (Threespine Stickleback), Not reported, Not Reported, Wild (LAKE MYRDALSVAT-NET, NORWAY)	Fresh water, Aque-ous (aquatic habi-tat), Renewal, Not Reported	Unmeasured	0 ug/L / 10 ug/L / 100 ug/L	Behavior (Feeding behavior-Food consumption, Response Site: Not reported)	NOEC (10 ug/L)	Behavioral	Medium	789532
85-68-7	66 Day(s), (66 Day(s))	*Gasteros-teus aculeatus* (Threespine Stickleback), Not reported, Not Reported, Wild (LAKE MYRDALSVAT-NET, NORWAY)	Fresh water, Aque-ous (aquatic habi-tat), Renewal, Not Reported	Unmeasured	0 ug/L / 10 ug/L / 100 ug/L	Behavior (Feeding behavior-Feeding behavior, Re-sponse Site: Not reported)	NOEC (100 ug/L)	Behavioral	Medium	789532

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	66 Day(s), (66 Day(s))	*Gasterosteus aculeatus* (Threespine Stickleback), Not reported, Not Reported, Wild (LAKE MYRDALSVATNET, NORWAY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L / 10 ug/L / 100 ug/L	Behavior (Feeding behavior-Food consumption, Response Site: Not reported)	LOEC (100 ug/L)	Behavioral	Medium	789532
85-68-7	1-21 Day(s), (21 Day(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (COMMERCIAL FISH FARMERS IN CONNECTICUT AND NEBRASKA)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 ug/L / 9.73 ug/L	Accumulation (Accumulation-Residue, Response Site: Whole organism)	BCF (9.73 ug/L)	ADME (biotransformation)	Medium	18050
85-68-7	24 Hour(s), (96 Hour(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN CONNECTICUT)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (3.6 (2.8-4.6) mg/L)	Mortality	Medium	2140000
85-68-7	24 Hour(s), (96 Hour(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN CONNECTICUT)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (1.7 mg/L)	Mortality	Medium	2140000

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (96 Hour(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN CONNECTICUT)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.7 (1.0-2.8) mg/L)	Mortality	Medium	2140000
85-68-7	48 Hour(s), (96 Hour(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN CONNECTICUT)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-LETH (2.8 mg/L)	Mortality	Medium	2140000
85-68-7	72 Hour(s), (96 Hour(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN CONNECTICUT)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.7 (1.0-2.8) mg/L)	Mortality	Medium	2140000
85-68-7	24-96 Hour(s), (96 Hour(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN CONNECTICUT)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Physiology (Physiology-Physiology, general,Pigmentation,Respiration, Response Site: Not reported)	NR (0.36-7.8 mg/L)	Skin and Connective Tissue	Uninformative	2140000

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN CONNECTICUT)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.7 (1.0-2.8) mg/L)	Mortality	Medium	2140000
85-68-7	24-96 Hour(s), (96 Hour(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN CONNECTICUT)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Physiology (Physiology-Physiology, general,Pigmentation,Respiration, Response Site: Not reported)	NR (0.36-7.8 mg/L)	Respiratory	Uninformative	2140000
85-68-7	24-96 Hour(s), (96 Hour(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN CONNECTICUT)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Behavior (Behavior-Activity, general,Equilibrium,Behavioral changes, general, Response Site: Not reported)	NR (0.36-7.8 mg/L)	Behavioral	Uninformative	2140000
85-68-7	24-96 Hour(s), (96 Hour(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN CONNECTICUT)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Growth (Morphology-General morphological changes, Response Site: Not reported)	NR (0.36-7.8 mg/L)	Development/Growth	Uninformative	2140000

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (96 Hour(s))	*Lepomis macrochirus* (Bluegill), Young of year, Not Reported, Laboratory (FROM COMMERCIAL FISH SUPPLIERS WITHIN THE CONTINENTAL UNITED STATES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	NR / NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (62 AI mg/L)	Mortality	Medium	18064
85-68-7	96 Hour(s), (96 Hour(s))	*Lepomis macrochirus* (Bluegill), Young of year, Not Reported, Laboratory (FROM COMMERCIAL FISH SUPPLIERS WITHIN THE CONTINENTAL UNITED STATES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	NR / NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (43 (38-52) AI mg/L)	Mortality	Medium	18064
85-68-7	3.27 Day(s), (3.27 Day(s))	*Lepomis macrochirus* (Bluegill), <1 Year(s), Not Reported, Laboratory (OSAGE CATFISHERIES, OSAGE BEACH, MO, USA)	Fresh water, Aqueous (aquatic habitat), Flow-through, 8 Organism	Measured	0 mg/L / 0.034 (0.034-0.081) mg/L	Accumulation (Accumulation-Residue, Response Site: Whole organism)	BCF (0.034 mg/L)	ADME (biotransformation)	High	1359448
85-68-7	3.27 Day(s), (3.27 Day(s))	*Lepomis macrochirus* (Bluegill), <1 Year(s), Not Reported, Laboratory (OSAGE CATFISHERIES, OSAGE BEACH, MO, USA)	Fresh water, Aqueous (aquatic habitat), Flow-through, 16 Organism	Measured	0 mg/L / 0.034 (0.034-0.081) mg/L	Accumulation (Accumulation-Residue, Response Site: Fin,Head,Internal body parts,Viscera)	BCF (0.06 mg/L)	ADME (biotransformation)	High	1359448

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	3.27 Day(s), (3.27 Day(s))	*Lepomis macrochirus* (Bluegill), <1 Year(s), Not Reported, Laboratory (OSAGE CATFISHERIES, OSAGE BEACH, MO, USA)	Fresh water, Aqueous (aquatic habitat), Flow-through, 16 Organism	Measured	0 mg/L / 0.034 (0.034-0.081) mg/L	Accumulation (Accumulation-Residue, Response Site: Muscle,Skin, epidermis,Skeleton)	BCF (0.06 mg/L)	ADME (biotransformation)	High	1359448
85-68-7	3.27 Day(s), (3.27 Day(s))	*Lepomis macrochirus* (Bluegill), <1 Year(s), Not Reported, Laboratory (OSAGE CATFISHERIES, OSAGE BEACH, MO, USA)	Fresh water, Aqueous (aquatic habitat), Flow-through, 8 Organism	Measured	0 mg/L / 0.034 (0.034-0.081) mg/L	Accumulation (Accumulation-Residue, Response Site: Whole organism)	BCF (0.06 mg/L)	ADME (biotransformation)	High	1359448
85-68-7	3.27 Day(s), (3.27 Day(s))	*Lepomis macrochirus* (Bluegill), <1 Year(s), Not Reported, Laboratory (OSAGE CATFISHERIES, OSAGE BEACH, MO, USA)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0.034 (0.034-0.081) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (0.034 (0.034-0.081) mg/L)	Mortality	High	1359448
85-68-7	3.27 Day(s), (3.27 Day(s))	*Lepomis macrochirus* (Bluegill), <1 Year(s), Not Reported, Laboratory (OSAGE CATFISHERIES, OSAGE BEACH, MO, USA)	Fresh water, Aqueous (aquatic habitat), Flow-through, 16 Organism	Measured	0 mg/L / 0.034 (0.034-0.081) mg/L	Accumulation (Accumulation-Residue, Response Site: Fin,Head,Internal body parts,Viscera)	BCF (0.034 mg/L)	ADME (biotransformation)	High	1359448

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	3.27 Day(s), (3.27 Day(s))	*Lepomis macrochirus* (Bluegill), <1 Year(s), Not Reported, Laboratory (OSAGE CATFISHERIES, OSAGE BEACH, MO, USA)	Fresh water, Aqueous (aquatic habitat), Flow-through, 16 Organism	Measured	0 mg/L / 0.034 (0.034-0.081) mg/L	Accumulation (Accumulation-Residue, Response Site: Muscle,Skin, epidermis,Skeleton)	BCF (0.034 mg/L)	ADME (biotransformation)	High	1359448
85-68-7	7 Day(s), (21 Day(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (OSAGE CATFISHERIES IN MISSOURI)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 ug/L / 2.62 (2.23-2.82) ug/L	Accumulation (Accumulation-Residue, Response Site: Whole organism)	BCF (2.62 (2.23-2.82) ug/L)	ADME (biotransformation)	Medium	1359250
85-68-7	7 Day(s), (21 Day(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (OSAGE CATFISHERIES IN MISSOURI)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 ug/L / 23.11 (3.2-35.3) ug/L	Accumulation (Accumulation-Residue, Response Site: Whole organism)	BCF (23.11 (3.2-35.3) ug/L)	ADME (biotransformation)	Medium	1359250
85-68-7	7 Day(s), (21 Day(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (OSAGE CATFISHERIES IN MISSOURI)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 ug/L / 208.08 (26-278) ug/L	Accumulation (Accumulation-Residue, Response Site: Whole organism)	BCF (208.08 (26-278) ug/L)	ADME (biotransformation)	Medium	1359250
85-68-7	17 Day(s), (38 Day(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (OSAGE CATFISHERIES IN MISSOURI)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 ug/L / 2.96 (2.30-4.19) ug/L	Accumulation (Accumulation-Residue, Response Site: Whole organism)	BCF (2.96 (2.30-4.19) ug/L)	ADME (biotransformation)	Medium	1359250

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	17 Day(s), (38 Day(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (OSAGE CATFISHERIES IN MISSOURI)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 ug/L / 2.96 (2.30-4.19) ug/L	Accumulation (Accumulation-Residue, Response Site: Viscera)	BCF (2.96 (2.30-4.19) ug/L)	ADME (biotransformation)	Medium	1359250
85-68-7	17 Day(s), (38 Day(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (OSAGE CATFISHERIES IN MISSOURI)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 ug/L / 2.96 (2.30-4.19) ug/L	Accumulation (Accumulation-Residue, Response Site: Muscle)	BCF (2.96 (2.30-4.19) ug/L)	ADME (biotransformation)	Medium	1359250
85-68-7	21 Day(s), (38 Day(s))	*Lepomis macrochirus* (Bluegill), Not reported, Not Reported, Laboratory (OSAGE CATFISHERIES IN MISSOURI)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 ug/L / 2.96 (2.30-4.19) ug/L	Accumulation (Accumulation-Residue, Response Site: Whole organism)	BCF (2.96 (2.30-4.19) ug/L)	ADME (biotransformation)	Medium	1359250
85-68-7	96 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Juvenile, Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (0.48 mg/L)	Mortality	High	1321996
85-68-7	96 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Juvenile, Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.82 mg/L)	Mortality	High	1321996
85-68-7	24 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN WASHINGTON)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.2 mg/L / 2.8 mg/L / 4.6 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (4.8 mg/L)	Mortality	Medium	2139998

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN WASHINGTON)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.2 mg/L / 2.8 mg/L / 4.6 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (3.3 (2.9-3.9) mg/L)	Mortality	Medium	2139998
85-68-7	48 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN WASHINGTON)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.2 mg/L / 2.8 mg/L / 4.6 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-LETH (4.6 mg/L)	Mortality	Medium	2139998
85-68-7	72 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN WASHINGTON)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.2 mg/L / 2.8 mg/L / 4.6 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (3.3 (2.9-3.9) mg/L)	Mortality	Medium	2139998
85-68-7	96 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN WASHINGTON)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.2 mg/L / 2.8 mg/L / 4.6 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (3.3 (2.9-3.9) mg/L)	Mortality	Medium	2139998

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24-96 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN WASHINGTON)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.2 mg/L / 2.8 mg/L / 4.6 mg/L	Physiology (Physiology-Pigmentation, Response Site: Not reported)	NR (0.36-4.6 mg/L)	Skin and Connective Tissue	Uninformative	2139998
85-68-7	24-96 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN WASHINGTON)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.36 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.2 mg/L / 2.8 mg/L / 4.6 mg/L	Behavior (Behavior-Activity, general,Equilibrium,Behavioral changes, general, Response Site: Not reported)	NR (0.36-4.6 mg/L)	Behavioral	Uninformative	2139998
85-68-7	24 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (OBTAINED FROM COMMERCIAL FISH SUPPLIERS IN MARYLAND AND MONTANA)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.016 mg/L / 0.17 (0.085-0.25) mg/L / 0.28 (0.10-0.49) mg/L / 0.48 (0.24-0.75) mg/L / 1.4 (1.3-1.5) mg/L / 3.1 (2.5-4.2) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.82 (0.48-1.4) mg/L)	Mortality	High	5530771
85-68-7	24 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (OBTAINED FROM COMMERCIAL FISH SUPPLIERS IN MARYLAND AND MONTANA)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.016 mg/L / 0.17 (0.085-0.25) mg/L / 0.28 (0.10-0.49) mg/L / 0.48 (0.24-0.75) mg/L / 1.4 (1.3-1.5) mg/L / 3.1 (2.5-4.2) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-LETH (1.4 (1.3-1.5) mg/L)	Mortality	High	5530771

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (OBTAINED FROM COMMERCIAL FISH SUPPLIERS IN MARYLAND AND MONTANA)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.016 mg/L / 0.17 (0.085-0.25) mg/L / 0.28 (0.10-0.49) mg/L / 0.48 (0.24-0.75) mg/L / 1.4 (1.3-1.5) mg/L / 3.1 (2.5-4.2) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.82 (0.48-1.4) mg/L)	Mortality	High	5530771
85-68-7	72 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (OBTAINED FROM COMMERCIAL FISH SUPPLIERS IN MARYLAND AND MONTANA)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.016 mg/L / 0.17 (0.085-0.25) mg/L / 0.28 (0.10-0.49) mg/L / 0.48 (0.24-0.75) mg/L / 1.4 (1.3-1.5) mg/L / 3.1 (2.5-4.2) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.82 (0.48-1.4) mg/L)	Mortality	High	5530771
85-68-7	96 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (OBTAINED FROM COMMERCIAL FISH SUPPLIERS IN MARYLAND AND MONTANA)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.016 mg/L / 0.17 (0.085-0.25) mg/L / 0.28 (0.10-0.49) mg/L / 0.48 (0.24-0.75) mg/L / 1.4 (1.3-1.5) mg/L / 3.1 (2.5-4.2) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (0.48 (0.24-0.75) mg/L)	Mortality	High	5530771

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (OBTAINED FROM COMMERCIAL FISH SUPPLIERS IN MARYLAND AND MONTANA)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.016 mg/L / 0.17 (0.085-0.25) mg/L / 0.28 (0.10-0.49) mg/L / 0.48 (0.24-0.75) mg/L / 1.4 (1.3-1.5) mg/L / 3.1 (2.5-4.2) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (0.28 (0.10-0.49) mg/L)	Mortality	High	5530771
85-68-7	15 Day(s), (124 Day(s))	*Oncorhynchus mykiss* (Rainbow Trout), Eyed egg or stage, eyed embryo, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 mg/L / 0.021 mg/L / 0.044 mg/L / 0.095 mg/L / 0.20 mg/L	Mortality (Mortality-Hatch, Response Site: Not reported)	NR (0.012-0.20 mg/L)	Mortality	High	680120
85-68-7	124 Day(s), (124 Day(s))	*Oncorhynchus mykiss* (Rainbow Trout), Eyed egg or stage, eyed embryo, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 mg/L / 0.021 mg/L / 0.044 mg/L / 0.095 mg/L / 0.20 mg/L	Growth (Growth-Growth, general, Response Site: Whole organism)	NOEC (0.20 mg/L)	Development/Growth	High	680120
85-68-7	124 Day(s), (124 Day(s))	*Oncorhynchus mykiss* (Rainbow Trout), Eyed egg or stage, eyed embryo, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 mg/L / 0.021 mg/L / 0.044 mg/L / 0.095 mg/L / 0.20 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (0.20 mg/L)	Mortality	High	680120
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 3 Male organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Cellular (Histology-Histological changes, general,Inflammation, Response Site: Gonad(s),Liver,Thyroid)	NR (99.5 ug/L)	Reproductive/Teratogenic	High	10064181

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Male organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Growth (Growth-Length, Response Site: Whole organism)	LOEC (35.8 ug/L)	Development/Growth	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Reproduction (Reproduction-Fertilization, Response Site: Egg)	LOEC (5.91 ug/L)	Reproductive/Teratogenic	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Growth (Growth-Length, Response Site: Whole organism)	LOEC (99.5 ug/L)	Development/Growth	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 3 Male organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Reproduction (Reproduction-Spermatigonia, Response Site: Gonad(s))	LOEC (99.5 ug/L)	Reproductive/Teratogenic	High	10064181

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Growth (Growth-Weight, Response Site: Whole organism)	NOEC (99.5 ug/L)	Development/Growth	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 3 Male organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Growth (Development-Sexual development, Response Site: Not reported)	NR (5.91-99.5 ug/L)	Development/Growth	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Growth (Growth-Length, Response Site: Whole organism)	NOEC (35.8 ug/L)	Development/Growth	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Reproduction (Reproduction-Fecundity, Response Site: Not reported)	NOEC (5.91 ug/L)	Reproductive/Teratogenic	High	10064181

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 2 Female organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Cellular (Genetics-Vitellogenin mRNA, Response Site: Liver)	NOEC (99.5 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Endocrine toxicity	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 2 Male organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Cellular (Genetics-Vitellogenin mRNA, Response Site: Liver)	NOEC (99.5 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Endocrine toxicity	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 2 Female organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Growth (Morphology-Organ weight in relationship to body weight, Response Site: Gonad(s))	NOEC (99.5 ug/L)	Development/Growth	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Reproduction (Reproduction-Fecundity, Response Site: Not reported)	LOEC (14.4 ug/L)	Reproductive/Teratogenic	High	10064181

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 2 Male organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Growth (Morphology-Organ weight in relationship to body weight, Response Site: Gonad(s))	NOEC (99.5 ug/L)	Development/Growth	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Male organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Growth (Morphology-Weight, Response Site: Gonad(s))	NOEC (99.5 ug/L)	Development/Growth	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 3 Female organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Growth (Development-Sexual development, Response Site: Not reported)	NR (5.91-99.5 ug/L)	Development/Growth	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA Female organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Growth (Development-Sexual development, Response Site: Not reported)	NR (99.5 ug/L)	Development/Growth	High	10064181

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Male organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Growth (Growth-Weight, Response Site: Whole organism)	NR (5.91-99.5 ug/L)	Development/Growth	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both, Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 10 Organism	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (99.5 ug/L)	Mortality	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 3 Female organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Cellular (Histology-Atresia,Degeneration,Fibrosis,Histological changes, general,Inflammation,Vacuolization, Response Site: Gonad(s),Liver,Oocyte,Thyroid)	NR (99.5 ug/L)	Reproductive/Teratogenic	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Male organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Physiology (Injury-Papilloma, wart, Response Site: Fin)	NOEC (99.5 ug/L)	Reproductive/Teratogenic	High	10064181

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Physiology (Injury-Papilloma, wart, Response Site: Fin)	NOEC (99.5 ug/L)	Reproductive/Teratogenic	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Cellular (Genetics-Sex expression change, Response Site: Not reported)	NR (5.91-99.5 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Endocrine toxicity	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA Male organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Growth (Development-Sexual development, Response Site: Not reported)	NR (99.5 ug/L)	Development/Growth	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Male organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Cellular (Genetics-Sex expression change, Response Site: Not reported)	NR (5.91-99.5 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Endocrine toxicity	High	10064181

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Female organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Female organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Growth (Morphology-Weight, Response Site: Gonad(s))	NOEC (99.5 ug/L)	Development/Growth	High	10064181
85-68-7	21 Day(s), (21 Day(s))	*Oryzias latipes* (Japanese Medaka), Sexually mature, 16 Weeks post-hatch, Both (Measured in: Male organisms), Laboratory (IN-HOUSE CULTURES AT FEL)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Male organisms	Measured	<0.147 ug/L / 5.91 ug/L / 14.4 ug/L / 35.8 ug/L / 99.5 ug/L	Growth (Growth-Length, Response Site: Whole organism)	NOEC (14.4 ug/L)	Development/Growth	High	10064181
85-68-7	24 Hour(s), (24 Hour(s))	*Oryzias melastigma* (Indian Medaka), Embryo, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 ppm / 0 ppm / 1.50 ppm	Biochemical (Hormone(s)-Estrogen (Oestrogen), Response Site: Liver)	NR (1.50 ppm)	Mechanistic: Biomarkers (exposure and effect); Receptor binding/ regulation of receptor activity; Endocrine toxicity; Reproductive/Teratogenic	Medium	2298079
85-68-7	96 Hour(s), (192 Hour(s))	*Parophrys vetulus* (English Sole), Young of year, Not Reported, Wild (COLLECTED FROM THE YAQUINA BAY ESTUARY AT NEWPORT, OR.)	Salt water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 mg/L / 0.130 mg/L / 0.216 mg/L / 0.6 mg/L / 1.0 mg/L / 1.5 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.66 (0.53-0.84) mg/L)	Mortality	High	1337257

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (192 Hour(s))	*Parophrys vetulus* (English Sole), Young of year, Not Reported, Wild (COLLECTED FROM THE YAQUINA BAY ESTUARY AT NEWPORT, OR.)	Salt water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 mg/L / 0.130 mg/L / 0.216 mg/L / 0.6 mg/L / 1.0 mg/L / 1.5 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LETC (0.45 mg/L)	Mortality	High	1337257
85-68-7	96 Hour(s), (192 Hour(s))	*Parophrys vetulus* (English Sole), Young of year, Not Reported, Wild (COLLECTED FROM THE YAQUINA BAY ESTUARY AT NEWPORT, OR.)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Unmeasured	0 ppm / 0.130 ppm / 0.216 ppm / 0.36 ppm / 0.60 ppm / 1.0 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.55 (0.48-0.64) mg/L)	Mortality	High	1337257
85-68-7	96 Hour(s), (192 Hour(s))	*Parophrys vetulus* (English Sole), Young of year, Not Reported, Wild (COLLECTED FROM THE YAQUINA BAY ESTUARY AT NEWPORT, OR.)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Unmeasured	0 ppm / 0.130 ppm / 0.216 ppm / 0.36 ppm / 0.60 ppm / 1.0 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LETC (0.30 mg/L)	Mortality	High	1337257
85-68-7	19 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: F0 generation), Both, Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA F0 generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Reproduction (Reproduction-Hatch, Response Site: Not reported)	NOEL (64.6 ug/L)	Reproductive/Teratogenic	High	5353208

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: F0 generation), Both, Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA F0 generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEL (64.6 ug/L)	Reproductive/Teratogenic	High	5353208
85-68-7	21 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: F0 generation), Both, Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA F0 generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (18.1 ug/L)	Mortality	High	5353208
85-68-7	21 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: F0 generation), Both, Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA F0 generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Reproduction (Reproduction-Fecundity, Response Site: Not reported)	NOEL (64.6 ug/L)	Reproductive/Teratogenic	High	5353208
85-68-7	21 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: F0 generation), Both, Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA F0 generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Reproduction (Reproduction-Fertilization, Response Site: Not reported)	NOEL (64.6 ug/L)	Reproductive/Teratogenic	High	5353208

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: F0 generation), Both, Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA F0 generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Reproduction (Reproduction-Mean spawns per female, Response Site: Not reported)	NOEL (64.6 ug/L)	Reproductive/Teratogenic	High	5353208
85-68-7	21 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: F0 generation), Both, Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA F0 generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEL (64.6 ug/L)	Mortality	High	5353208
85-68-7	39 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: Fry), Both, Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA Fry	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEL (64.6-67.5 ug/L)	Mortality	High	5353208

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	~137 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: female, 1st generation), Both (Measured in: female, 1st generation), Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA female, 1st generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Biochemical (Biochemistry-Vitellogenin, Response Site: Plasma)	NOEL (64.6-67.5 ug/L)	Mechanistic: Biomarkers (exposure and effect)	High	5353208
85-68-7	~137 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: male, 1st generation), Both (Measured in: male, 1st generation), Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA male, 1st generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Biochemical (Biochemistry-Vitellogenin, Response Site: Plasma)	NOEL (64.6-67.5 ug/L)	Mechanistic: Biomarkers (exposure and effect)	High	5353208
85-68-7	152 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: F1 generation), Both, Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA F1 generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEL (64.6-67.5 ug/L)	Mortality	High	5353208

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	164 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: female, 1st generation), Both (Measured in: female, 1st generation), Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA female, 1st generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Cellular (Histology-Histological changes, general, Response Site: Not reported)	NR (18.1-67.5 ug/L)	Reproductive/Teratogenic	High	5353208
85-68-7	164 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: male, 1st generation), Both (Measured in: male, 1st generation), Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA male, 1st generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Growth (Growth-Weight, Response Site: Whole organism)	NOEL (64.6-67.5 ug/L)	Development/Growth	High	5353208
85-68-7	164 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: male, 1st generation), Both (Measured in: male, 1st generation), Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA male, 1st generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Growth (Growth-Length, Response Site: Whole organism)	NOEL (64.6-67.5 ug/L)	Development/Growth	High	5353208

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	164 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: male, 1st generation), Both (Measured in: male, 1st generation), Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA male, 1st generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Cellular (Histology-Histological changes, general, Response Site: Not reported)	NR (18.1-67.5 ug/L)	Reproductive/Teratogenic	High	5353208
85-68-7	164 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: female, 1st generation), Both (Measured in: female, 1st generation), Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA female, 1st generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Growth (Growth-Weight, Response Site: Whole organism)	NOEL (64.6-67.5 ug/L)	Development/Growth	High	5353208
85-68-7	164 Day(s), (164 Day(s))	*Pimephales promelas* (Fathead Minnow), Sexually mature, 4 Month(s) (Measured in: female, 1st generation), Both (Measured in: female, 1st generation), Laboratory (FROM IN HOUSE CULTURES)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA female, 1st generation	Measured	0 ug/L / 0 ug/L / 18.1 ug/L / 64.6-67.5 ug/L	Growth (Growth-Length, Response Site: Whole organism)	NOEL (64.6-67.5 ug/L)	Development/Growth	High	5353208

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Juvenile, Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.50 mg/L)	Mortality	High	1321996
85-68-7	96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Juvenile, Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (0.78 mg/L)	Mortality	High	1321996
85-68-7	96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Juvenile, Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (0.44 mg/L)	Mortality	High	1321996
85-68-7	96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Juvenile, Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>0.78 mg/L)	Mortality	High	1321996
85-68-7	24 Hour(s), (24 Hour(s))	*Pimephales promelas* (Fathead Minnow), Larva, 5 Days post fertilization, Not Reported, Laboratory (ON-SITE BREEDING CULTURE AT THE U.S. EPA ANDREW W. BREIDENBACH ENVIRONMENTAL RESEARCH CENTER (AWBERC) IN CINCINNATI, OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	0 mg/L / 0 mg/L / 0.0027-0.0030 mg/L / 0.0064-0.0067 mg/L / 0.014-0.018 mg/L / 0.033-0.039 mg/L / 0.091-0.10 mg/L / 0.21 mg/L / 0.52 mg/L / 1.0 mg/L / 1.7 mg/L	Biochemical (Biochemistry-Metabolome, Response Site: Not reported)	BMD10 (0.12 mg/L)	Mechanistic: Cell signaling/function	High	11581733

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (24 Hour(s))	*Pimephales promelas* (Fathead Minnow), Larva, 5 Days post fertilization, Not Reported, Laboratory (ON-SITE BREEDING CULTURE AT THE U.S. EPA ANDREW W. BREIDENBACH ENVIRONMENTAL RESEARCH CENTER (AWBERC) IN CINCINNATI, OHIO)	Fresh water, Aqueous (aquatic habitat), Static, 13 Organism	Measured	0 mg/L / 0 mg/L / 0.0027-0.0030 mg/L / 0.0064-0.0067 mg/L / 0.014-0.018 mg/L / 0.033-0.039 mg/L / 0.091-0.10 mg/L / 0.21 mg/L / 0.52 mg/L / 1.0 mg/L / 1.7 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (1.0 mg/L)	Mortality	High	11581733
85-68-7	24 Hour(s), (24 Hour(s))	*Pimephales promelas* (Fathead Minnow), Larva, 5 Days post fertilization, Not Reported, Laboratory (ON-SITE BREEDING CULTURE AT THE U.S. EPA ANDREW W. BREIDENBACH ENVIRONMENTAL RESEARCH CENTER (AWBERC) IN CINCINNATI, OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	0 mg/L / 0 mg/L / 0.0027-0.0030 mg/L / 0.0064-0.0067 mg/L / 0.014-0.018 mg/L / 0.033-0.039 mg/L / 0.091-0.10 mg/L / 0.21 mg/L / 0.52 mg/L / 1.0 mg/L / 1.7 mg/L	Cellular (Genetics-Gene expression, Response Site: Not reported)	BMDL (0.06 mg/L)	Mechanistic: Cell signaling/function	High	11581733

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (24 Hour(s))	*Pimephales promelas* (Fathead Minnow), Larva, 5 Days post fertilization, Not Reported, Laboratory (ON-SITE BREEDING CULTURE AT THE U.S. EPA ANDREW W. BREIDENBACH ENVIRONMENTAL RESEARCH CENTER (AWBERC) IN CINCINNATI, OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	0 mg/L / 0 mg/L / 0.0027-0.0030 mg/L / 0.0064-0.0067 mg/L / 0.014-0.018 mg/L / 0.033-0.039 mg/L / 0.091-0.10 mg/L / 0.21 mg/L / 0.52 mg/L / 1.0 mg/L / 1.7 mg/L	Behavior (Behavior-Startle, Response Site: Not reported)	EC50 (0.09 mg/L)	Behavioral	High	11581733
85-68-7	24 Hour(s), (24 Hour(s))	*Pimephales promelas* (Fathead Minnow), Larva, 5 Days post fertilization, Not Reported, Laboratory (ON-SITE BREEDING CULTURE AT THE U.S. EPA ANDREW W. BREIDENBACH ENVIRONMENTAL RESEARCH CENTER (AWBERC) IN CINCINNATI, OHIO)	Fresh water, Aqueous (aquatic habitat), Static, 13 Organism	Measured	0 mg/L / 0 mg/L / 0.0027-0.0030 mg/L / 0.0064-0.0067 mg/L / 0.014-0.018 mg/L / 0.033-0.039 mg/L / 0.091-0.10 mg/L / 0.21 mg/L / 0.52 mg/L / 1.0 mg/L / 1.7 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LOEC (1.7 mg/L)	Mortality	High	11581733

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT EG AND G, BIONOMICS, WAREHAM, MASSACHUSETTS)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.0043 mg/L / <0.0037-0.23 mg/L / <0.0042-0.46 mg/L / <0.0037-0.86 mg/L / <0.0037-1.0 mg/L / <0.0037-1.6 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>1.6 mg/L)	Mortality	Uninformative	1316188
85-68-7	48 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT EG AND G, BIONOMICS, WAREHAM, MASSACHUSETTS)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.0043 mg/L / <0.0037-0.23 mg/L / <0.0042-0.46 mg/L / <0.0037-0.86 mg/L / <0.0037-1.0 mg/L / <0.0037-1.6 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>1.6 mg/L)	Mortality	Uninformative	1316188
85-68-7	72 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT EG AND G, BIONOMICS, WAREHAM, MASSACHUSETTS)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.0043 mg/L / <0.0037-0.23 mg/L / <0.0042-0.46 mg/L / <0.0037-0.86 mg/L / <0.0037-1.0 mg/L / <0.0037-1.6 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>1.6 mg/L)	Mortality	Uninformative	1316188

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT EG AND G, BIONOMICS, WAREHAM, MASSACHUSETTS)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.0043 mg/L / <0.0037-0.23 mg/L / <0.0042-0.46 mg/L / <0.0037-0.86 mg/L / <0.0037-1.0 mg/L / <0.0037-1.6 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (<0.0037-1.6 mg/L)	Mortality	Uninformative	1316188
85-68-7	96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT EG AND G, BIONOMICS, WAREHAM, MASSACHUSETTS)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.0043 mg/L / <0.0037-0.23 mg/L / <0.0042-0.46 mg/L / <0.0037-0.86 mg/L / <0.0037-1.0 mg/L / <0.0037-1.6 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>1.6 mg/L)	Mortality	Uninformative	1316188
85-68-7	24 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (EG AND G BIONOMICS, WAREHAM, MASSACHUSETTS)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.0074 mg/L / 0.075 (0.036-0.12) mg/L / 0.16 (0.063-0.30) mg/L / 0.44 (0.33-0.56) mg/L / 1.0 (0.91-1.1) mg/L / 2.4 (2.1-2.7) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.5 (1.3-1.9) mg/L)	Mortality	High	1316189

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (EG AND G BIONOMICS, WAREHAM, MASSACHUSETTS)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.0074 mg/L / 0.075 (0.036-0.12) mg/L / 0.16 (0.063-0.30) mg/L / 0.44 (0.33-0.56) mg/L / 1.0 (0.91-1.1) mg/L / 2.4 (2.1-2.7) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.5 (1.0-2.4) mg/L)	Mortality	High	1316189
85-68-7	72 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (EG AND G BIONOMICS, WAREHAM, MASSACHUSETTS)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.0074 mg/L / 0.075 (0.036-0.12) mg/L / 0.16 (0.063-0.30) mg/L / 0.44 (0.33-0.56) mg/L / 1.0 (0.91-1.1) mg/L / 2.4 (2.1-2.7) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.5 (1.0-2.4) mg/L)	Mortality	High	1316189
85-68-7	96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (EG AND G BIONOMICS, WAREHAM, MASSACHUSETTS)	Fresh water, Aqueous (aquatic habitat), Flow-through, 20 Organism	Measured	<0.0074 mg/L / 0.075 (0.036-0.12) mg/L / 0.16 (0.063-0.30) mg/L / 0.44 (0.33-0.56) mg/L / 1.0 (0.91-1.1) mg/L / 2.4 (2.1-2.7) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (0.44 (0.33-0.56) mg/L)	Mortality	High	1316189
85-68-7	96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (EG AND G BIONOMICS, WAREHAM, MASSACHUSETTS)	Fresh water, Aqueous (aquatic habitat), Flow-through, 20 Organism	Measured	<0.0074 mg/L / 0.075 (0.036-0.12) mg/L / 0.16 (0.063-0.30) mg/L / 0.44 (0.33-0.56) mg/L / 1.0 (0.91-1.1) mg/L / 2.4 (2.1-2.7) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LOEC (1.0 (0.91-1.1) mg/L)	Mortality	High	1316189

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.2 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (1.7 mg/L)	Mortality	Medium	2139996
85-68-7	24 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.2 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (3.3 (2.8-3.9) mg/L)	Mortality	Medium	2139996
85-68-7	48 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.2 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-LETH (4.6 mg/L)	Mortality	Medium	2139996
85-68-7	48 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.2 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (2.1 (1.7-2.5) mg/L)	Mortality	Medium	2139996

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	72 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.2 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (2.1 (1.7-2.5) mg/L)	Mortality	Medium	2139996
85-68-7	24-96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.2 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Physiology (Physiology-Physiology, general,Pigmentation, Response Site: Not reported)	NR (0.60-7.8 mg/L)	Skin and Connective Tissue	Uninformative	2139996
85-68-7	96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.2 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (2.1 (1.7-2.5) mg/L)	Mortality	Medium	2139996
85-68-7	24-96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.60 mg/L / 1.0 mg/L / 1.7 mg/L / 2.2 mg/L / 2.8 mg/L / 4.6 mg/L / 7.8 mg/L	Behavior (Behavior-Equilibrium,Behavioral changes, general,Swimming, Response Site: Not reported)	NR (0.60-7.8 mg/L)	Behavioral	Uninformative	2139996

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.78 mg/L / 1.3 mg/L / 2.2 mg/L / 3.4 mg/L / 5.0 mg/L / 7.8 mg/L / 13 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (10 (7.8-15) mg/L)	Mortality	High	2140001
85-68-7	48 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.78 mg/L / 1.3 mg/L / 2.2 mg/L / 3.4 mg/L / 5.0 mg/L / 7.8 mg/L / 13 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-LETH (13 mg/L)	Mortality	High	2140001
85-68-7	48 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.78 mg/L / 1.3 mg/L / 2.2 mg/L / 3.4 mg/L / 5.0 mg/L / 7.8 mg/L / 13 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (5.3 (4.3-6.5) mg/L)	Mortality	High	2140001
85-68-7	72 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.78 mg/L / 1.3 mg/L / 2.2 mg/L / 3.4 mg/L / 5.0 mg/L / 7.8 mg/L / 13 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (5.3 (4.3-6.5) mg/L)	Mortality	High	2140001

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24-96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.78 mg/L / 1.3 mg/L / 2.2 mg/L / 3.4 mg/L / 5.0 mg/L / 7.8 mg/L / 13 mg/L	Growth (Morphology-Abnormal,General morphological changes, Response Site: Not reported)	NR (0.78-13 mg/L)	Development/Growth	High	2140001
85-68-7	24-96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.78 mg/L / 1.3 mg/L / 2.2 mg/L / 3.4 mg/L / 5.0 mg/L / 7.8 mg/L / 13 mg/L	Physiology (Physiology-Physiology, general,Pigmentation,Respiration, Response Site: Not reported)	NR (0.78-13 mg/L)	Skin and Connective Tissue	High	2140001
85-68-7	24-96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.78 mg/L / 1.3 mg/L / 2.2 mg/L / 3.4 mg/L / 5.0 mg/L / 7.8 mg/L / 13 mg/L	Physiology (Physiology-Physiology, general,Pigmentation,Respiration, Response Site: Not reported)	NR (0.78-13 mg/L)	Respiratory	High	2140001
85-68-7	96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.78 mg/L / 1.3 mg/L / 2.2 mg/L / 3.4 mg/L / 5.0 mg/L / 7.8 mg/L / 13 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (2.2 mg/L)	Mortality	High	2140001

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.78 mg/L / 1.3 mg/L / 2.2 mg/L / 3.4 mg/L / 5.0 mg/L / 7.8 mg/L / 13 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (5.3 (4.3-6.5) mg/L)	Mortality	High	2140001
85-68-7	24-96 Hour(s), (96 Hour(s))	*Pimephales promelas* (Fathead Minnow), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL FISH SUPPLIER IN OHIO)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.78 mg/L / 1.3 mg/L / 2.2 mg/L / 3.4 mg/L / 5.0 mg/L / 7.8 mg/L / 13 mg/L	Behavior (Behavior-Activity, general,Equilibrium,Behavioral changes, general, Response Site: Not reported)	NR (0.78-13 mg/L)	Behavioral	High	2140001
85-68-7	3 Week(s), (3 Week(s))	*Pimephales promelas* (Fathead Minnow), Adult, 6 Month(s), Both, Laboratory (BREEDING STOCKS MAINTAINED AT ASTRAZENECA LIMITED, BRIXHAM, U.K.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 ug/L / 0 ug/L / 69-82 ug/L	Growth (Development-Sexual development, Response Site: Not reported)	NR (69-82 ug/L)	Development/Growth	High	1464882
85-68-7	3 Week(s), (3 Week(s))	*Pimephales promelas* (Fathead Minnow), Adult, 6 Month(s), Both, Laboratory (BREEDING STOCKS MAINTAINED AT ASTRAZENECA LIMITED, BRIXHAM, U.K.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 ug/L / 0 ug/L / 69-82 ug/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEC (69-82 ug/L)	Reproductive/Teratogenic	High	1464882

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	3 Week(s), (3 Week(s))	*Pimephales promelas* (Fathead Minnow), Adult, 6 Month(s), Both (Measured in: Male organisms), Laboratory (BREEDING STOCKS MAINTAINED AT ASTRAZENECA LIMITED, BRIXHAM, U.K.)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA Male organisms	Measured	0 ug/L / 0 ug/L / 69-82 ug/L	Growth (Morphology-Organ weight in relationship to body weight, Response Site: Testes)	NOEC (69-82 ug/L)	Development/Growth	High	1464882
85-68-7	3 Week(s), (3 Week(s))	*Pimephales promelas* (Fathead Minnow), Adult, 6 Month(s), Both, Laboratory (BREEDING STOCKS MAINTAINED AT ASTRAZENECA LIMITED, BRIXHAM, U.K.)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA Both male and female	Measured	0 ug/L / 0 ug/L / 69-82 ug/L	Growth (Growth-Length,Weight, Response Site: Whole organism)	NR (69-82 ug/L)	Development/Growth	High	1464882
85-68-7	3 Week(s), (3 Week(s))	*Pimephales promelas* (Fathead Minnow), Adult, 6 Month(s), Both (Measured in: Female organisms), Laboratory (BREEDING STOCKS MAINTAINED AT ASTRAZENECA LIMITED, BRIXHAM, U.K.)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA Female organisms	Measured	0 ug/L / 0 ug/L / 69-82 ug/L	Growth (Morphology-Organ weight in relationship to body weight, Response Site: Ovaries)	NOEC (69-82 ug/L)	Development/Growth	High	1464882

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	3 Week(s), (3 Week(s))	*Pimephales promelas* (Fathead Minnow), Adult, 6 Month(s), Both (Measured in: Male organisms), Laboratory (BREEDING STOCKS MAINTAINED AT ASTRAZENECA LIMITED, BRIXHAM, U.K.)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA Male organisms	Measured	0 ug/L / 0 ug/L / 69-82 ug/L	Biochemical (Biochemistry-Vitellogenin, Response Site: Plasma)	NOEC (69-82 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Endocrine toxicity; Reproductive/Teratogenic	High	1464882
85-68-7	3 Week(s), (3 Week(s))	*Pimephales promelas* (Fathead Minnow), Adult, 6 Month(s), Both (Measured in: Female organisms), Laboratory (BREEDING STOCKS MAINTAINED AT ASTRAZENECA LIMITED, BRIXHAM, U.K.)	Fresh water, Aqueous (aquatic habitat), Flow-through, NA Female organisms	Measured	0 ug/L / 0 ug/L / 69-82 ug/L	Biochemical (Biochemistry-Vitellogenin, Response Site: Plasma)	NOEC (69-82 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Endocrine toxicity; Reproductive/Teratogenic	High	1464882
85-68-7	3 Week(s), (3 Week(s))	*Pimephales promelas* (Fathead Minnow), Adult, 6 Month(s), Both, Laboratory (BREEDING STOCKS MAINTAINED AT ASTRAZENECA LIMITED, BRIXHAM, U.K.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 ug/L / 0 ug/L / 69-82 ug/L	Reproduction (Reproduction-Number spawning, Response Site: Not reported)	LOEC (69-82 ug/L)	Reproductive/Teratogenic	High	1464882

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	3 Week(s), (3 Week(s))	*Pimephales promelas* (Fathead Minnow), Adult, 6 Month(s), Both, Laboratory (BREEDING STOCKS MAINTAINED AT ASTRAZENECA LIMITED, BRIXHAM, U.K.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 ug/L / 0 ug/L / 69-82 ug/L	Reproduction (Reproduction-Eggs per nest, Response Site: Not reported)	LOEC (69-82 ug/L)	Reproductive/Teratogenic	High	1464882
85-68-7	3 Week(s), (3 Week(s))	*Pimephales promelas* (Fathead Minnow), Adult, 6 Month(s), Both, Laboratory (BREEDING STOCKS MAINTAINED AT ASTRAZENECA LIMITED, BRIXHAM, U.K.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 ug/L / 0 ug/L / 69-82 ug/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (69-82 ug/L)	Mortality	High	1464882
85-68-7	35 Day(s), (10 Week(s))	*Sander lucioperca* (Zander), Juvenile, 61 Days post-hatch, Both, Laboratory (DEPARTMENT OF STURGEON BREEDING, INLAND FISHERIES INSTITUTE, POLAND)	Fresh water, Oral (diet, drink, gavage), Food, Not Reported	Unmeasured	0 AI g/kg diet / 1.0 AI g/kg diet / 2.0 AI g/kg diet / 4.0 AI g/kg diet / 8.0 AI g/kg diet / 16.0 AI g/kg diet	Reproduction (Reproduction-Abnormal, Response Site: Gonad(s))	NR (1.0-16.0 AI g/kg diet)	Reproductive/Teratogenic	Medium	2298076

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	35 Day(s), (10 Week(s))	*Sander lucioperca* (Zander), Juvenile, 61 Days post-hatch, Both, Laboratory (DEPARTMENT OF STURGEON BREEDING, INLAND FISHERIES INSTITUTE, POLAND)	Fresh water, Oral (diet, drink, gavage), Food, Not Reported	Unmeasured	0 AI g/kg diet / 1.0 AI g/kg diet / 2.0 AI g/kg diet / 4.0 AI g/kg diet / 8.0 AI g/kg diet / 16.0 AI g/kg diet	Population (Population-Sex ratio, Response Site: Not reported)	NOEC (4.0 AI g/kg diet)	Reproductive/Teratogenic	Medium	2298076
85-68-7	35 Day(s), (10 Week(s))	*Sander lucioperca* (Zander), Juvenile, 61 Days post-hatch, Both, Laboratory (DEPARTMENT OF STURGEON BREEDING, INLAND FISHERIES INSTITUTE, POLAND)	Fresh water, Oral (diet, drink, gavage), Food, Not Reported	Unmeasured	0 AI g/kg diet / 1.0 AI g/kg diet / 2.0 AI g/kg diet / 4.0 AI g/kg diet / 8.0 AI g/kg diet / 16.0 AI g/kg diet	Growth (Growth-Condition index, Response Site: Whole organism)	NOEC (4.0 AI g/kg diet)	Development/Growth	Medium	2298076
85-68-7	35 Day(s), (10 Week(s))	*Sander lucioperca* (Zander), Juvenile, 61 Days post-hatch, Both, Laboratory (DEPARTMENT OF STURGEON BREEDING, INLAND FISHERIES INSTITUTE, POLAND)	Fresh water, Oral (diet, drink, gavage), Food, Not Reported	Unmeasured	0 AI g/kg diet / 1.0 AI g/kg diet / 2.0 AI g/kg diet / 4.0 AI g/kg diet / 8.0 AI g/kg diet / 16.0 AI g/kg diet	Growth (Growth-Length, Response Site: Whole organism)	NOEC (2.0 AI g/kg diet)	Development/Growth	Medium	2298076
85-68-7	35 Day(s), (10 Week(s))	*Sander lucioperca* (Zander), Juvenile, 61 Days post-hatch, Both, Laboratory (DEPARTMENT OF STURGEON BREEDING, INLAND FISHERIES INSTITUTE, POLAND)	Fresh water, Oral (diet, drink, gavage), Food, Not Reported	Unmeasured	0 AI g/kg diet / 1.0 AI g/kg diet / 2.0 AI g/kg diet / 4.0 AI g/kg diet / 8.0 AI g/kg diet / 16.0 AI g/kg diet	Population (Population-Sex ratio, Response Site: Not reported)	LOEC (8.0 AI g/kg diet)	Reproductive/Teratogenic	Medium	2298076

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	35 Day(s), (10 Week(s))	*Sander lucioperca* (Zander), Juvenile, 61 Days post-hatch, Both, Laboratory (DEPARTMENT OF STURGEON BREEDING, INLAND FISHERIES INSTITUTE, POLAND)	Fresh water, Oral (diet, drink, gavage), Food, Not Reported	Unmeasured	0 AI g/kg diet / 1.0 AI g/kg diet / 2.0 AI g/kg diet / 4.0 AI g/kg diet / 8.0 AI g/kg diet / 16.0 AI g/kg diet	Growth (Growth-Condition index, Response Site: Whole organism)	LOEC (8.0 AI g/kg diet)	Development/Growth	Medium	2298076
85-68-7	35 Day(s), (10 Week(s))	*Sander lucioperca* (Zander), Juvenile, 61 Days post-hatch, Both, Laboratory (DEPARTMENT OF STURGEON BREEDING, INLAND FISHERIES INSTITUTE, POLAND)	Fresh water, Oral (diet, drink, gavage), Food, Not Reported	Unmeasured	0 AI g/kg diet / 1.0 AI g/kg diet / 2.0 AI g/kg diet / 4.0 AI g/kg diet / 8.0 AI g/kg diet / 16.0 AI g/kg diet	Growth (Growth-Weight, Response Site: Whole organism)	LOEC (4.0 AI g/kg diet)	Development/Growth	Medium	2298076
85-68-7	35 Day(s), (10 Week(s))	*Sander lucioperca* (Zander), Juvenile, 61 Days post-hatch, Both, Laboratory (DEPARTMENT OF STURGEON BREEDING, INLAND FISHERIES INSTITUTE, POLAND)	Fresh water, Oral (diet, drink, gavage), Food, Not Reported	Unmeasured	0 AI g/kg diet / 1.0 AI g/kg diet / 2.0 AI g/kg diet / 4.0 AI g/kg diet / 8.0 AI g/kg diet / 16.0 AI g/kg diet	Growth (Growth-Length, Response Site: Whole organism)	LOEC (4.0 AI g/kg diet)	Development/Growth	Medium	2298076
85-68-7	35 Day(s), (10 Week(s))	*Sander lucioperca* (Zander), Juvenile, 61 Days post-hatch, Both, Laboratory (DEPARTMENT OF STURGEON BREEDING, INLAND FISHERIES INSTITUTE, POLAND)	Fresh water, Oral (diet, drink, gavage), Food, Not Reported	Unmeasured	0 AI g/kg diet / 1.0 AI g/kg diet / 2.0 AI g/kg diet / 4.0 AI g/kg diet / 8.0 AI g/kg diet / 16.0 AI g/kg diet	Mortality (Mortality-Survival, Response Site: Not reported)	NR (1.0-16.0 AI g/kg diet)	Mortality	Medium	2298076

Continued on next page . . .

. . . continued from previous page

Aquatic: Fish Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	35 Day(s), (10 Week(s))	*Sander lucioperca* (Zander), Juvenile, 61 Days post-hatch, Both, Laboratory (DEPARTMENT OF STURGEON BREEDING, INLAND FISHERIES INSTITUTE, POLAND)	Fresh water, Oral (diet, drink, gavage), Food, Not Reported	Unmeasured	0 AI g/kg diet / 1.0 AI g/kg diet / 2.0 AI g/kg diet / 4.0 AI g/kg diet / 8.0 AI g/kg diet / 16.0 AI g/kg diet	Growth (Growth-Weight, Response Site: Whole organism)	NOEC (2.0 AI g/kg diet)	Development/Growth	Medium	2298076

* If multiple extractions contained all identical information except the effect level, extraction rows were collapsed and the differing levels are listed by comma in this row.

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), <=24 Hour(s), Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (0.32 mg/L)	Mortality	High	1321996
85-68-7	96 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), <=24 Hour(s), Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>0.90 mg/L)	Mortality	High	1321996
85-68-7	24 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), 6-8 Day(s), Not Reported, Laboratory (OBTAINED FROM A CULTURE MAINTAINED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 ppm / 0 ppm / 0.4 ppm / 0.6 ppm / 1.1 ppm / 1.8 ppm / 3.0 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>3.0 ppm)	Mortality	High	1359176
85-68-7	24 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), 6-8 Day(s), Not Reported, Laboratory (OBTAINED FROM A CULTURE MAINTAINED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 ppm / 0 ppm / 0.4 ppm / 0.6 ppm / 1.1 ppm / 1.8 ppm / 3.0 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>3.0 ppm)	Mortality	High	1359176

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), 6-8 Day(s), Not Reported, Laboratory (OBTAINED FROM A CULTURE MAINTAINED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 ppm / 0 ppm / 0.4 ppm / 0.6 ppm / 1.1 ppm / 1.8 ppm / 3.0 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (2.2 (1.8-3.0) ppm)	Mortality	High	1359176
85-68-7	48 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), 6-8 Day(s), Not Reported, Laboratory (OBTAINED FROM A CULTURE MAINTAINED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 ppm / 0 ppm / 0.4 ppm / 0.6 ppm / 1.1 ppm / 1.8 ppm / 3.0 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (2.2 (1.8-3.0) ppm)	Mortality	High	1359176
85-68-7	72 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), 6-8 Day(s), Not Reported, Laboratory (OBTAINED FROM A CULTURE MAINTAINED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 ppm / 0 ppm / 0.4 ppm / 0.6 ppm / 1.1 ppm / 1.8 ppm / 3.0 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.2 (1.0-1.6) ppm)	Mortality	High	1359176

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	72 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), 6-8 Day(s), Not Reported, Laboratory (OBTAINED FROM A CULTURE MAINTAINED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 ppm / 0 ppm / 0.4 ppm / 0.6 ppm / 1.1 ppm / 1.8 ppm / 3.0 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.2 (1.0-1.6) ppm)	Mortality	High	1359176
85-68-7	96 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), 6-8 Day(s), Not Reported, Laboratory (OBTAINED FROM A CULTURE MAINTAINED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 ppm / 0 ppm / 0.4 ppm / 0.6 ppm / 1.1 ppm / 1.8 ppm / 3.0 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.9 (0.7-1.2) ppm)	Mortality	High	1359176
85-68-7	96 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), 6-8 Day(s), Not Reported, Laboratory (OBTAINED FROM A CULTURE MAINTAINED AT BIONOMICS MARINE RESEARCH LABORATORY)	Salt water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 ppm / 0 ppm / 0.4 ppm / 0.6 ppm / 1.1 ppm / 1.8 ppm / 3.0 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.9 (0.7-1.2) ppm)	Mortality	High	1359176

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), <=24 Hour(s), Not Reported, Laboratory (SPRINGBORN LIFE SCIENCES, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.013-<0.015 mg/L / <0.013-<0.015 mg/L / 0.041 (0.019-0.064) mg/L / 0.12 (0.096-0.15) mg/L / 0.23 (0.17-0.26) mg/L / 0.41 (0.22-0.54) mg/L / 0.74 (0.50-0.99) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>0.74 mg/L)	Mortality	High	5530739
85-68-7	48 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), <=24 Hour(s), Not Reported, Laboratory (SPRINGBORN LIFE SCIENCES, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.013-<0.015 mg/L / <0.013-<0.015 mg/L / 0.041 (0.019-0.064) mg/L / 0.12 (0.096-0.15) mg/L / 0.23 (0.17-0.26) mg/L / 0.41 (0.22-0.54) mg/L / 0.74 (0.50-0.99) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>0.74 mg/L)	Mortality	High	5530739
85-68-7	72 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), <=24 Hour(s), Not Reported, Laboratory (SPRINGBORN LIFE SCIENCES, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.013-<0.015 mg/L / <0.013-<0.015 mg/L / 0.041 (0.019-0.064) mg/L / 0.12 (0.096-0.15) mg/L / 0.23 (0.17-0.26) mg/L / 0.41 (0.22-0.54) mg/L / 0.74 (0.50-0.99) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>0.74 mg/L)	Mortality	High	5530739

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), <=24 Hour(s), Not Reported, Laboratory (SPRINGBORN LIFE SCIENCES, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.013-<0.015 mg/L / <0.013-<0.015 mg/L / 0.041 (0.019-0.064) mg/L / 0.12 (0.096-0.15) mg/L / 0.23 (0.17-0.26) mg/L / 0.41 (0.22-0.54) mg/L / 0.74 (0.50-0.99) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (0.041 (0.019-0.064) mg/L)	Mortality	High	5530739
85-68-7	96 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), <=24 Hour(s), Not Reported, Laboratory (SPRINGBORN LIFE SCIENCES, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.013-<0.015 mg/L / <0.013-<0.015 mg/L / 0.041 (0.019-0.064) mg/L / 0.12 (0.096-0.15) mg/L / 0.23 (0.17-0.26) mg/L / 0.41 (0.22-0.54) mg/L / 0.74 (0.50-0.99) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (0.12 (0.096-0.15) mg/L)	Mortality	High	5530739
85-68-7	96 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), <=24 Hour(s), Not Reported, Laboratory (SPRINGBORN LIFE SCIENCES, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.013-<0.015 mg/L / <0.013-<0.015 mg/L / 0.041 (0.019-0.064) mg/L / 0.12 (0.096-0.15) mg/L / 0.23 (0.17-0.26) mg/L / 0.41 (0.22-0.54) mg/L / 0.74 (0.50-0.99) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LOEC (0.12 (0.096-0.15) mg/L)	Mortality	High	5530739

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), <=24 Hour(s), Not Reported, Laboratory (SPRINGBORN LIFE SCIENCES, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.013-<0.015 mg/L / <0.013-<0.015 mg/L / 0.041 (0.019-0.064) mg/L / 0.12 (0.096-0.15) mg/L / 0.23 (0.17-0.26) mg/L / 0.41 (0.22-0.54) mg/L / 0.74 (0.50-0.99) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>0.74 mg/L)	Mortality	High	5530739
85-68-7	96 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), <=24 Hour(s), Not Reported, Laboratory (SPRINGBORN LIFE SCIENCES, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.013-<0.015 mg/L / <0.013-<0.015 mg/L / 0.041 (0.019-0.064) mg/L / 0.12 (0.096-0.15) mg/L / 0.23 (0.17-0.26) mg/L / 0.41 (0.22-0.54) mg/L / 0.74 (0.50-0.99) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.1 (0.60-8.3) mg/L)	Mortality	High	5530739
85-68-7	96 Hour(s), (96 Hour(s))	*Americamysis bahia* (Opossum Shrimp), <=24 Hour(s), Not Reported, Laboratory (SPRINGBORN LIFE SCIENCES, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.013-<0.015 mg/L / <0.013-<0.015 mg/L / 0.041 (0.019-0.064) mg/L / 0.12 (0.096-0.15) mg/L / 0.23 (0.17-0.26) mg/L / 0.41 (0.22-0.54) mg/L / 0.74 (0.50-0.99) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LOEC (0.23 (0.17-0.26) mg/L)	Mortality	High	5530739

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	28 Day(s), (28 Day(s))	*Americamysis bahia* (Opossum Shrimp), Juvenile, <24 Hour(s), Both (Measured in: Male organisms), Laboratory (OBTAINED FROM THE LABORATORY'S IN HOUSE CULTURE SYSTEM)	Salt water, Aqueous (aquatic habitat), Flow-through, NA Male organisms	Measured	<0.0061 mg/L / <0.0061 mg/L / 0.024 (0.019-0.032) mg/L / 0.041 (0.025-0.062) mg/L / 0.075 (0.065-0.084) mg/L / 0.17 (0.14-0.20) mg/L / 0.75 (0.38-1.32) mg/L	Growth (Growth-Weight, Response Site: Whole organism)	MATC (0.11 mg/L)	Development/Growth	High	6574650
85-68-7	28 Day(s), (28 Day(s))	*Americamysis bahia* (Opossum Shrimp), Juvenile, <24 Hour(s), Both, Laboratory (OBTAINED FROM THE LABORATORY'S IN HOUSE CULTURE SYSTEM)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.0061 mg/L / <0.0061 mg/L / 0.024 (0.019-0.032) mg/L / 0.041 (0.025-0.062) mg/L / 0.075 (0.065-0.084) mg/L / 0.17 (0.14-0.20) mg/L / 0.75 (0.38-1.32) mg/L	Reproduction (Reproduction-Fecundity, Response Site: Not reported)	MATC (0.11 mg/L)	Reproductive/Teratogenic	High	6574650
85-68-7	28 Day(s), (28 Day(s))	*Americamysis bahia* (Opossum Shrimp), Juvenile, <24 Hour(s), Both, Laboratory (OBTAINED FROM THE LABORATORY'S IN HOUSE CULTURE SYSTEM)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.0061 mg/L / <0.0061 mg/L / 0.024 (0.019-0.032) mg/L / 0.041 (0.025-0.062) mg/L / 0.075 (0.065-0.084) mg/L / 0.17 (0.14-0.20) mg/L / 0.75 (0.38-1.32) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	MATC (0.13 mg/L)	Mortality	High	6574650

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	28 Day(s), (28 Day(s))	*Americamysis bahia* (Opossum Shrimp), Juvenile, <24 Hour(s), Both (Measured in: Female organisms), Laboratory (OBTAINED FROM THE LABORATORY'S IN HOUSE CULTURE SYSTEM)	Salt water, Aqueous (aquatic habitat), Flow-through, NA Female organisms	Measured	<0.0061 mg/L / <0.0061 mg/L / 0.024 (0.019-0.032) mg/L / 0.041 (0.025-0.062) mg/L / 0.075 (0.065-0.084) mg/L / 0.17 (0.14-0.20) mg/L / 0.75 (0.38-1.32) mg/L	Growth (Growth-Weight, Response Site: Whole organism)	NOEC (0.075 (0.065-0.084) mg/L)	Development/Growth	High	6574650
85-68-7	28 Day(s), (28 Day(s))	*Americamysis bahia* (Opossum Shrimp), Juvenile, <24 Hour(s), Both (Measured in: Male organisms), Laboratory (OBTAINED FROM THE LABORATORY'S IN HOUSE CULTURE SYSTEM)	Salt water, Aqueous (aquatic habitat), Flow-through, NA Male organisms	Measured	<0.0061 mg/L / <0.0061 mg/L / 0.024 (0.019-0.032) mg/L / 0.041 (0.025-0.062) mg/L / 0.075 (0.065-0.084) mg/L / 0.17 (0.14-0.20) mg/L / 0.75 (0.38-1.32) mg/L	Growth (Growth-Weight, Response Site: Whole organism)	LOEC (0.17 (0.14-0.20) mg/L)	Development/Growth	High	6574650
85-68-7	28 Day(s), (28 Day(s))	*Americamysis bahia* (Opossum Shrimp), Juvenile, <24 Hour(s), Both, Laboratory (OBTAINED FROM THE LABORATORY'S IN HOUSE CULTURE SYSTEM)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.0061 mg/L / <0.0061 mg/L / 0.024 (0.019-0.032) mg/L / 0.041 (0.025-0.062) mg/L / 0.075 (0.065-0.084) mg/L / 0.17 (0.14-0.20) mg/L / 0.75 (0.38-1.32) mg/L	Reproduction (Reproduction-Fecundity, Response Site: Not reported)	NOEC (0.075 (0.065-0.084) mg/L)	Reproductive/Teratogenic	High	6574650

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	28 Day(s), (28 Day(s))	*Americamysis bahia* (Opossum Shrimp), Juvenile, <24 Hour(s), Both, Laboratory (OBTAINED FROM THE LABORATORY'S IN HOUSE CULTURE SYSTEM)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.0061 mg/L / <0.0061 mg/L / 0.024 (0.019-0.032) mg/L / 0.041 (0.025-0.062) mg/L / 0.075 (0.065-0.084) mg/L / 0.17 (0.14-0.20) mg/L / 0.75 (0.38-1.32) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (0.17 (0.14-0.20) mg/L)	Mortality	High	6574650
85-68-7	28 Day(s), (28 Day(s))	*Americamysis bahia* (Opossum Shrimp), Juvenile, <24 Hour(s), Both, Laboratory (OBTAINED FROM THE LABORATORY'S IN HOUSE CULTURE SYSTEM)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.0061 mg/L / <0.0061 mg/L / 0.024 (0.019-0.032) mg/L / 0.041 (0.025-0.062) mg/L / 0.075 (0.065-0.084) mg/L / 0.17 (0.14-0.20) mg/L / 0.75 (0.38-1.32) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	LOEC (0.75 (0.38-1.32) mg/L)	Mortality	High	6574650
85-68-7	28 Day(s), (28 Day(s))	*Americamysis bahia* (Opossum Shrimp), Juvenile, <24 Hour(s), Both (Measured in: Female organisms), Laboratory (OBTAINED FROM THE LABORATORY'S IN HOUSE CULTURE SYSTEM)	Salt water, Aqueous (aquatic habitat), Flow-through, NA Female organisms	Measured	<0.0061 mg/L / <0.0061 mg/L / 0.024 (0.019-0.032) mg/L / 0.041 (0.025-0.062) mg/L / 0.075 (0.065-0.084) mg/L / 0.17 (0.14-0.20) mg/L / 0.75 (0.38-1.32) mg/L	Growth (Growth-Weight, Response Site: Whole organism)	MATC (0.11 mg/L)	Development/Growth	High	6574650

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	28 Day(s), (28 Day(s))	*Americamysis bahia* (Opossum Shrimp), Juvenile, <24 Hour(s), Both (Measured in: Female organisms), Laboratory (OBTAINED FROM THE LABORATORY'S IN HOUSE CULTURE SYSTEM)	Salt water, Aqueous (aquatic habitat), Flow-through, NA Female organisms	Measured	<0.0061 mg/L / <0.0061 mg/L / 0.024 (0.019-0.032) mg/L / 0.041 (0.025-0.062) mg/L / 0.075 (0.065-0.084) mg/L / 0.17 (0.14-0.20) mg/L / 0.75 (0.38-1.32) mg/L	Growth (Growth-Weight, Response Site: Whole organism)	LOEC (0.17 (0.14-0.20) mg/L)	Development/Growth	High	6574650
85-68-7	28 Day(s), (28 Day(s))	*Americamysis bahia* (Opossum Shrimp), Juvenile, <24 Hour(s), Both, Laboratory (OBTAINED FROM THE LABORATORY'S IN HOUSE CULTURE SYSTEM)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.0061 mg/L / <0.0061 mg/L / 0.024 (0.019-0.032) mg/L / 0.041 (0.025-0.062) mg/L / 0.075 (0.065-0.084) mg/L / 0.17 (0.14-0.20) mg/L / 0.75 (0.38-1.32) mg/L	Reproduction (Reproduction-Fecundity, Response Site: Not reported)	LOEC (0.17 (0.14-0.20) mg/L)	Reproductive/Teratogenic	High	6574650
85-68-7	28 Day(s), (28 Day(s))	*Americamysis bahia* (Opossum Shrimp), Juvenile, <24 Hour(s), Both (Measured in: Male organisms), Laboratory (OBTAINED FROM THE LABORATORY'S IN HOUSE CULTURE SYSTEM)	Salt water, Aqueous (aquatic habitat), Flow-through, NA Male organisms	Measured	<0.0061 mg/L / <0.0061 mg/L / 0.024 (0.019-0.032) mg/L / 0.041 (0.025-0.062) mg/L / 0.075 (0.065-0.084) mg/L / 0.17 (0.14-0.20) mg/L / 0.75 (0.38-1.32) mg/L	Growth (Growth-Weight, Response Site: Whole organism)	NOEC (0.075 (0.065-0.084) mg/L)	Development/Growth	High	6574650

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	10 Day(s), (10 Day(s))	*Chironomus tentans* (Midge), 9-11 Day(s), Not Reported, Laboratory (CULTURES STARTED AT THE U.S. ENVIRONMENTAL PROTECTION AGENCY LABORATORY, DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.008 mg/L / 0.070 mg/L / 0.142 mg/L / 0.317 mg/L / 0.638 mg/L / 1.76 mg/L	Growth (Growth-Weight, Response Site: Whole organism)	EC50 (1.42 mg/L)	Development/Growth	High	679312
85-68-7	10 Day(s), (10 Day(s))	*Chironomus tentans* (Midge), 9-11 Day(s), Not Reported, Laboratory (CULTURES STARTED AT THE U.S. ENVIRONMENTAL PROTECTION AGENCY LABORATORY, DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.008 mg/L / 0.070 mg/L / 0.142 mg/L / 0.317 mg/L / 0.638 mg/L / 1.76 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (0.142-0.317 mg/L)	Mortality	High	679312
85-68-7	10 Day(s), (10 Day(s))	*Chironomus tentans* (Midge), 9-11 Day(s), Not Reported, Laboratory (CULTURES STARTED AT THE U.S. ENVIRONMENTAL PROTECTION AGENCY LABORATORY, DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.008 mg/L / 0.070 mg/L / 0.142 mg/L / 0.317 mg/L / 0.638 mg/L / 1.76 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR (0.638-1.76 mg/L)	Mortality	High	679312

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	10 Day(s), (10 Day(s))	*Chironomus tentans* (Midge), 9-11 Day(s), Not Reported, Laboratory (CULTURES STARTED AT THE U.S. ENVIRONMENTAL PROTECTION AGENCY LABORATORY, DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.008 mg/L / 0.070 mg/L / 0.142 mg/L / 0.317 mg/L / 0.638 mg/L / 1.76 mg/L	Growth (Growth-Weight, Response Site: Whole organism)	LOEC (1.76 mg/L)	Development/Growth	High	679312
85-68-7	10 Day(s), (10 Day(s))	*Chironomus tentans* (Midge), 9-11 Day(s), Not Reported, Laboratory (CULTURES STARTED AT THE U.S. ENVIRONMENTAL PROTECTION AGENCY LABORATORY, DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.008 mg/L / 0.070 mg/L / 0.142 mg/L / 0.317 mg/L / 0.638 mg/L / 1.76 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR (0.070 mg/L)	Mortality	High	679312
85-68-7	10 Day(s), (10 Day(s))	*Chironomus tentans* (Midge), 9-11 Day(s), Not Reported, Laboratory (CULTURES STARTED AT THE U.S. ENVIRONMENTAL PROTECTION AGENCY LABORATORY, DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.008 mg/L / 0.070 mg/L / 0.142 mg/L / 0.317 mg/L / 0.638 mg/L / 1.76 mg/L	Growth (Growth-Weight, Response Site: Whole organism)	NOEC (0.64 mg/L)	Development/Growth	High	679312
85-68-7	24 Hour(s), (48 Hour(s))	*Chironomus tentans* (Midge), Instar, 10-14 Day(s), Not Reported, Laboratory (CULTURED AT THE MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.25 mg/L / 2.5 mg/L / 5 mg/L / 10 mg/L / 20 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (2.5 mg/L)	Immobilization	Medium	1359257

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (48 Hour(s))	*Chironomus tentans* (Midge), Instar, 10-14 Day(s), Not Reported, Laboratory (CULTURED AT THE MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.25 mg/L / 2.5 mg/L / 5 mg/L / 10 mg/L / 20 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (1.25 mg/L)	Immobilization	Medium	1359257
85-68-7	24 Hour(s), (48 Hour(s))	*Chironomus tentans* (Midge), Instar, 10-14 Day(s), Not Reported, Laboratory (CULTURED AT THE MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.25 mg/L / 2.5 mg/L / 5 mg/L / 10 mg/L / 20 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (2.69 (2.08-3.58) mg/L)	Immobilization	Medium	1359257
85-68-7	24 Hour(s), (48 Hour(s))	*Chironomus tentans* (Midge), Instar, 10-14 Day(s), Not Reported, Laboratory (CULTURED AT THE MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.25 mg/L / 2.5 mg/L / 5 mg/L / 10 mg/L / 20 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LOEC (2.5 mg/L)	Immobilization	Medium	1359257
85-68-7	24 Hour(s), (48 Hour(s))	*Chironomus tentans* (Midge), Instar, 10-14 Day(s), Not Reported, Laboratory (CULTURED AT THE MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.25 mg/L / 2.5 mg/L / 5 mg/L / 10 mg/L / 20 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (3.53852 mg/L)	Immobilization	Medium	1359257
85-68-7	48 Hour(s), (48 Hour(s))	*Chironomus tentans* (Midge), Instar, 10-14 Day(s), Not Reported, Laboratory (CULTURED AT THE MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.25 mg/L / 2.5 mg/L / 5 mg/L / 10 mg/L / 20 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.64 (1.22-2.17) mg/L)	Immobilization	Medium	1359257

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (48 Hour(s))	*Chironomus tentans* (Midge), Instar, 10-14 Day(s), Not Reported, Laboratory (CULTURED AT THE MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.25 mg/L / 2.5 mg/L / 5 mg/L / 10 mg/L / 20 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.66483 (1.22393-2.10996) mg/L)	Immobilization	Medium	1359257
85-68-7	48 Hour(s), (48 Hour(s))	*Chironomus tentans* (Midge), Instar, 10-14 Day(s), Not Reported, Laboratory (CULTURED AT THE MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.25 mg/L / 2.5 mg/L / 5 mg/L / 10 mg/L / 20 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.66483 mg/L)	Immobilization	Medium	1359257
85-68-7	48 Hour(s), (48 Hour(s))	*Chironomus tentans* (Midge), Instar, 10-14 Day(s), Not Reported, Laboratory (CULTURED AT THE MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.25 mg/L / 2.5 mg/L / 5 mg/L / 10 mg/L / 20 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LOEC (2.5 mg/L)	Immobilization	Medium	1359257
85-68-7	48 Hour(s), (48 Hour(s))	*Chironomus tentans* (Midge), Instar, 10-14 Day(s), Not Reported, Laboratory (CULTURED AT THE MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.25 mg/L / 2.5 mg/L / 5 mg/L / 10 mg/L / 20 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (1.25 mg/L)	Immobilization	Medium	1359257
85-68-7	24-48 Hour(s), (48 Hour(s))	*Chironomus tentans* (Midge), Instar, 10-14 Day(s), Not Reported, Laboratory (CULTURED AT THE MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 1.25 mg/L / 2.5 mg/L / 5 mg/L / 10 mg/L / 20 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	NR (1.25-20 mg/L)	Immobilization	Medium	1359257

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (48 Hour(s))	*Chironomus tentans* (Midge), Larva, 2-3 Instar, Not Reported, Laboratory (ORIGINALLY OBTAINED FROM THE EPA AQUATIC TOXICOLOGY LABORATORY IN DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	0 mg/L / 0 mg/L / 0.04 mg/L / 0.22 mg/L / 0.39 mg/L / 2.18 mg/L / 3.90 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (3.6 (2.9-4.9) mg/L)	Mortality	Medium	1359238
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (>0.96 mg/L)	Immobilization	High	1321996
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	NOEC (0.96 mg/L)	Immobilization	High	1321996
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 1.2 mg/L / NR / NR / NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (5.0 (4.1-6.1) mg/L)	Immobilization	Uninformative	5353206
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 1.25 mg/L / NR / NR / NR / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (>10 mg/L)	Immobilization	Uninformative	5353206

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.62 mg/L / NR / NR / NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (4.4 (3.7-6.1) mg/L)	Immobilization	Uninformative	5353206
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 1.3 mg/L / NR / NR / NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (6.6 (4.6-11.8) mg/L)	Immobilization	Uninformative	5353206
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 2.5 mg/L / NR / NR / NR / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (>10 mg/L)	Immobilization	Uninformative	5353206
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.62 mg/L / NR / NR / NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (3.1 (2.3-4.1) mg/L)	Immobilization	Uninformative	5353206

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.7 mg/L / NR / NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (1.2 (1.1-1.3) mg/L)	Immobilization	Uninformative	5353206
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.62 mg/L / NR / NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (2.4 (1.8-3.2) mg/L)	Immobilization	Uninformative	5353206
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.62 mg/L / NR / NR / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (>10 mg/L)	Immobilization	Uninformative	5353206
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 1.3 mg/L / NR / NR / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (>10 mg/L)	Immobilization	Uninformative	5353206

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 2.5 mg/L / NR / NR / NR / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (>10 mg/L)	Immobilization	Uninformative	5353206
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 2.5 mg/L / NR / NR / NR / 10 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (2.5 mg/L)	Mortality	Uninformative	5353206
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 1.3 mg/L / NR / NR / NR / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (2.9 (2.5-3.3) mg/L)	Immobilization	Uninformative	5353206
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.62 mg/L / NR / NR / NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (2.2 (1.8-2.6) mg/L)	Immobilization	Uninformative	5353206

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.62 mg/L / NR / NR / NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (1.8 (1.1-3.1) mg/L)	Immobilization	Uninformative	5353206
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.62 mg/L / NR / NR / NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (1.6 (1.2-2.2) mg/L)	Immobilization	Uninformative	5353206
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.62 mg/L / NR / NR / NR / 10 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (0.62 mg/L)	Mortality	Uninformative	5353206
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 1.3 mg/L / NR / NR / NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (1.3 mg/L)	Mortality	Uninformative	5353206

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 1.3 mg/L / NR / NR / NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (2.1 (1.8-2.6) mg/L)	Immobilization	Uninformative	5353206
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.62 mg/L / NR / NR / NR / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (1.6 (1.4-1.8) mg/L)	Immobilization	Uninformative	5353206
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.62 mg/L / NR / NR / NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (0.62 mg/L)	Mortality	Uninformative	5353206
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.7 mg/L / NR / NR / NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (1.0 (0.9-1.1) mg/L)	Immobilization	Uninformative	5353206

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.7 mg/L / NR / NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (<0.7 mg/L)	Mortality	Uninformative	5353206
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 1.2 mg/L / NR / NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (4.1 (3.5-4.9) mg/L)	Immobilization	Uninformative	5353206
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 1.2 mg/L / NR / NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (1.2 mg/L)	Mortality	Uninformative	5353206
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 1.25 mg/L / NR / NR / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (>10 mg/L)	Immobilization	Uninformative	5353206

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 1.25 mg/L / NR / NR / NR / 10 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (<1.25 mg/L)	Mortality	Uninformative	5353206
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 1.3 mg/L / NR / NR / NR / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (4.7 (4.0-6.0) mg/L)	Immobilization	Uninformative	5353206
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (OBTAINED FROM LABORATORY CULTURES OF PARTHENOGENIC FEMALES)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 1.3 mg/L / NR / NR / NR / 10 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (<1.3 mg/L)	Mortality	Uninformative	5353206
85-68-7	20 Day(s), (42 Day(s))	*Daphnia magna* (Water Flea), <24 Hour(s) (Measured in: F1 generation), Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT E G AND G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, NA F1 generation	Measured	<0.01 mg/L / <0.01 mg/L / 0.035 mg/L / 0.058 mg/L / 0.099 mg/L / 0.17 mg/L / 0.76 mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEC (0.17 mg/L)	Reproductive/Teratogenic	High	5353200

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	20 Day(s), (42 Day(s))	*Daphnia magna* (Water Flea), <24 Hour(s) (Measured in: F1 generation), Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT E G AND G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, NA F1 generation	Measured	<0.01 mg/L / <0.01 mg/L / 0.035 mg/L / 0.058 mg/L / 0.099 mg/L / 0.17 mg/L / 0.76 mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	LOEC (0.76 mg/L)	Reproductive/Teratogenic	High	5353200
85-68-7	7-21 Day(s), (42 Day(s))	*Daphnia magna* (Water Flea), <24 Hour(s) (Measured in: F1 generation), Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT E G AND G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, NA F1 generation	Measured	<0.01 mg/L / <0.01 mg/L / 0.035 mg/L / 0.058 mg/L / 0.099 mg/L / 0.17 mg/L / 0.76 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NR (0.035-0.76 mg/L)	Mortality	High	5353200
85-68-7	21 Day(s), (42 Day(s))	*Daphnia magna* (Water Flea), <24 Hour(s) (Measured in: F1 generation), Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT E G AND G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, NA F1 generation	Measured	<0.01 mg/L / <0.01 mg/L / 0.035 mg/L / 0.058 mg/L / 0.099 mg/L / 0.17 mg/L / 0.76 mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	LOEC (0.76 mg/L)	Reproductive/Teratogenic	High	5353200

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (42 Day(s))	*Daphnia magna* (Water Flea), <24 Hour(s) (Measured in: F1 generation), Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT E G AND G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, NA F1 generation	Measured	<0.01 mg/L / <0.01 mg/L / 0.035 mg/L / 0.058 mg/L / 0.099 mg/L / 0.17 mg/L / 0.76 mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEC (0.17 mg/L)	Reproductive/Teratogenic	High	5353200
85-68-7	28-35 Day(s), (42 Day(s))	*Daphnia magna* (Water Flea), <24 Hour(s) (Measured in: F2 generation), Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT E G AND G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, NA F2 generation	Measured	<0.01 mg/L / <0.01 mg/L / 0.035 mg/L / 0.058 mg/L / 0.099 mg/L / 0.17 mg/L / 0.76 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NR (0.035-0.76 mg/L)	Mortality	High	5353200
85-68-7	28-42 Day(s), (42 Day(s))	*Daphnia magna* (Water Flea), <24 Hour(s) (Measured in: F2 generation), Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT E G AND G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, NA F2 generation	Measured	<0.01 mg/L / <0.01 mg/L / 0.035 mg/L / 0.058 mg/L / 0.099 mg/L / 0.17 mg/L / 0.76 mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	LOEC (0.76 mg/L)	Reproductive/Teratogenic	High	5353200

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	42 Day(s), (42 Day(s))	*Daphnia magna* (Water Flea), <24 Hour(s) (Measured in: F2 generation), Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT E G AND G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, NA F2 generation	Measured	<0.01 mg/L / <0.01 mg/L / 0.035 mg/L / 0.058 mg/L / 0.099 mg/L / 0.17 mg/L / 0.76 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	LOEC (0.76 mg/L)	Mortality	High	5353200
85-68-7	42 Day(s), (42 Day(s))	*Daphnia magna* (Water Flea), <24 Hour(s) (Measured in: F2 generation), Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT E G AND G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, NA F2 generation	Measured	<0.01 mg/L / <0.01 mg/L / 0.035 mg/L / 0.058 mg/L / 0.099 mg/L / 0.17 mg/L / 0.76 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (0.17 mg/L)	Mortality	High	5353200
85-68-7	42 Day(s), (42 Day(s))	*Daphnia magna* (Water Flea), <24 Hour(s), Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT E G AND G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.01 mg/L / <0.01 mg/L / 0.035 mg/L / 0.058 mg/L / 0.099 mg/L / 0.17 mg/L / 0.76 mg/L	Multiple (Multiple-Multiple effects reported as one result, Response Site: Not reported)	MATC (>0.17-<0.76 mg/L)	Reproductive/Teratogenic	High	5353200

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	28-42 Day(s), (42 Day(s))	*Daphnia magna* (Water Flea), <24 Hour(s) (Measured in: F2 generation), Not Reported, Laboratory (OBTAINED FROM CULTURES MAINTAINED AT E G AND G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, NA F2 generation	Measured	<0.01 mg/L / <0.01 mg/L / 0.035 mg/L / 0.058 mg/L / 0.099 mg/L / 0.17 mg/L / 0.76 mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEC (0.17 mg/L)	Reproductive/Teratogenic	High	5353200
85-68-7	7 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	LOEC (1.4 (0.98-1.6) mg/L)	Mortality	High	1316195
85-68-7	7 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEC (0.28 (0.18-0.44) mg/L)	Reproductive/Teratogenic	High	1316195

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	7 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	LOEC (1.4 (0.98-1.6) mg/L)	Reproductive/Teratogenic	High	1316195
85-68-7	7 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (0.28 (0.18-0.44) mg/L)	Mortality	High	1316195
85-68-7	8 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEC (0.28 (0.18-0.44) mg/L)	Reproductive/Teratogenic	High	1316195

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	8 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	LOEC (1.4 (0.98-1.6) mg/L)	Reproductive/Teratogenic	High	1316195
85-68-7	9 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	LOEC (1.4 (0.98-1.6) mg/L)	Reproductive/Teratogenic	High	1316195
85-68-7	9 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEC (0.28 (0.18-0.44) mg/L)	Reproductive/Teratogenic	High	1316195

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	10 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	LOEC (1.4 (0.98-1.6) mg/L)	Reproductive/Teratogenic	High	1316195
85-68-7	10 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEC (0.28 (0.18-0.44) mg/L)	Reproductive/Teratogenic	High	1316195
85-68-7	13 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	LOEC (1.4 (0.98-1.6) mg/L)	Reproductive/Teratogenic	High	1316195

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	13 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEC (0.28 (0.18-0.44) mg/L)	Reproductive/Teratogenic	High	1316195
85-68-7	14 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (0.28 (0.18-0.44) mg/L)	Mortality	High	1316195
85-68-7	14 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEC (0.28 (0.18-0.44) mg/L)	Reproductive/Teratogenic	High	1316195

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	14 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	LOEC (1.4 (0.98-1.6) mg/L)	Mortality	High	1316195
85-68-7	14 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	LOEC (1.4 (0.98-1.6) mg/L)	Reproductive/Teratogenic	High	1316195
85-68-7	15 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEC (0.28 (0.18-0.44) mg/L)	Reproductive/Teratogenic	High	1316195

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	15 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	LOEC (1.4 (0.98-1.6) mg/L)	Reproductive/Teratogenic	High	1316195
85-68-7	16 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	LOEC (1.4 (0.98-1.6) mg/L)	Reproductive/Teratogenic	High	1316195
85-68-7	16 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEC (0.28 (0.18-0.44) mg/L)	Reproductive/Teratogenic	High	1316195

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	17 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEC (0.28 (0.18-0.44) mg/L)	Reproductive/Teratogenic	High	1316195
85-68-7	17 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	LOEC (1.4 (0.98-1.6) mg/L)	Reproductive/Teratogenic	High	1316195
85-68-7	20 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	LOEC (1.4 (0.98-1.6) mg/L)	Reproductive/Teratogenic	High	1316195

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	20 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), Adult, <=24 Hour(s), Not Reported, Laboratory (OBTAINED FROM LABORATORY STOCKS CULTURED AT SPRINGBORN BIONOMICS, INC.)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.025 (<0.0071-<0.025) mg/L / 0.073 (0.050-0.084) mg/L / 0.23 (0.13-0.34) mg/L / 0.28 (0.18-0.44) mg/L / 1.4 (0.98-1.6) mg/L / 2.4 (2.2-2.8) mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEC (0.28 (0.18-0.44) mg/L)	Reproductive/Teratogenic	High	1316195
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <24 Hour(s), Not Reported, Laboratory (EG&G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.0033 mg/L / 0.15-0.20 mg/L / 0.21 mg/L / 0.40-0.65 mg/L / 0.13-0.80 mg/L / 0.52-1.5 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>1.4 mg/L)	Mortality	Medium	1316223
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <24 Hour(s), Not Reported, Laboratory (EG&G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.0033 mg/L / 0.15-0.20 mg/L / 0.21 mg/L / 0.40-0.65 mg/L / 0.13-0.80 mg/L / 0.52-1.5 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>1.4 mg/L)	Mortality	Medium	1316223
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <24 Hour(s), Not Reported, Laboratory (EG&G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.0033 mg/L / 0.15-0.20 mg/L / 0.21 mg/L / 0.40-0.65 mg/L / 0.13-0.80 mg/L / 0.52-1.5 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (1.4 mg/L)	Mortality	Medium	1316223

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <24 Hour(s), Not Reported, Laboratory (EG&G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.0033 mg/L / 0.15-0.20 mg/L / 0.21 mg/L / 0.40-0.65 mg/L / 0.13-0.80 mg/L / 0.52-1.5 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (0.52-1.4 mg/L)	Mortality	Medium	1316223
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <24 Hour(s), Not Reported, Laboratory (EG&G BIONOMICS)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.0033 mg/L / 0.15-0.20 mg/L / 0.21 mg/L / 0.40-0.65 mg/L / 0.13-0.80 mg/L / 0.52-1.5 mg/L	Multiple (Multiple-Multiple effects reported as one result, Response Site: Not reported)	NOEC (1.4 mg/L)	Mortality	Medium	1316223
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <24 Hour(s), Not Reported, Laboratory (NR)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Chemical analysis reported	NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC10 (3.37 mg/L)	Immobilization	Uninformative	789536
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <24 Hour(s), Not Reported, Laboratory (NR)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Chemical analysis reported	NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (7.74 mg/L)	Immobilization	Uninformative	789536
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <24 Hour(s), Not Reported, Laboratory (NR)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Chemical analysis reported	NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (2.43 (2.22-2.94) mg/L)	Immobilization	Uninformative	789536
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <24 Hour(s), Not Reported, Laboratory (NR)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Chemical analysis reported	NR / NR	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC10 (1.73 (1.42-1.90) mg/L)	Immobilization	Uninformative	789536
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (5.2 (3.1-8.6) mg/L)	Immobilization	Medium	1359249

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	LOEC (2 mg/L)	Immobilization	Medium	1359249
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC84 (3.65 mg/L)	Immobilization	Medium	1359249
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC84 (8.6 mg/L)	Immobilization	Medium	1359249
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	NOEC (1 mg/L)	Immobilization	Medium	1359249
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC16 (3.1 mg/L)	Immobilization	Medium	1359249

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	LOEC (4 mg/L)	Immobilization	Medium	1359249
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC16 (1.05 mg/L)	Immobilization	Medium	1359249
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	NOEC (2 mg/L)	Immobilization	Medium	1359249
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (2.2 (1.53-3.17) mg/L)	Immobilization	Medium	1359249
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC16 (2.4 mg/L)	Immobilization	Medium	1359249

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24-48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	NR (0.5-10 mg/L)	Immobilization	Medium	1359249
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC16 (1.32 mg/L)	Immobilization	Medium	1359249
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC84 (9.6 mg/L)	Immobilization	Medium	1359249
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	NOEC (1 mg/L)	Immobilization	Medium	1359249
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (1.7 (1.02-2.85) mg/L)	Immobilization	Medium	1359249

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	LOEC (2 mg/L)	Immobilization	Medium	1359249
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (4.8 (2.4-9.6) mg/L)	Immobilization	Medium	1359249
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), <18 Hour(s), Not Reported, Laboratory (CULTURED AT MIC AQUATIC LABORATORY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Chemical analysis reported	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L / 4 mg/L / 7 mg/L / 10 mg/L	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC84 (2.85 mg/L)	Immobilization	Medium	1359249
85-68-7	2 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (1.78 (1.72-1.84) mg/L)	Mortality	Medium	1359268

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	4 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (1.78 (1.72-1.84) mg/L)	Mortality	Medium	1359268
85-68-7	7 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Growth (Growth-Length, Response Site: Whole organism)	MATC (>0.70 mg/L)	Development/Growth	Medium	1359268
85-68-7	7 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Growth (Growth-Length, Response Site: Whole organism)	NOEC (0.70 (0.46-0.93) mg/L)	Development/Growth	Medium	1359268

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	7 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (1.78 (1.72-1.84) mg/L)	Mortality	Medium	1359268
85-68-7	9 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (1.78 (1.72-1.84) mg/L)	Mortality	Medium	1359268
85-68-7	11 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (1.78 (1.72-1.84) mg/L)	Mortality	Medium	1359268

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	14 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (1.78 (1.72-1.84) mg/L)	Mortality	Medium	1359268
85-68-7	16 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (1.78 (1.72-1.84) mg/L)	Mortality	Medium	1359268
85-68-7	18 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (1.78 (1.72-1.84) mg/L)	Mortality	Medium	1359268

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Reproduction (Reproduction-Fecundity, Response Site: Not reported)	NOEC (0.35 (0.26-0.44) mg/L)	Reproductive/Teratogenic	Medium	1359268
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (0.35 (0.26-0.44) mg/L)	Mortality	Medium	1359268
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Growth (Growth-Length, Response Site: Whole organism)	NOEC (0.35 (0.26-0.44) mg/L)	Development/Growth	Medium	1359268

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Reproduction (Reproduction-Fecundity, Response Site: Not reported)	NOEC (0.22 (0.15-0.28) mg/L)	Reproductive/Teratogenic	Medium	1359268
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Reproduction (Reproduction-Fecundity, Response Site: Whole organism)	MATC (>0.35-<0.70 mg/L)	Reproductive/Teratogenic	Medium	1359268
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	MATC (>0.35-<0.70 mg/L)	Mortality	Medium	1359268

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Growth (Growth-Length, Response Site: Whole organism)	MATC (>0.35-<0.70 mg/L)	Development/Growth	Medium	1359268
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Reproduction (Reproduction-Fecundity, Response Site: Whole organism)	MATC (>0.22-<0.35 mg/L)	Reproductive/Teratogenic	Medium	1359268
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Reproduction (Reproduction-Fecundity, Response Site: Not reported)	LOEC (0.70 (0.46-0.93) mg/L)	Reproductive/Teratogenic	Medium	1359268

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	LOEC (0.70 (0.46-0.93) mg/L)	Mortality	Medium	1359268
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Growth (Growth-Length, Response Site: Whole organism)	LOEC (0.70 (0.46-0.93) mg/L)	Development/Growth	Medium	1359268
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 mg/L / 0 mg/L / 0.12 (0.09-0.15) mg/L / 0.22 (0.15-0.28) mg/L / 0.35 (0.26-0.44) mg/L / 0.70 (0.46-0.93) mg/L / 1.78 (1.72-1.84) mg/L	Reproduction (Reproduction-Fecundity, Response Site: Not reported)	LOEC (0.35 (0.26-0.44) mg/L)	Reproductive/Teratogenic	Medium	1359268
85-68-7	24 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (NR)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	Not Reported	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (3.76 mg/L)	Immobilization	Uninformative	2140006

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (NR)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	Not Reported	Physiology (Intoxication-Immobile, Response Site: Not reported)	NOEC (0.82 mg/L)	Immobilization	Uninformative	2140006
85-68-7	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Not reported, Not Reported, Laboratory (NR)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	Not Reported	Physiology (Intoxication-Immobile, Response Site: Not reported)	EC50 (1.83 mg/L)	Immobilization	Uninformative	2140006
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory (SPRINGBORN LABORATORIES)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0.073 mg/L / 0.23 mg/L / 0.28 mg/L / 1.4 mg/L / 2.4 mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEC (0.28 mg/L)	Reproductive/Teratogenic	High	680120
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory (SPRINGBORN LABORATORIES)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0.073 mg/L / 0.23 mg/L / 0.28 mg/L / 1.4 mg/L / 2.4 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (0.28 mg/L)	Mortality	High	680120
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory (SPRINGBORN LABORATORIES)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0.073 mg/L / 0.23 mg/L / 0.28 mg/L / 1.4 mg/L / 2.4 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	LOEC (1.4 mg/L)	Mortality	High	680120
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory (SPRINGBORN LABORATORIES)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0.073 mg/L / 0.23 mg/L / 0.28 mg/L / 1.4 mg/L / 2.4 mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	LOEC (1.4 mg/L)	Reproductive/Teratogenic	High	680120

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory (SPRINGBORN LABORATORIES)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0.073 mg/L / 0.23 mg/L / 0.28 mg/L / 1.4 mg/L / 2.4 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	MATC (0.63 mg/L)	Mortality	High	680120
85-68-7	21 Day(s), (21 Day(s))	*Daphnia magna* (Water Flea), <=24 Hour(s), Not Reported, Laboratory (SPRINGBORN LABORATORIES)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0.073 mg/L / 0.23 mg/L / 0.28 mg/L / 1.4 mg/L / 2.4 mg/L	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	MATC (0.63 mg/L)	Reproductive/Teratogenic	High	680120
85-68-7	96 Hour(s), (96 Hour(s))	*Farfantepenaeus duorarum* (Northern Pink Shrimp), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL SHRIMP SUPPLIER IN FLORIDA)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.061 mg/L / <0.061 mg/L / 0.60 (0.56-0.65) mg/L / 0.62 (0.61-0.63) mg/L / 0.90 (0.87-0.93) mg/L / 1.4 mg/L / 3.4 (3.0-3.9) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (3.4 (3.0-3.9) mg/L)	Mortality	High	1359218
85-68-7	96 Hour(s), (96 Hour(s))	*Farfantepenaeus duorarum* (Northern Pink Shrimp), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL SHRIMP SUPPLIER IN FLORIDA)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.061 mg/L / <0.061 mg/L / 0.60 (0.56-0.65) mg/L / 0.62 (0.61-0.63) mg/L / 0.90 (0.87-0.93) mg/L / 1.4 mg/L / 3.4 (3.0-3.9) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (3.4 (3.0-3.9) mg/L)	Mortality	High	1359218

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Farfantepenaeus duorarum* (Northern Pink Shrimp), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL SHRIMP SUPPLIER IN FLORIDA)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.061 mg/L / <0.061 mg/L / 0.60 (0.56-0.65) mg/L / 0.62 (0.61-0.63) mg/L / 0.90 (0.87-0.93) mg/L / 1.4 mg/L / 3.4 (3.0-3.9) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>3.4 mg/L)	Mortality	High	1359218
85-68-7	24 Hour(s), (96 Hour(s))	*Hexagenia sp.* (Mayfly), Nymph, Not Reported, Laboratory (ROHDES LIVE BAIT, AMHERST, WISCONSIN)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0 mg/L / 0.082 mg/L / 0.18 mg/L / 0.32 mg/L / 0.77 mg/L / 1.6 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (0.77 mg/L)	Mortality	Medium	1359195
85-68-7	1 Day(s), (96 Hour(s))	*Hexagenia sp.* (Mayfly), Nymph, Not Reported, Laboratory (ROHDES LIVE BAIT, AMHERST, WISCONSIN)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0 mg/L / 0.082 mg/L / 0.18 mg/L / 0.32 mg/L / 0.77 mg/L / 1.6 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>1.6 mg/L)	Mortality	Medium	1359195
85-68-7	2 Day(s), (96 Hour(s))	*Hexagenia sp.* (Mayfly), Nymph, Not Reported, Laboratory (ROHDES LIVE BAIT, AMHERST, WISCONSIN)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0 mg/L / 0.082 mg/L / 0.18 mg/L / 0.32 mg/L / 0.77 mg/L / 1.6 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>1.6 mg/L)	Mortality	Medium	1359195
85-68-7	3 Day(s), (96 Hour(s))	*Hexagenia sp.* (Mayfly), Nymph, Not Reported, Laboratory (ROHDES LIVE BAIT, AMHERST, WISCONSIN)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0 mg/L / 0.082 mg/L / 0.18 mg/L / 0.32 mg/L / 0.77 mg/L / 1.6 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>1.6 mg/L)	Mortality	Medium	1359195

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Hexagenia sp.* (Mayfly), Nymph, Not Reported, Laboratory (ROHDES LIVE BAIT, AMHERST, WISCONSIN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.03 mg/L / 0.3 mg/L / 3.0 mg/L	Behavior (Behavior-Behavioral changes, general, Response Site: Not reported)	NR (0.03-3.0 mg/L)	Behavioral	Medium	1359195
85-68-7	96 Hour(s), (96 Hour(s))	*Hexagenia sp.* (Mayfly), Nymph, Not Reported, Laboratory (ROHDES LIVE BAIT, AMHERST, WISCONSIN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.03 mg/L / 0.3 mg/L / 3.0 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR (0.03-3.0 mg/L)	Mortality	Medium	1359195
85-68-7	4 Day(s), (96 Hour(s))	*Hexagenia sp.* (Mayfly), Nymph, Not Reported, Laboratory (ROHDES LIVE BAIT, AMHERST, WISCONSIN)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0 mg/L / 0.082 mg/L / 0.18 mg/L / 0.32 mg/L / 0.77 mg/L / 1.6 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.1 mg/L)	Mortality	Medium	1359195
85-68-7	24-96 Hour(s), (96 Hour(s))	*Hexagenia sp.* (Mayfly), Nymph, Not Reported, Laboratory (ROHDES LIVE BAIT, AMHERST, WISCONSIN)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0 mg/L / 0.082 mg/L / 0.18 mg/L / 0.32 mg/L / 0.77 mg/L / 1.6 mg/L	Behavior (Behavior-Equilibrium, Response Site: Not reported)	NR (0.082-1.6 mg/L)	Behavioral	Medium	1359195
85-68-7	10 Day(s), (10 Day(s))	*Hyalella azteca* (Scud), 7-14 Day(s), Not Reported, Laboratory (CULTURES STARTED AT THE U.S. ENVIRONMENTAL PROTECTION AGENCY LABORATORY, DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.008 mg/L / 0.036 mg/L / 0.095 mg/L / 0.215 mg/L / 0.565 mg/L / 1.25 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-LETH (1.25 mg/L)	Mortality	High	679312

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	10 Day(s), (10 Day(s))	*Hyalella azteca* (Scud), 7-14 Day(s), Not Reported, Laboratory (CULTURES STARTED AT THE U.S. ENVIRONMENTAL PROTECTION AGENCY LABORATORY, DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.008 mg/L / 0.036 mg/L / 0.095 mg/L / 0.215 mg/L / 0.565 mg/L / 1.25 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.46 (0.35-0.60) mg/L)	Mortality	High	679312
85-68-7	NA Not applicable, (Not Reported)	*Hyalella azteca* (Scud), Not reported, Not Reported, Not reported (NR)	Not reported, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	Not Reported	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.46 mg/L)	Mortality	Uninformative	6574639
85-68-7	10 Day(s), (10 Day(s))	*Hyalella azteca* (Scud), Neonate, 7-14 Day(s), Not Reported, Laboratory (CULTURES STARTED AT THE U.S. ENVIRONMENTAL PROTECTION AGENCY LABORATORY, DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.008 mg/L / 0.036 (0.012-0.076) mg/L / 0.095 (0.046-0.196) mg/L / 0.215 (0.123-0.351) mg/L / 0.565 (0.324-0.794) mg/L / 1.25 (0.96-1.47) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.48 (0.30-0.67) mg/L)	Mortality	High	7325945
85-68-7	10 Day(s), (10 Day(s))	*Hyalella azteca* (Scud), Neonate, 7-14 Day(s), Not Reported, Laboratory (CULTURES STARTED AT THE U.S. ENVIRONMENTAL PROTECTION AGENCY LABORATORY, DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.008 mg/L / 0.036 (0.012-0.076) mg/L / 0.095 (0.046-0.196) mg/L / 0.215 (0.123-0.351) mg/L / 0.565 (0.324-0.794) mg/L / 1.25 (0.96-1.47) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (0.71 (0.68-0.74) mg/L)	Mortality	High	7325945

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	10 Minute(s), (40 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Cellular (Histology-Necrosis, Response Site: Hemocyte)	NOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598
85-68-7	10 Minute(s), (10 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Physiology (Immunological-Pseudopodia formation, Response Site: Hemocyte)	NOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598
85-68-7	10 Minute(s), (10 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Biochemical (Enzyme(s)-Phenoloxidase, Response Site: Hemocyte)	LOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598
85-68-7	10 Minute(s), (40 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Cellular (Genetics-Apoptosis, Response Site: Hemocyte)	LOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598
85-68-7	10 Minute(s), (10 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Physiology (Physiology-Superoxide generation, Response Site: Hemocyte)	LOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598
85-68-7	40 Minute(s), (40 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Cellular (Histology-Necrosis, Response Site: Hemocyte)	LOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	10 Minute(s), (10 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Cellular (Cell(s)-Aggregation/adhesion, Response Site: Hemocyte)	NOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598
85-68-7	40 Minute(s), (40 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Cellular (Genetics-Apoptosis, Response Site: Hemocyte)	NOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598
85-68-7	10 Minute(s), (40 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Cellular (Histology-Necrosis, Response Site: Hemocyte)	NOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598
85-68-7	40 Minute(s), (40 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Cellular (Genetics-Apoptosis, Response Site: Hemocyte)	NOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598
85-68-7	10 Minute(s), (10 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Biochemical (Enzyme(s)-Phenoloxidase, Response Site: Hemocyte)	LOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598
85-68-7	10 Minute(s), (40 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Cellular (Genetics-Apoptosis, Response Site: Hemocyte)	LOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	10 Minute(s), (10 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Physiology (Physiology-Superoxide generation, Response Site: Hemocyte)	LOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598
85-68-7	40 Minute(s), (40 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Cellular (Histology-Necrosis, Response Site: Hemocyte)	LOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598
85-68-7	10 Minute(s), (10 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Physiology (Immunological-Pseudopodia formation, Response Site: Hemocyte)	NOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598
85-68-7	10 Minute(s), (10 Minute(s))	*Macrobrachium rosenbergii* (Giant River Prawn), Not intact, Not Reported, Laboratory (LOCAL PRAWN FARM)	Culture, In Vitro, In Vitro, Not Reported	Unmeasured	0 ug/ml / 100 ug/ml	Cellular (Cell(s)-Aggregation/adhesion, Response Site: Hemocyte)	NOEC (100 ug/ml)	Mechanistic: Cell signaling/function	Medium	789598
85-68-7	0-2 Generation, (2 Generation)	*Moina macrocopa* (Water Flea), Neonate, <12 Hour(s), Not Reported, Laboratory (FROM LABORATORY OF AQUACULTURE BIOLOGY, NAGASAKI UNIVERSITY, JAPAN)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L / 0 ug/L / 62.5 ug/L / 125 ug/L / 250 ug/L / 500 ug/L / 1000 ug/L / 2000 ug/L	Mortality (Mortality-Survivorship, Response Site: Not reported)	NR (62.5-2000 ug/L)	Mortality	High	788149

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	1 Generation, (2 Generation)	*Moina macrocopa* (Water Flea), Neonate, <12 Hour(s) (Measured in: F0 generation), Not Reported, Laboratory (FROM LABORATORY OF AQUACULTURE BIOLOGY, NAGASAKI UNIVERSITY, JAPAN)	Fresh water, Aqueous (aquatic habitat), Renewal, NA F0 generation	Unmeasured	0 ug/L / 0 ug/L / 62.5 ug/L / 125 ug/L / 250 ug/L / 500 ug/L / 1000 ug/L / 2000 ug/L	Reproduction (Reproduction-Net Reproductive Rate, Response Site: Not reported)	NOEC (62.5 ug/L)	Reproductive/Teratogenic	High	788149
85-68-7	2 Generation, (2 Generation)	*Moina macrocopa* (Water Flea), Neonate, <12 Hour(s) (Measured in: F1 generation), Not Reported, Laboratory (FROM LABORATORY OF AQUACULTURE BIOLOGY, NAGASAKI UNIVERSITY, JAPAN)	Fresh water, Aqueous (aquatic habitat), Renewal, NA F1 generation	Unmeasured	0 ug/L / 0 ug/L / 62.5 ug/L / 125 ug/L / 250 ug/L / 500 ug/L / 1000 ug/L / 2000 ug/L	Reproduction (Reproduction-Net Reproductive Rate, Response Site: Not reported)	NOEC (2000 ug/L)	Reproductive/Teratogenic	High	788149
85-68-7	1 Generation, (2 Generation)	*Moina macrocopa* (Water Flea), Neonate, <12 Hour(s) (Measured in: F0 generation), Not Reported, Laboratory (FROM LABORATORY OF AQUACULTURE BIOLOGY, NAGASAKI UNIVERSITY, JAPAN)	Fresh water, Aqueous (aquatic habitat), Renewal, NA F0 generation	Unmeasured	0 ug/L / 0 ug/L / 62.5 ug/L / 125 ug/L / 250 ug/L / 500 ug/L / 1000 ug/L / 2000 ug/L	Reproduction (Reproduction-Net Reproductive Rate, Response Site: Not reported)	LOEC (125 ug/L)	Reproductive/Teratogenic	High	788149

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	2 Generation, (2 Generation)	*Moina macrocopa* (Water Flea), Neonate, <12 Hour(s) (Measured in: F1 generation), Not Reported, Laboratory (FROM LABORATORY OF AQUACULTURE BIOLOGY, NAGASAKI UNIVERSITY, JAPAN)	Fresh water, Aqueous (aquatic habitat), Renewal, NA F1 generation	Unmeasured	0 ug/L / 0 ug/L / 62.5 ug/L / 125 ug/L / 250 ug/L / 500 ug/L / 1000 ug/L / 2000 ug/L	Mortality (Mortality-Life expectancy, Response Site: Not reported)	NOEC (2000 ug/L)	Mortality	High	788149
85-68-7	2 Generation, (2 Generation)	*Moina macrocopa* (Water Flea), Neonate, <12 Hour(s) (Measured in: F1 generation), Not Reported, Laboratory (FROM LABORATORY OF AQUACULTURE BIOLOGY, NAGASAKI UNIVERSITY, JAPAN)	Fresh water, Aqueous (aquatic habitat), Renewal, NA F1 generation	Unmeasured	0 ug/L / 0 ug/L / 62.5 ug/L / 125 ug/L / 250 ug/L / 500 ug/L / 1000 ug/L / 2000 ug/L	Population (Population-Generation time, Response Site: Not reported)	NOEC (2000 ug/L)	Development/Growth	High	788149
85-68-7	1 Generation, (2 Generation)	*Moina macrocopa* (Water Flea), Neonate, <12 Hour(s) (Measured in: F0 generation), Not Reported, Laboratory (FROM LABORATORY OF AQUACULTURE BIOLOGY, NAGASAKI UNIVERSITY, JAPAN)	Fresh water, Aqueous (aquatic habitat), Renewal, NA F0 generation	Unmeasured	0 ug/L / 0 ug/L / 62.5 ug/L / 125 ug/L / 250 ug/L / 500 ug/L / 1000 ug/L / 2000 ug/L	Mortality (Mortality-Life expectancy, Response Site: Not reported)	NR (62.5-2000 ug/L)	Mortality	High	788149

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	0-2 Generation, (2 Generation)	*Moina macrocopa* (Water Flea), Neonate, <12 Hour(s), Not Reported, Laboratory (FROM LABORATORY OF AQUACULTURE BIOLOGY, NAGASAKI UNIVERSITY, JAPAN)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L / 0 ug/L / 62.5 ug/L / 125 ug/L / 250 ug/L / 500 ug/L / 1000 ug/L / 2000 ug/L	Reproduction (Reproduction-Fecundity, Response Site: Not reported)	NR (62.5-2000 ug/L)	Reproductive/Teratogenic	High	788149
85-68-7	1 Generation, (2 Generation)	*Moina macrocopa* (Water Flea), Neonate, <12 Hour(s) (Measured in: F0 generation), Not Reported, Laboratory (FROM LABORATORY OF AQUACULTURE BIOLOGY, NAGASAKI UNIVERSITY, JAPAN)	Fresh water, Aqueous (aquatic habitat), Renewal, NA F0 generation	Unmeasured	0 ug/L / 0 ug/L / 62.5 ug/L / 125 ug/L / 250 ug/L / 500 ug/L / 1000 ug/L / 2000 ug/L	Population (Population-Intrinsic rate of increase, Response Site: Not reported)	NR (62.5-2000 ug/L)	Reproductive/Teratogenic	High	788149
85-68-7	1 Generation, (2 Generation)	*Moina macrocopa* (Water Flea), Neonate, <12 Hour(s) (Measured in: F0 generation), Not Reported, Laboratory (FROM LABORATORY OF AQUACULTURE BIOLOGY, NAGASAKI UNIVERSITY, JAPAN)	Fresh water, Aqueous (aquatic habitat), Renewal, NA F0 generation	Unmeasured	0 ug/L / 0 ug/L / 62.5 ug/L / 125 ug/L / 250 ug/L / 500 ug/L / 1000 ug/L / 2000 ug/L	Population (Population-Generation time, Response Site: Not reported)	NR (62.5-2000 ug/L)	Development/Growth	High	788149

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	2 Generation, (2 Generation)	*Moina macrocopa* (Water Flea), Neonate, <12 Hour(s) (Measured in: F1 generation), Not Reported, Laboratory (FROM LABORATORY OF AQUACULTURE BIOLOGY, NAGASAKI UNIVERSITY, JAPAN)	Fresh water, Aqueous (aquatic habitat), Renewal, NA F1 generation	Unmeasured	0 ug/L / 0 ug/L / 62.5 ug/L / 125 ug/L / 250 ug/L / 500 ug/L / 1000 ug/L / 2000 ug/L	Population (Population-Intrinsic rate of increase, Response Site: Not reported)	NR (62.5-2000 ug/L)	Reproductive/Teratogenic	High	788149
85-68-7	48 Hour(s), (48 Hour(s))	*Moina macrocopa* (Water Flea), Newborn, <12 Hour(s), Not Reported, Laboratory (FROM LABORATORY OF AQUACULTURE BIOLOGY, NAGASAKI UNIVERSITY, JAPAN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.25 mg/L / 0.50 mg/L / 1.0 mg/L / 2.0 mg/L / 4.0 mg/L / 6.0 mg/L / 8.0 mg/L / 10 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (2.0 mg/L)	Mortality	High	788149
85-68-7	48 Hour(s), (48 Hour(s))	*Moina macrocopa* (Water Flea), Newborn, <12 Hour(s), Not Reported, Laboratory (FROM LABORATORY OF AQUACULTURE BIOLOGY, NAGASAKI UNIVERSITY, JAPAN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.25 mg/L / 0.50 mg/L / 1.0 mg/L / 2.0 mg/L / 4.0 mg/L / 6.0 mg/L / 8.0 mg/L / 10 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LOEC (4.0 mg/L)	Mortality	High	788149

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (48 Hour(s))	*Moina macrocopa* (Water Flea), Newborn, <12 Hour(s), Not Reported, Laboratory (FROM LABORATORY OF AQUACULTURE BIOLOGY, NAGASAKI UNIVERSITY, JAPAN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.25 mg/L / 0.50 mg/L / 1.0 mg/L / 2.0 mg/L / 4.0 mg/L / 6.0 mg/L / 8.0 mg/L / 10 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (3.69 mg/L)	Mortality	High	788149
85-68-7	48 Hour(s), (48 Hour(s))	*Paratanytarsus dissimilis* (Midge), Larva, 2-3 Instar, Not Reported, Laboratory (ORIGINALLY OBTAINED FROM THE EPA AQUATIC TOXICOLOGY LABORATORY IN DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	0 mg/L / 0 mg/L / 0.04 mg/L / 0.20 mg/L / 0.36 mg/L / 2.00 mg/L / 3.60 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>3.60 mg/L)	Mortality	Medium	1359238
85-68-7	48 Hour(s), (48 Hour(s))	*Paratanytarsus dissimilis* (Midge), Larva, 2-3 Instar, Not Reported, Laboratory (ORIGINALLY OBTAINED FROM THE EPA AQUATIC TOXICOLOGY LABORATORY IN DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	0 mg/L / 0 mg/L / 0.04 mg/L / 0.20 mg/L / 0.36 mg/L / 2.00 mg/L / 3.60 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LD10 (2.33 mg/L)	Mortality	Medium	1359238

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (48 Hour(s))	*Paratanytarsus dissimilis* (Midge), Larva, 2-3 Instar, Not Reported, Laboratory (ORIGINALLY OBTAINED FROM THE EPA AQUATIC TOXICOLOGY LABORATORY IN DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	0 mg/L / 0 mg/L / 0.04 mg/L / 0.20 mg/L / 0.36 mg/L / 2.00 mg/L / 3.60 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LD99 (11.00 mg/L)	Mortality	Medium	1359238
85-68-7	48 Hour(s), (48 Hour(s))	*Paratanytarsus dissimilis* (Midge), Larva, 2-3 Instar, Not Reported, Laboratory (ORIGINALLY OBTAINED FROM THE EPA AQUATIC TOXICOLOGY LABORATORY IN DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	0 mg/L / 0 mg/L / 0.04 mg/L / 0.20 mg/L / 0.36 mg/L / 2.00 mg/L / 3.60 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LD75 (7.03 mg/L)	Mortality	Medium	1359238
85-68-7	48 Hour(s), (48 Hour(s))	*Paratanytarsus dissimilis* (Midge), Larva, 2-3 Instar, Not Reported, Laboratory (ORIGINALLY OBTAINED FROM THE EPA AQUATIC TOXICOLOGY LABORATORY IN DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	0 mg/L / 0 mg/L / 0.04 mg/L / 0.20 mg/L / 0.36 mg/L / 2.00 mg/L / 3.60 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LD50 (5.41 (3.895-13.42) mg/L)	Mortality	Medium	1359238

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (48 Hour(s))	*Paratanytarsus dissimilis* (Midge), Larva, 2-3 Instar, Not Reported, Laboratory (ORIGINALLY OBTAINED FROM THE EPA AQUATIC TOXICOLOGY LABORATORY IN DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	0 mg/L / 0 mg/L / 0.04 mg/L / 0.20 mg/L / 0.36 mg/L / 2.00 mg/L / 3.60 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LD90 (8.49 mg/L)	Mortality	Medium	1359238
85-68-7	48 Hour(s), (48 Hour(s))	*Paratanytarsus dissimilis* (Midge), Larva, 2-3 Instar, Not Reported, Laboratory (ORIGINALLY OBTAINED FROM THE EPA AQUATIC TOXICOLOGY LABORATORY IN DULUTH, MN)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	0 mg/L / 0 mg/L / 0.04 mg/L / 0.20 mg/L / 0.36 mg/L / 2.00 mg/L / 3.60 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LD25 (3.79 mg/L)	Mortality	Medium	1359238
85-68-7	96 Hour(s), (96 Hour(s))	*Paratanytarsus parthenogeneticus* (Midge), 2-3 Instar, Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (0.39 mg/L)	Mortality	High	1321996
85-68-7	96 Hour(s), (96 Hour(s))	*Paratanytarsus parthenogeneticus* (Midge), 2-3 Instar, Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	NR / NR	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>3.60 mg/L)	Mortality	High	1321996

Continued on next page . . .

. . . continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (48 Hour(s))	*Paratanytarsus parthenogeneticus* (Midge), Larva, Not Reported, Laboratory (MIC AQUATIC LABORATORY, MISSOURI)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1.0 mg/L / 2.0 mg/L / 4.0 mg/L / 8.0 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>8.0 mg/L)	Mortality	High	1359274
85-68-7	48 Hour(s), (48 Hour(s))	*Paratanytarsus parthenogeneticus* (Midge), Larva, Not Reported, Laboratory (MIC AQUATIC LABORATORY, MISSOURI)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1.0 mg/L / 2.0 mg/L / 4.0 mg/L / 8.0 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (4.0 mg/L)	Mortality	High	1359274
85-68-7	48 Hour(s), (48 Hour(s))	*Paratanytarsus parthenogeneticus* (Midge), Larva, Not Reported, Laboratory (MIC AQUATIC LABORATORY, MISSOURI)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1.0 mg/L / 2.0 mg/L / 4.0 mg/L / 8.0 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LOEC (8.0 mg/L)	Mortality	High	1359274
85-68-7	48 Hour(s), (48 Hour(s))	*Paratanytarsus parthenogeneticus* (Midge), Larva, Not Reported, Laboratory (MIC AQUATIC LABORATORY, MISSOURI)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1.0 mg/L / 2.0 mg/L / 4.0 mg/L / 8.0 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (7.2 (5.8-11.7) mg/L)	Mortality	High	1359274
85-68-7	24 Hour(s), (96 Hour(s))	*Procambarus sp.* (Crayfish), Not reported, Not Reported, Laboratory (FROM SABINE DELTA FARMS)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.005 ppm / 0.12 ppm / 0.25 ppm / 0.55 ppm / 1.1 ppm / 2.4 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>2.4 mg/L)	Mortality	High	5497664

Continued on next page . . .

...continued from previous page

Aquatic: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (96 Hour(s))	*Procambarus sp.* (Crayfish), Not reported, Not Reported, Laboratory (FROM SABINE DELTA FARMS)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.005 ppm / 0.12 ppm / 0.25 ppm / 0.55 ppm / 1.1 ppm / 2.4 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>2.4 mg/L)	Mortality	High	5497664
85-68-7	72 Hour(s), (96 Hour(s))	*Procambarus sp.* (Crayfish), Not reported, Not Reported, Laboratory (FROM SABINE DELTA FARMS)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.005 ppm / 0.12 ppm / 0.25 ppm / 0.55 ppm / 1.1 ppm / 2.4 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>2.4 mg/L)	Mortality	High	5497664
85-68-7	96 Hour(s), (96 Hour(s))	*Procambarus sp.* (Crayfish), Not reported, Not Reported, Laboratory (FROM SABINE DELTA FARMS)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Unmeasured	0 mg/L / 0.19 mg/L / 1.5 mg/L / 3.0 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (3.0 mg/L)	Mortality	High	5497664
85-68-7	96 Hour(s), (96 Hour(s))	*Procambarus sp.* (Crayfish), Not reported, Not Reported, Laboratory (FROM SABINE DELTA FARMS)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.005 ppm / 0.12 ppm / 0.25 ppm / 0.55 ppm / 1.1 ppm / 2.4 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>2.4 mg/L)	Mortality	High	5497664
85-68-7	96 Hour(s), (96 Hour(s))	*Procambarus sp.* (Crayfish), Not reported, Not Reported, Laboratory (FROM SABINE DELTA FARMS)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.005 ppm / 0.12 ppm / 0.25 ppm / 0.55 ppm / 1.1 ppm / 2.4 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (2.4 ppm)	Mortality	High	5497664

* If multiple extractions contained all identical information except the effect level, extraction rows were collapsed and the differing levels are listed by comma in this row.

Aquatic: Worms Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	10 Day(s), (10 Day(s))	*Lumbriculus variegatus* (Oligochaete, Worm), Adult, Not Reported, Laboratory (CULTURES STARTED AT THE STANFORD RESEARCH INSTITUTE, MENLO PARK, CA)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.008 mg/L / 0.079 mg/L / 0.150 mg/L / 0.288 mg/L / 0.672 mg/L / 1.39 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.23 mg/L)	Mortality	High	679312
85-68-7	10 Day(s), (10 Day(s))	*Lumbriculus variegatus* (Oligochaete, Worm), Adult, Not Reported, Laboratory (CULTURES STARTED AT THE STANFORD RESEARCH INSTITUTE, MENLO PARK, CA)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.008 mg/L / 0.079 mg/L / 0.150 mg/L / 0.288 mg/L / 0.672 mg/L / 1.39 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (0.672 mg/L)	Mortality	High	679312
85-68-7	10 Day(s), (10 Day(s))	*Lumbriculus variegatus* (Oligochaete, Worm), Adult, Not Reported, Laboratory (CULTURES STARTED AT THE STANFORD RESEARCH INSTITUTE, MENLO PARK, CA)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.008 mg/L / 0.079 (0.057-0.106) mg/L / 0.150 (0.084-0.208) mg/L / 0.288 (0.220-0.346) mg/L / 0.672 (0.512-0.892) mg/L / 1.39 (1.11-1.68) mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1.27 mg/L)	Mortality	High	7325945

Continued on next page . . .

...continued from previous page

Aquatic: Worms Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Nereis virens* (Polychaete Worm), Not reported, Not Reported, Laboratory (COMMERCIAL SUPPLIER IN MAINE)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.061 mg/L / <0.061 mg/L / 0.31 mg/L / 0.53 mg/L / 0.72 mg/L / 1.7 mg/L / 3.0 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>3.0 mg/L)	Mortality	High	6574648
85-68-7	96 Hour(s), (96 Hour(s))	*Nereis virens* (Polychaete Worm), Not reported, Not Reported, Laboratory (COMMERCIAL SUPPLIER IN MAINE)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.061 mg/L / <0.061 mg/L / 0.31 mg/L / 0.53 mg/L / 0.72 mg/L / 1.7 mg/L / 3.0 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (3.0 mg/L)	Mortality	High	6574648
85-68-7	24-96 Hour(s), (96 Hour(s))	*Nereis virens* (Polychaete Worm), Not reported, Not Reported, Laboratory (COMMERCIAL SUPPLIER IN MAINE)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.061 mg/L / <0.061 mg/L / 0.31 mg/L / 0.53 mg/L / 0.72 mg/L / 1.7 mg/L / 3.0 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR (0.31-3.0 mg/L)	Mortality	High	6574648

* If multiple extractions contained all identical information except the effect level, extraction rows were collapsed and the differing levels are listed by comma in this row.

Aquatic: Mollusks Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Crassostrea virginica* (American Or Virginia Oyster), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL SHELLFISH HATCHERY ON CAPE COD, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.068 mg/L / <0.068 mg/L / 0.19 (0.16-0.20) mg/L / 0.23 (0.11-0.28) mg/L / 0.38 (0.30-0.47) mg/L / 0.87 (0.71-1.0) mg/L / 1.4 (1.3-1.4) mg/L	Growth (Morphology-Shell deposition, Response Site: Shell)	EC50 (1.3 (1.1-1.7) mg/L)	Development/Growth	High	6574644
85-68-7	96 Hour(s), (96 Hour(s))	*Crassostrea virginica* (American Or Virginia Oyster), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL SHELLFISH HATCHERY ON CAPE COD, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.068 mg/L / <0.068 mg/L / 0.19 (0.16-0.20) mg/L / 0.23 (0.11-0.28) mg/L / 0.38 (0.30-0.47) mg/L / 0.87 (0.71-1.0) mg/L / 1.4 (1.3-1.4) mg/L	Growth (Morphology-Shell deposition, Response Site: Shell)	NR (0.16-1.4 mg/L)	Development/Growth	High	6574644
85-68-7	1 Hour(s), (53 Day(s))	*Crassostrea virginica* (American Or Virginia Oyster), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL SHELLFISH HATCHERY ON CAPE COD, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0.012 mg/L	Accumulation (Accumulation-Residue, Response Site: Not reported)	BCF (0.012 mg/L)	ADME (biotransformation)	High	6574651

Continued on next page . . .

. . . continued from previous page

Aquatic: Mollusks Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	6 Hour(s), (53 Day(s))	*Crassostrea virginica* (American Or Virginia Oyster), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL SHELLFISH HATCHERY ON CAPE COD, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0.012 mg/L	Accumulation (Accumulation-Residue, Response Site: Not reported)	BCF (0.012 mg/L)	ADME (biotransformation)	High	6574651
85-68-7	1 Day(s), (53 Day(s))	*Crassostrea virginica* (American Or Virginia Oyster), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL SHELLFISH HATCHERY ON CAPE COD, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0.012 mg/L	Accumulation (Accumulation-Residue, Response Site: Not reported)	BCF (0.012 mg/L)	ADME (biotransformation)	High	6574651
85-68-7	2 Day(s), (53 Day(s))	*Crassostrea virginica* (American Or Virginia Oyster), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL SHELLFISH HATCHERY ON CAPE COD, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0.012 mg/L	Accumulation (Accumulation-Residue, Response Site: Not reported)	BCF (0.012 mg/L)	ADME (biotransformation)	High	6574651

Continued on next page . . .

. . . continued from previous page

Aquatic: Mollusks Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	3 Day(s), (53 Day(s))	*Crassostrea virginica* (American Or Virginia Oyster), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL SHELLFISH HATCHERY ON CAPE COD, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0.012 mg/L	Accumulation (Accumulation-Residue, Response Site: Not reported)	BCF (0.012 mg/L)	ADME (biotransformation)	High	6574651
85-68-7	5 Day(s), (53 Day(s))	*Crassostrea virginica* (American Or Virginia Oyster), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL SHELLFISH HATCHERY ON CAPE COD, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0.012 mg/L	Accumulation (Accumulation-Residue, Response Site: Not reported)	BCF (0.012 mg/L)	ADME (biotransformation)	High	6574651
85-68-7	7 Day(s), (53 Day(s))	*Crassostrea virginica* (American Or Virginia Oyster), Not reported, Not Reported, Laboratory (OBTAINED FROM A COMMERCIAL SHELLFISH HATCHERY ON CAPE COD, MASSACHUSETTS)	Salt water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	0 mg/L / 0.012 mg/L	Accumulation (Accumulation-Residue, Response Site: Not reported)	BCF (0.012 mg/L)	ADME (biotransformation)	High	6574651

Continued on next page . . .

. . . continued from previous page

Aquatic: Mollusks Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	9 Hour(s), (96 Hour(s))	*Haliotis diversicolor ssp. supertexta* (Taiwan Abalone), Embryo, Not Reported, Wild (FROM DAPENG BAY, SHENZHEN, CHINA)	Salt water, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	0.0000343 mg/L / 0.0000343 mg/L / 0.0182 mg/L / 0.192 mg/L / 0.953 mg/L / 2.453 mg/L / 3.925 mg/L / 4.868 mg/L	Growth (Development-Normal, Response Site: Not reported)	EC50 (2.65 (1.60-2.97) mg/L)	Development/Growth	Medium	697762
85-68-7	<=12 Hour(s), (96 Hour(s))	*Haliotis diversicolor ssp. supertexta* (Taiwan Abalone), Embryo, Not Reported, Wild (FROM DAPENG BAY, SHENZHEN, CHINA)	Salt water, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	0.0000343 mg/L / 0.0000343 mg/L / 0.0182 mg/L / 0.192 mg/L / 0.953 mg/L / 2.453 mg/L / 3.925 mg/L / 4.868 mg/L	Growth (Development-Normal, Response Site: Not reported)	LOEC (0.953 mg/L)	Development/Growth	Medium	697762
85-68-7	<=12 Hour(s), (96 Hour(s))	*Haliotis diversicolor ssp. supertexta* (Taiwan Abalone), Embryo, Not Reported, Wild (FROM DAPENG BAY, SHENZHEN, CHINA)	Salt water, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	0.0000343 mg/L / 0.0000343 mg/L / 0.0182 mg/L / 0.192 mg/L / 0.953 mg/L / 2.453 mg/L / 3.925 mg/L / 4.868 mg/L	Growth (Development-Normal, Response Site: Not reported)	NOEC (0.192 mg/L)	Development/Growth	Medium	697762
85-68-7	<=12 Hour(s), (96 Hour(s))	*Haliotis diversicolor ssp. supertexta* (Taiwan Abalone), Embryo, Not Reported, Wild (FROM DAPENG BAY, SHENZHEN, CHINA)	Salt water, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	0.0000343 mg/L / 0.0000343 mg/L / 0.0182 mg/L / 0.192 mg/L / 0.953 mg/L / 2.453 mg/L / 3.925 mg/L / 4.868 mg/L	Growth (Development-Cell cleavage, Response Site: Not reported)	NOEC (4.868 mg/L)	Development/Growth	Medium	697762

Continued on next page . . .

...continued from previous page

Aquatic: Mollusks Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	<=96 Hour(s), (96 Hour(s))	*Haliotis diversicolor ssp. supertexta* (Taiwan Abalone), Embryo, Not Reported, Wild (FROM DAPENG BAY, SHENZHEN, CHINA)	Salt water, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	0.0000343 mg/L / 0.0000343 mg/L / 0.0182 mg/L / 0.192 mg/L / 0.953 mg/L / 2.453 mg/L / 3.925 mg/L / 4.868 mg/L	Growth (Development-Metamorphosis, Response Site: Not reported)	NOEC (0.0182 mg/L)	Development/Growth	Medium	697762
85-68-7	<=96 Hour(s), (96 Hour(s))	*Haliotis diversicolor ssp. supertexta* (Taiwan Abalone), Embryo, Not Reported, Wild (FROM DAPENG BAY, SHENZHEN, CHINA)	Salt water, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	0.0000343 mg/L / 0.0000343 mg/L / 0.0182 mg/L / 0.192 mg/L / 0.953 mg/L / 2.453 mg/L / 3.925 mg/L / 4.868 mg/L	Growth (Development-Normal, Response Site: Not reported)	NOEC (2.453 mg/L)	Development/Growth	Medium	697762

* If multiple extractions contained all identical information except the effect level, extraction rows were collapsed and the differing levels are listed by comma in this row.

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24-48 Hour(s), (72 Hour(s))	*Chlorella vulgaris* (Green Algae), Not reported, Not Reported, Laboratory (FROM LABORATORY STOCK CULTURES, ORIGINALLY FROM CAROLINA BIOLOGICAL SUPPLY COMPANY, BURLINGTON, NORTH CAROLINA, USA)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	<11.0 ug/L / 123-226 ug/L / 307-478 ug/L / 694-984 ug/L / 1480-2017 ug/L / 2188-2877 ug/L	Population (Population-Abundance, Response Site: Not reported)	NR (123-2877 ug/L)	Development/Growth	High	10617118
85-68-7	72 Hour(s), (72 Hour(s))	*Chlorella vulgaris* (Green Algae), Not reported, Not Reported, Laboratory (FROM LABORATORY STOCK CULTURES, ORIGINALLY FROM CAROLINA BIOLOGICAL SUPPLY COMPANY, BURLINGTON, NORTH CAROLINA, USA)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	<11.0 ug/L / 123-226 ug/L / 307-478 ug/L / 694-984 ug/L / 1480-2017 ug/L / 2188-2877 ug/L	Population (Population-Abundance, Response Site: Not reported)	EC50 (>2877 ug/L)	Development/Growth	High	10617118
85-68-7	72 Hour(s), (72 Hour(s))	*Chlorella vulgaris* (Green Algae), Not reported, Not Reported, Laboratory (FROM LABORATORY STOCK CULTURES, ORIGINALLY FROM CAROLINA BIOLOGICAL SUPPLY COMPANY, BURLINGTON, NORTH CAROLINA, USA)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	<11.0 ug/L / 123-226 ug/L / 307-478 ug/L / 694-984 ug/L / 1480-2017 ug/L / 2188-2877 ug/L	Population (Population-Specific growth rate, Response Site: Not reported)	NOEC (2188->2877 ug/L)	Development/Growth	High	10617118

Continued on next page . . .

. . . continued from previous page

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	72 Hour(s), (72 Hour(s))	*Chlorella vulgaris* (Green Algae), Not reported, Not Reported, Laboratory (FROM LABORATORY STOCK CULTURES, ORIGINALLY FROM CAROLINA BIOLOGICAL SUPPLY COMPANY, BURLINGTON, NORTH CAROLINA, USA)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	<11.0 ug/L / 123-226 ug/L / 307-478 ug/L / 694-984 ug/L / 1480-2017 ug/L / 2188-2877 ug/L	Population (Population-Abundance, Response Site: Not reported)	NOEC (2188->2877 ug/L)	Development/Growth	High	10617118
85-68-7	72 Hour(s), (72 Hour(s))	*Chlorella vulgaris* (Green Algae), Not reported, Not Reported, Laboratory (FROM LABORATORY STOCK CULTURES, ORIGINALLY FROM CAROLINA BIOLOGICAL SUPPLY COMPANY, BURLINGTON, NORTH CAROLINA, USA)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	<11.0 ug/L / 123-226 ug/L / 307-478 ug/L / 694-984 ug/L / 1480-2017 ug/L / 2188-2877 ug/L	Population (Population-Specific growth rate, Response Site: Not reported)	EC50 (>2877 ug/L)	Development/Growth	High	10617118

Continued on next page . . .

. . . continued from previous page

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (72 Hour(s))	*Desmodesmus subspicatus* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (FROM LABORATORY STOCK CULTURES, ORIGINALLY FROM UNIVERSITY OF TEXAS CULTURE COLLECTIONS, AUSTIN, TEXAS, USA)	Culture, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.003 ug/L / <0.003-62.4 ug/L / <0.003-122 ug/L / <0.003-263 ug/L / <0.003-485 ug/L / <0.003-1120 ug/L / <0.003-2140 ug/L	Population (Population-Biomass, Response Site: Not reported)	EC25 (208.366 ug/L)	Development/Growth	High	10617116
85-68-7	24 Hour(s), (72 Hour(s))	*Desmodesmus subspicatus* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (FROM LABORATORY STOCK CULTURES, ORIGINALLY FROM UNIVERSITY OF TEXAS CULTURE COLLECTIONS, AUSTIN, TEXAS, USA)	Culture, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.003 ug/L / <0.003-62.4 ug/L / <0.003-122 ug/L / <0.003-263 ug/L / <0.003-485 ug/L / <0.003-1120 ug/L / <0.003-2140 ug/L	Population (Population-Biomass, Response Site: Not reported)	EC50 (373.600 (205-682) ug/L)	Development/Growth	High	10617116

Continued on next page . . .

. . . continued from previous page

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (72 Hour(s))	*Desmodesmus subspicatus* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (FROM LABORATORY STOCK CULTURES, ORIGINALLY FROM UNIVERSITY OF TEXAS CULTURE COLLECTIONS, AUSTIN, TEXAS, USA)	Culture, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.003 ug/L / <0.003-62.4 ug/L / <0.003-122 ug/L / <0.003-263 ug/L / <0.003-485 ug/L / <0.003-1120 ug/L / <0.003-2140 ug/L	Population (Population-Biomass, Response Site: Not reported)	EC50 (255.006 (185-351) ug/L)	Development/Growth	High	10617116
85-68-7	24-48 Hour(s), (72 Hour(s))	*Desmodesmus subspicatus* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (FROM LABORATORY STOCK CULTURES, ORIGINALLY FROM UNIVERSITY OF TEXAS CULTURE COLLECTIONS, AUSTIN, TEXAS, USA)	Culture, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.003 ug/L / <0.003-62.4 ug/L / <0.003-122 ug/L / <0.003-263 ug/L / <0.003-485 ug/L / <0.003-1120 ug/L / <0.003-2140 ug/L	Population (Population-Abundance, Response Site: Not reported)	NR (<0.003-2140 ug/L)	Development/Growth	High	10617116

Continued on next page . . .

. . . continued from previous page

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (72 Hour(s))	*Desmodesmus subspicatus* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (FROM LABORATORY STOCK CULTURES, ORIGINALLY FROM UNIVERSITY OF TEXAS CULTURE COLLECTIONS, AUSTIN, TEXAS, USA)	Culture, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.003 ug/L / <0.003-62.4 ug/L / <0.003-122 ug/L / <0.003-263 ug/L / <0.003-485 ug/L / <0.003-1120 ug/L / <0.003-2140 ug/L	Population (Population-Biomass, Response Site: Not reported)	EC25 (146.048 ug/L)	Development/Growth	High	10617116
85-68-7	72 Hour(s), (72 Hour(s))	*Desmodesmus subspicatus* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (FROM LABORATORY STOCK CULTURES, ORIGINALLY FROM UNIVERSITY OF TEXAS CULTURE COLLECTIONS, AUSTIN, TEXAS, USA)	Culture, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.003 ug/L / <0.003-62.4 ug/L / <0.003-122 ug/L / <0.003-263 ug/L / <0.003-485 ug/L / <0.003-1120 ug/L / <0.003-2140 ug/L	Population (Population-Biomass, Response Site: Not reported)	EC25 (198.039 ug/L)	Development/Growth	High	10617116

Continued on next page . . .

. . . continued from previous page

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	72 Hour(s), (72 Hour(s))	*Desmodesmus subspicatus* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (FROM LABORATORY STOCK CULTURES, ORIGINALLY FROM UNIVERSITY OF TEXAS CULTURE COLLECTIONS, AUSTIN, TEXAS, USA)	Culture, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.003 ug/L / <0.003-62.4 ug/L / <0.003-122 ug/L / <0.003-263 ug/L / <0.003-485 ug/L / <0.003-1120 ug/L / <0.003-2140 ug/L	Population (Population-Biomass, Response Site: Not reported)	EC50 (325.286 (279-379) ug/L)	Development/Growth	High	10617116
85-68-7	72 Hour(s), (72 Hour(s))	*Desmodesmus subspicatus* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (FROM LABORATORY STOCK CULTURES, ORIGINALLY FROM UNIVERSITY OF TEXAS CULTURE COLLECTIONS, AUSTIN, TEXAS, USA)	Culture, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.003 ug/L / <0.003-62.4 ug/L / <0.003-122 ug/L / <0.003-263 ug/L / <0.003-485 ug/L / <0.003-1120 ug/L / <0.003-2140 ug/L	Population (Population-Abundance, Response Site: Not reported)	LOEC (<0.003-485 ug/L)	Development/Growth	High	10617116

Continued on next page . . .

. . . continued from previous page

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	72 Hour(s), (72 Hour(s))	*Desmodesmus subspicatus* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (FROM LABORATORY STOCK CULTURES, ORIGINALLY FROM UNIVERSITY OF TEXAS CULTURE COLLECTIONS, AUSTIN, TEXAS, USA)	Culture, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.003 ug/L / <0.003-62.4 ug/L / <0.003-122 ug/L / <0.003-263 ug/L / <0.003-485 ug/L / <0.003-1120 ug/L / <0.003-2140 ug/L	Population (Population-Abundance, Response Site: Not reported)	NOEC (<0.003-263 ug/L)	Development/Growth	High	10617116
85-68-7	48 Hour(s), (72 Hour(s))	*Fistulifera pellicu-losa* (Diatom), Exponential growth phase (log), Not Reported, Laboratory (FROM LABORATORY STOCK CULTURES, ORIGINALLY FROM CAROLINA BIOLOGICAL SUPPLY, BURLINGTON, NORTH CAROLINA, USA)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	<0.004 ug/L / 25.7-63.7 ug/L / 61.1-137 ug/L / 153-303 ug/L / 328-591 ug/L / 830-1150 ug/L / 1500-2390 ug/L / 4650 ug/L	Population (Population-Abundance, Response Site: Not reported)	EC25 (169.601 (20.0-1435) ug/L)	Development/Growth	High	10617117

Continued on next page . . .

. . . continued from previous page

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (72 Hour(s))	*Fistulifera pellicu-losa* (Diatom), Exponential growth phase (log), Not Re-ported, Labo-ratory (FROM LABORATORY STOCK CUL-TURES, ORIG-INALLY FROM CAROLINA BIO-LOGICAL SUP-PLY, BURLING-TON, NORTH CAROLINA, USA)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	<0.004 ug/L / 25.7-63.7 ug/L / 61.1-137 ug/L / 153-303 ug/L / 328-591 ug/L / 830-1150 ug/L / 1500-2390 ug/L / 4650 ug/L	Population (Population-Abundance, Re-sponse Site: Not reported)	EC50 (356.039 (82.4-1539) ug/L)	Develop-ment/Growth	High	10617117
85-68-7	72 Hour(s), (72 Hour(s))	*Fistulifera pellicu-losa* (Diatom), Exponential growth phase (log), Not Re-ported, Labo-ratory (FROM LABORATORY STOCK CUL-TURES, ORIG-INALLY FROM CAROLINA BIO-LOGICAL SUP-PLY, BURLING-TON, NORTH CAROLINA, USA)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	<0.004 ug/L / 25.7-63.7 ug/L / 61.1-137 ug/L / 153-303 ug/L / 328-591 ug/L / 830-1150 ug/L / 1500-2390 ug/L / 4650 ug/L	Population (Population-Abundance, Re-sponse Site: Not reported)	EC25 (265.343 (94.1-748) ug/L)	Develop-ment/Growth	High	10617117

Continued on next page . . .

. . . continued from previous page

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	72 Hour(s), (72 Hour(s))	*Fistulifera pellicu-losa* (Diatom), Exponential growth phase (log), Not Re-ported, Labo-ratory (FROM LABORATORY STOCK CUL-TURES, ORIG-INALLY FROM CAROLINA BIO-LOGICAL SUP-PLY, BURLING-TON, NORTH CAROLINA, USA)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	<0.004 ug/L / 25.7-63.7 ug/L / 61.1-137 ug/L / 153-303 ug/L / 328-591 ug/L / 830-1150 ug/L / 1500-2390 ug/L / 4650 ug/L	Population (Population-Abundance, Re-sponse Site: Not reported)	EC50 (413.814 (201-853) ug/L)	Develop-ment/Growth	High	10617117
85-68-7	72 Hour(s), (72 Hour(s))	*Fistulifera pellicu-losa* (Diatom), Exponential growth phase (log), Not Re-ported, Labo-ratory (FROM LABORATORY STOCK CUL-TURES, ORIG-INALLY FROM CAROLINA BIO-LOGICAL SUP-PLY, BURLING-TON, NORTH CAROLINA, USA)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	<0.004 ug/L / 25.7-63.7 ug/L / 61.1-137 ug/L / 153-303 ug/L / 328-591 ug/L / 830-1150 ug/L / 1500-2390 ug/L / 4650 ug/L	Population (Population-Abundance, Re-sponse Site: Not reported)	LOEC (61.1-137 ug/L)	Develop-ment/Growth	High	10617117

Continued on next page . . .

. . . continued from previous page

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	72 Hour(s), (72 Hour(s))	*Fistulifera pellicu-losa* (Diatom), Exponential growth phase (log), Not Re-ported, Labo-ratory (FROM LABORATORY STOCK CUL-TURES, ORIG-INALLY FROM CAROLINA BIO-LOGICAL SUP-PLY, BURLING-TON, NORTH CAROLINA, USA)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	<0.004 ug/L / 25.7-63.7 ug/L / 61.1-137 ug/L / 153-303 ug/L / 328-591 ug/L / 830-1150 ug/L / 1500-2390 ug/L / 4650 ug/L	Population (Population-Abundance, Re-sponse Site: Not reported)	NOEC (25.7-63.7 ug/L)	Develop-ment/Growth	High	10617117
85-68-7	72 Hour(s), (72 Hour(s))	*Fistulifera pellicu-losa* (Diatom), Exponential growth phase (log), Not Re-ported, Labo-ratory (FROM LABORATORY STOCK CUL-TURES, ORIG-INALLY FROM CAROLINA BIO-LOGICAL SUP-PLY, BURLING-TON, NORTH CAROLINA, USA)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 ug/L / 0.600 ug/L / 6.00 ug/L / 60.0 ug/L / 600 ug/L / 6000 ug/L	Population (Population-Abundance, Re-sponse Site: Not reported)	NR (0.600-6000 ug/L)	Develop-ment/Growth	Uninformative	10617117

Continued on next page . . .

. . . continued from previous page

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (96 Hour(s))	*Karenia brevis* (Dinoflagellate), Exponential growth phase (log), Not Reported, Laboratory (INSTITUTE OF OCEANOGRAPHY, CHINESE ACADEMY OF SCIENCES)	Salt water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 ml/L / 0 ml/L / 10 ml/L / 30 ml/L	Biochemical (Biochemistry-Malondialdehyde, Response Site: Not reported)	LOEC (10 ml/L)	Mechanistic: Oxidative stress (including redox biology); Photosynthesis	Low	3230225
85-68-7	24 Hour(s), (24 Hour(s))	*Karenia brevis* (Dinoflagellate), Exponential growth phase (log), Not Reported, Laboratory (INSTITUTE OF OCEANOGRAPHY, CHINESE ACADEMY OF SCIENCES)	Salt water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 20 mg/L	Biochemical (Biochemistry-Reactive oxygen species, Response Site: Not reported)	LOEC (20 mg/L)	Mechanistic: Oxidative stress (including redox biology); Photosynthesis	Low	3230225
85-68-7	48 Hour(s), (96 Hour(s))	*Karenia brevis* (Dinoflagellate), Exponential growth phase (log), Not Reported, Laboratory (INSTITUTE OF OCEANOGRAPHY, CHINESE ACADEMY OF SCIENCES)	Salt water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 ml/L / 0 ml/L / 10 ml/L / 30 ml/L	Biochemical (Biochemistry-Malondialdehyde, Response Site: Not reported)	LOEC (10 ml/L)	Mechanistic: Oxidative stress (including redox biology); Photosynthesis	Low	3230225

Continued on next page . . .

. . . continued from previous page

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	72 Hour(s), (96 Hour(s))	*Karenia brevis* (Dinoflagellate), Exponential growth phase (log), Not Reported, Laboratory (INSTITUTE OF OCEANOGRAPHY, CHINESE ACADEMY OF SCIENCES)	Salt water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 ml/L / 0 ml/L / 10 ml/L / 30 ml/L	Biochemical (Biochemistry-Malondialdehyde, Response Site: Not reported)	LOEC (10 ml/L)	Mechanistic: Oxidative stress (including redox biology); Photosynthesis	Low	3230225
85-68-7	24-72 Hour(s), (96 Hour(s))	*Karenia brevis* (Dinoflagellate), Exponential growth phase (log), Not Reported, Laboratory (INSTITUTE OF OCEANOGRAPHY, CHINESE ACADEMY OF SCIENCES)	Salt water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 ml/L / 0 ml/L / 10 ml/L / 30 ml/L	Biochemical (Biochemistry-Hydrogen peroxide,Hydroxide content,Superoxide, Response Site: Not reported)	NR (10-30 ml/L)	Mechanistic: Oxidative stress (including redox biology); Photosynthesis	Low	3230225
85-68-7	24-96 Hour(s), (96 Hour(s))	*Karenia brevis* (Dinoflagellate), Exponential growth phase (log), Not Reported, Laboratory (INSTITUTE OF OCEANOGRAPHY, CHINESE ACADEMY OF SCIENCES)	Salt water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 ml/L / 0 ml/L / 10 ml/L / 30 ml/L	Biochemical (Enzyme(s)-Catalase,Superoxide dismutase (SOD) enzyme activity, Response Site: Not reported)	NR (10-30 ml/L)	Mechanistic: Oxidative stress (including redox biology); Photosynthesis	Low	3230225

Continued on next page . . .

. . . continued from previous page

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Karenia brevis* (Dinoflagellate), Exponential growth phase (log), Not Reported, Laboratory (INSTITUTE OF OCEANOGRAPHY, CHINESE ACADEMY OF SCIENCES)	Salt water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 ml/L / 0 ml/L / 10 ml/L / 30 ml/L	Biochemical (Biochemistry-Malondialdehyde, Response Site: Not reported)	LOEC (10 ml/L)	Mechanistic: Oxidative stress (including redox biology); Photosynthesis	Low	3230225
85-68-7	24-96 Hour(s), (96 Hour(s))	*Karenia brevis* (Dinoflagellate), Exponential growth phase (log), Not Reported, Laboratory (INSTITUTE OF OCEANOGRAPHY, CHINESE ACADEMY OF SCIENCES)	Salt water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 ml/L / 0 ml/L / 1 ml/L / 5 ml/L / 10 ml/L / 20 ml/L / 30 ml/L / 50 ml/L / 100 ml/L / 150 ml/L / 200 ml/L	Population (Population-Abundance, Response Site: Not reported)	NR (1-200 ml/L)	Development/Growth	Low	3230225
85-68-7	72 Hour(s), (72 Hour(s))	*Raphidocelis subcapitata* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (NR)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Chemical analysis reported	0 mg/L / NR	Population (Population-Population growth rate, Response Site: Not reported)	EC50 (0.96 (0.65-1.33) mg/L)	Development/Growth	Uninformative	789536
85-68-7	72 Hour(s), (72 Hour(s))	*Raphidocelis subcapitata* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (NR)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Chemical analysis reported	0 mg/L / NR	Population (Population-Population growth rate, Response Site: Not reported)	EC10 (0.57 (0.37-0.97) mg/L)	Development/Growth	Uninformative	789536
85-68-7	96 Hour(s), (96 Hour(s))	*Selenastrum capricornutum* (Green Algae), Not reported, Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	NR / NR	Population (Population-Abundance, Response Site: Not reported)	NOEC (<0.10 mg/L)	Development/Growth	High	1321996

Continued on next page . . .

. . . continued from previous page

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Selenastrum capricornutum* (Green Algae), Not reported, Not Reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Measured	NR / NR	Population (Population-Abundance, Response Site: Not reported)	EC50 (0.21 mg/L)	Development/Growth	High	1321996
85-68-7	6 Day(s), (6 Day(s))	*Selenastrum capricornutum* (Green Algae), Not reported, Not Reported, Laboratory (FROM UNIVERSITY OF TEXAS AT AUSTIN, MAINTAINED AT SPRINGBORN BIONOMIC, INC)	Culture, Aqueous (aquatic habitat), Static, Not Reported	Measured	<0.005-0.01 mg/L / <0.005-<0.1 mg/L / <0.005-0.1 mg/L / <0.1-0.3 mg/L / <0.1-0.5 mg/L / <0.1-1.5 mg/L / 0.20-2.4 mg/L	Population (Population-Chlorophyll, Response Site: Not reported)	EC50 (0.2 (0.2-0.3) mg/L)	Development/Growth	High	1316196
85-68-7	96 Hour(s), (96 Hour(s))	*Selenastrum capricornutum* (Green Algae), Not reported, Not Reported, Laboratory (UNIVERSITY OF TEXAS STARR COLLECTION)	Culture, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.075 mg/L / 0.15 mg/L / 0.3 mg/L / 0.6 mg/L / 1.2 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-LETH (1.2 mg/L)	Development/Growth	Medium	1359173
85-68-7	96 Hour(s), (96 Hour(s))	*Selenastrum capricornutum* (Green Algae), Not reported, Not Reported, Laboratory (UNIVERSITY OF TEXAS STARR COLLECTION)	Culture, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.075 mg/L / 0.15 mg/L / 0.3 mg/L / 0.6 mg/L / 1.2 mg/L	Population (Population-Biomass, Response Site: Not reported)	EC90 (0.83 (0.2-1.4) mg/L)	Development/Growth	Medium	1359173

Continued on next page . . .

. . . continued from previous page

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Selenastrum capricornutum* (Green Algae), Not reported, Not Reported, Laboratory (UNIVERSITY OF TEXAS STARR COLLECTION)	Culture, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.075 mg/L / 0.15 mg/L / 0.3 mg/L / 0.6 mg/L / 1.2 mg/L	Population (Population-Biomass, Response Site: Not reported)	EC50 (0.52 (0-1.15) mg/L)	Development/Growth	Medium	1359173
85-68-7	96 Hour(s), (96 Hour(s))	*Selenastrum capricornutum* (Green Algae), Not reported, Not Reported, Laboratory (UNIVERSITY OF TEXAS STARR COLLECTION)	Culture, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.075 mg/L / 0.15 mg/L / 0.3 mg/L / 0.6 mg/L / 1.2 mg/L	Population (Population-Biomass, Response Site: Not reported)	EC10 (0.21 (0-0.85) mg/L)	Development/Growth	Medium	1359173
85-68-7	5 Day(s), (14 Day(s))	*Selenastrum capricornutum* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (EPA CORVALLIS, NOW MAINTAINED BY SRI)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	0 mg/L / 0 mg/L / 0.02 mg/L / 0.13 mg/L / 0.23 mg/L / 1.29 mg/L / 2.30 mg/L	Population (Population-Abundance, Response Site: Not reported)	LOEC (1.29 mg/L)	Development/Growth	Medium	1359180
85-68-7	5 Day(s), (14 Day(s))	*Selenastrum capricornutum* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (EPA CORVALLIS, NOW MAINTAINED BY SRI)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	0 mg/L / 0 mg/L / 0.02 mg/L / 0.13 mg/L / 0.23 mg/L / 1.29 mg/L / 2.30 mg/L	Population (Population-Abundance, Response Site: Not reported)	NOEC (0.23 mg/L)	Development/Growth	Medium	1359180

Continued on next page . . .

...continued from previous page

Aquatic: Non-vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	5 Day(s), (14 Day(s))	*Selenastrum capricornutum* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (EPA CORVALLIS, NOW MAINTAINED BY SRI)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	0 mg/L / 0 mg/L / 0.02 mg/L / 0.13 mg/L / 0.23 mg/L / 1.29 mg/L / 2.30 mg/L	Population (Population-Abundance, Response Site: Not reported)	EC50 (0.72 mg/L)	Development/Growth	Medium	1359180
85-68-7	14 Day(s), (14 Day(s))	*Selenastrum capricornutum* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (EPA CORVALLIS, NOW MAINTAINED BY SRI)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	0 mg/L / 0 mg/L / 0.02 mg/L / 0.13 mg/L / 0.23 mg/L / 1.29 mg/L / 2.30 mg/L	Population (Population-Abundance, Response Site: Not reported)	LOEC (0.02 mg/L)	Development/Growth	Medium	1359180
85-68-7	14 Day(s), (14 Day(s))	*Selenastrum capricornutum* (Green Algae), Exponential growth phase (log), Not Reported, Laboratory (EPA CORVALLIS, NOW MAINTAINED BY SRI)	Culture, Aqueous (aquatic habitat), Not reported, Not Reported	Measured	0 mg/L / 0 mg/L / 0.02 mg/L / 0.13 mg/L / 0.23 mg/L / 1.29 mg/L / 2.30 mg/L	Population (Population-Abundance, Response Site: Not reported)	EC50 (0.52 mg/L)	Development/Growth	Medium	1359180

* If multiple extractions contained all identical information except the effect level, extraction rows were collapsed and the differing levels are listed by comma in this row.

Aquatic: Other Invertebrates Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (24 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY, OBTAINED FROM AMICTIC AND MICTIC FEMALES TREATED FOR 60 HOURS)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.5 mg/L / 1 mg/L	Reproduction (Reproduction-Reproduction, general, Response Site: Not reported)	NOEC (1 mg/L)	Reproductive/Teratogenic	Uninformative	3070931
85-68-7	24 Hour(s), (24 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY, OBTAINED FROM AMICTIC AND MICTIC FEMALES TREATED FOR 60 HOURS)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.5 mg/L / 1 mg/L	Reproduction (Reproduction-Mictic ratio, Response Site: Not reported)	NOEC (1 mg/L)	Reproductive/Teratogenic	Uninformative	3070931
85-68-7	48 Hour(s), (96 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L	Reproduction (Reproduction-Mictic ratio, Response Site: Not reported)	NOEC (2 mg/L)	Reproductive/Teratogenic	Uninformative	3070931
85-68-7	48 Hour(s), (96 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L	Population (Population-Population growth rate, Response Site: Not reported)	LOEC (1 mg/L)	Reproductive/Teratogenic	Medium	3070931

Continued on next page . . .

. . . continued from previous page

Aquatic: Other Invertebrates Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	48 Hour(s), (96 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L	Population (Population-Population growth rate, Response Site: Not reported)	NOEC (0.5 mg/L)	Reproductive/Teratogenic	Medium	3070931
85-68-7	72 Hour(s), (96 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L	Population (Population-Population growth rate, Response Site: Not reported)	LOEC (1 mg/L)	Reproductive/Teratogenic	Medium	3070931
85-68-7	72 Hour(s), (96 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L	Reproduction (Reproduction-Mictic ratio, Response Site: Not reported)	LOEC (1 mg/L)	Reproductive/Teratogenic	Uninformative	3070931
85-68-7	72 Hour(s), (96 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L	Population (Population-Population growth rate, Response Site: Not reported)	NOEC (0.5 mg/L)	Reproductive/Teratogenic	Medium	3070931
85-68-7	72 Hour(s), (96 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L	Reproduction (Reproduction-Mictic ratio, Response Site: Not reported)	NOEC (0.5 mg/L)	Reproductive/Teratogenic	Uninformative	3070931
85-68-7	96 Hour(s), (96 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L	Reproduction (Reproduction-Mictic ratio, Response Site: Not reported)	NOEC (1 mg/L)	Reproductive/Teratogenic	Uninformative	3070931

Continued on next page . . .

. . . continued from previous page

Aquatic: Other Invertebrates Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L	Population (Population-Population growth rate, Response Site: Not reported)	NOEC (1 mg/L)	Reproductive/Teratogenic	Medium	3070931
85-68-7	96 Hour(s), (96 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L	Reproduction (Reproduction-Pregnant, Paris or Gravid, Response Site: Not reported)	NOEC (0.5 mg/L)	Reproductive/Teratogenic	Uninformative	3070931
85-68-7	96 Hour(s), (96 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L	Reproduction (Reproduction-Mictic ratio, Response Site: Not reported)	LOEC (2 mg/L)	Reproductive/Teratogenic	Uninformative	3070931
85-68-7	96 Hour(s), (96 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L	Population (Population-Population growth rate, Response Site: Not reported)	LOEC (2 mg/L)	Reproductive/Teratogenic	Medium	3070931
85-68-7	96 Hour(s), (96 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L	Reproduction (Reproduction-Reproduction, general, Response Site: Not reported)	LOEC (1 mg/L)	Reproductive/Teratogenic	Uninformative	3070931
85-68-7	96 Hour(s), (96 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L	Reproduction (Reproduction-Pregnant, Paris or Gravid, Response Site: Not reported)	LOEC (1 mg/L)	Reproductive/Teratogenic	Uninformative	3070931

Continued on next page . . .

. . . continued from previous page

Aquatic: Other Invertebrates Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Brachionus calyciflorus* (Rotifer), Neonate, Not Reported, Laboratory (GEORGIA INSTITUTE OF TECHNOLOGY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0 mg/L / 0.5 mg/L / 1 mg/L / 2 mg/L	Reproduction (Reproduction-Reproduction, general, Response Site: Not reported)	NOEC (0.5 mg/L)	Reproductive/Teratogenic	Uninformative	3070931
85-68-7	~24 Hour(s), (144 Hour(s))	*Brachionus calyciflorus* (Rotifer), Not reported, Not Reported, Laboratory (ORIGINALLY FROM LAKE JINGHU, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L / 0 ug/L / 0.005 ug/L / 0.05 ug/L / 0.5 ug/L / 5 ug/L / 50 ug/L / 500 ug/L / 5000 ug/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-LETH (5000 ug/L)	Mortality	Medium	1336226
85-68-7	~144 Hour(s), (144 Hour(s))	*Brachionus calyciflorus* (Rotifer), Not reported, Not Reported, Laboratory (ORIGINALLY FROM LAKE JINGHU, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L / 0 ug/L / 0.005 ug/L / 0.05 ug/L / 0.5 ug/L / 5 ug/L / 50 ug/L / 500 ug/L / 5000 ug/L	Population (Population-Generation time, Response Site: Not reported)	NOEC (50 ug/L)	Reproductive/Teratogenic	Medium	1336226
85-68-7	~144 Hour(s), (144 Hour(s))	*Brachionus calyciflorus* (Rotifer), Not reported, Not Reported, Laboratory (ORIGINALLY FROM LAKE JINGHU, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L / 0 ug/L / 0.005 ug/L / 0.05 ug/L / 0.5 ug/L / 5 ug/L / 50 ug/L / 500 ug/L / 5000 ug/L	Reproduction (Reproduction-Net Reproductive Rate, Response Site: Not reported)	LOEC (500 ug/L)	Reproductive/Teratogenic	Medium	1336226
85-68-7	~144 Hour(s), (144 Hour(s))	*Brachionus calyciflorus* (Rotifer), Not reported, Not Reported, Laboratory (ORIGINALLY FROM LAKE JINGHU, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L / 0 ug/L / 0.005 ug/L / 0.05 ug/L / 0.5 ug/L / 5 ug/L / 50 ug/L / 500 ug/L / 5000 ug/L	Mortality (Mortality-Life expectancy, Response Site: Not reported)	NOEC (50 ug/L)	Mortality	Medium	1336226

Continued on next page . . .

. . . continued from previous page

Aquatic: Other Invertebrates Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	~144 Hour(s), (144 Hour(s))	*Brachionus calyciflorus* (Rotifer), Not reported, Not Reported, Laboratory (ORIGINALLY FROM LAKE JINGHU, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L / 0 ug/L / 0.005 ug/L / 0.05 ug/L / 0.5 ug/L / 5 ug/L / 50 ug/L / 500 ug/L / 5000 ug/L	Reproduction (Reproduction-Net Reproductive Rate, Response Site: Not reported)	NOEC (50 ug/L)	Reproductive/Teratogenic	Medium	1336226
85-68-7	~144 Hour(s), (144 Hour(s))	*Brachionus calyciflorus* (Rotifer), Not reported, Not Reported, Laboratory (ORIGINALLY FROM LAKE JINGHU, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L / 0 ug/L / 0.005 ug/L / 0.05 ug/L / 0.5 ug/L / 5 ug/L / 50 ug/L / 500 ug/L / 5000 ug/L	Population (Population-Intrinsic rate of increase, Response Site: Not reported)	LOEC (50 ug/L)	Reproductive/Teratogenic	Medium	1336226
85-68-7	~144 Hour(s), (144 Hour(s))	*Brachionus calyciflorus* (Rotifer), Not reported, Not Reported, Laboratory (ORIGINALLY FROM LAKE JINGHU, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L / 0 ug/L / 0.005 ug/L / 0.05 ug/L / 0.5 ug/L / 5 ug/L / 50 ug/L / 500 ug/L / 5000 ug/L	Population (Population-Generation time, Response Site: Not reported)	LOEC (500 ug/L)	Reproductive/Teratogenic	Medium	1336226
85-68-7	~144 Hour(s), (144 Hour(s))	*Brachionus calyciflorus* (Rotifer), Not reported, Not Reported, Laboratory (ORIGINALLY FROM LAKE JINGHU, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L / 0 ug/L / 0.005 ug/L / 0.05 ug/L / 0.5 ug/L / 5 ug/L / 50 ug/L / 500 ug/L / 5000 ug/L	Population (Population-Intrinsic rate of increase, Response Site: Not reported)	NOEC (5 ug/L)	Reproductive/Teratogenic	Medium	1336226
85-68-7	~144 Hour(s), (144 Hour(s))	*Brachionus calyciflorus* (Rotifer), Not reported, Not Reported, Laboratory (ORIGINALLY FROM LAKE JINGHU, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L / 0 ug/L / 0.005 ug/L / 0.05 ug/L / 0.5 ug/L / 5 ug/L / 50 ug/L / 500 ug/L / 5000 ug/L	Mortality (Mortality-Life expectancy, Response Site: Not reported)	LOEC (500 ug/L)	Mortality	Medium	1336226

Continued on next page . . .

. . . continued from previous page

Aquatic: Other Invertebrates Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (96 Hour(s))	*Hydra littoralis* (Hydra), Not reported, Not Reported, Laboratory (CAROLINA BIOLOGICAL SUPPLY)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.00844 ppm / <0.00844 ppm / 0.101-0.115 ppm / 0.189-0.232 ppm / 0.447-0.460 ppm / 0.850-1.03 ppm / 1.92-3.68 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>1.92->3.68 ppm)	Mortality	High	1359223
85-68-7	24 Hour(s), (96 Hour(s))	*Hydra littoralis* (Hydra), Not reported, Not Reported, Laboratory (CAROLINA BIOLOGICAL SUPPLY)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.00844 ppm / <0.00844 ppm / 0.101-0.115 ppm / 0.189-0.232 ppm / 0.447-0.460 ppm / 0.850-1.03 ppm / 1.92-3.68 ppm	Physiology (Injury-Injury, general, Response Site: Tentacles)	EC50 (>1.92->3.68 ppm)	Development/Growth	High	1359223
85-68-7	48 Hour(s), (96 Hour(s))	*Hydra littoralis* (Hydra), Not reported, Not Reported, Laboratory (CAROLINA BIOLOGICAL SUPPLY)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.00844 ppm / <0.00844 ppm / 0.101-0.115 ppm / 0.189-0.232 ppm / 0.447-0.460 ppm / 0.850-1.03 ppm / 1.92-3.68 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>1.92->3.68 ppm)	Mortality	High	1359223
85-68-7	48 Hour(s), (96 Hour(s))	*Hydra littoralis* (Hydra), Not reported, Not Reported, Laboratory (CAROLINA BIOLOGICAL SUPPLY)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.00844 ppm / <0.00844 ppm / 0.101-0.115 ppm / 0.189-0.232 ppm / 0.447-0.460 ppm / 0.850-1.03 ppm / 1.92-3.68 ppm	Physiology (Injury-Injury, general, Response Site: Tentacles)	EC50 (>1.92->3.68 ppm)	Development/Growth	High	1359223

Continued on next page . . .

. . . continued from previous page

Aquatic: Other Invertebrates Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	72 Hour(s), (96 Hour(s))	*Hydra littoralis* (Hydra), Not reported, Not Reported, Laboratory (CAROLINA BIOLOGICAL SUPPLY)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Chemical analysis reported	<0.00844 ppm / <0.00844 ppm / 0.101-0.115 ppm / 0.189-0.232 ppm / 0.447-0.460 ppm / 0.850-1.03 ppm / 1.92-3.68 ppm	Physiology (Injury-Injury, general, Response Site: Tentacles)	EC50 (1.4 (1.0-2.0) ppm)	Development/Growth	High	1359223
85-68-7	72 Hour(s), (96 Hour(s))	*Hydra littoralis* (Hydra), Not reported, Not Reported, Laboratory (CAROLINA BIOLOGICAL SUPPLY)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.00844 ppm / <0.00844 ppm / 0.101-0.115 ppm / 0.189-0.232 ppm / 0.447-0.460 ppm / 0.850-1.03 ppm / 1.92-3.68 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>1.92->3.68 ppm)	Mortality	High	1359223
85-68-7	96 Hour(s), (96 Hour(s))	*Hydra littoralis* (Hydra), Not reported, Not Reported, Laboratory (CAROLINA BIOLOGICAL SUPPLY)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L / 0.03 mg/L / 0.3 mg/L / 3.0 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-LETH (3.0 mg/L)	Mortality	High	1359223
85-68-7	96 Hour(s), (96 Hour(s))	*Hydra littoralis* (Hydra), Not reported, Not Reported, Laboratory (CAROLINA BIOLOGICAL SUPPLY)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.00844 ppm / <0.00844 ppm / 0.101-0.115 ppm / 0.189-0.232 ppm / 0.447-0.460 ppm / 0.850-1.03 ppm / 1.92-3.68 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>1.92->3.68 ppm)	Mortality	High	1359223

Continued on next page . . .

...continued from previous page

Aquatic: Other Invertebrates Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	96 Hour(s), (96 Hour(s))	*Hydra littoralis* (Hydra), Not reported, Not Reported, Laboratory (CAROLINA BIOLOGICAL SUPPLY)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.00844 ppm / <0.00844 ppm / 0.101-0.115 ppm / 0.189-0.232 ppm / 0.447-0.460 ppm / 0.850-1.03 ppm / 1.92-3.68 ppm	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (0.850-1.03 ppm)	Mortality	High	1359223
85-68-7	96 Hour(s), (96 Hour(s))	*Hydra littoralis* (Hydra), Not reported, Not Reported, Laboratory (CAROLINA BIOLOGICAL SUPPLY)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Chemical analysis reported	<0.00844 ppm / <0.00844 ppm / 0.101-0.115 ppm / 0.189-0.232 ppm / 0.447-0.460 ppm / 0.850-1.03 ppm / 1.92-3.68 ppm	Physiology (Injury-Injury, general, Response Site: Tentacles)	EC50 (1.1 (0.5-2.0) ppm)	Development/Growth	High	1359223
85-68-7	96 Hour(s), (96 Hour(s))	*Hydra littoralis* (Hydra), Not reported, Not Reported, Laboratory (CAROLINA BIOLOGICAL SUPPLY)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.00844 ppm / <0.00844 ppm / 0.101-0.115 ppm / 0.189-0.232 ppm / 0.447-0.460 ppm / 0.850-1.03 ppm / 1.92-3.68 ppm	Physiology (Injury-Injury, general, Response Site: Tentacles)	NOEC (0.447-0.460 ppm)	Development/Growth	High	1359223
85-68-7	96 Hour(s), (96 Hour(s))	*Hydra littoralis* (Hydra), Not reported, Not Reported, Laboratory (CAROLINA BIOLOGICAL SUPPLY)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.00844 ppm / <0.00844 ppm / 0.101-0.115 ppm / 0.189-0.232 ppm / 0.447-0.460 ppm / 0.850-1.03 ppm / 1.92-3.68 ppm	Physiology (Injury-Injury, general, Response Site: Tentacles)	LOEC (0.850-1.03 ppm)	Development/Growth	High	1359223

* If multiple extractions contained all identical information except the effect level, extraction rows were collapsed and the differing levels are listed by comma in this row.

Aquatic: Amphibian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	1 Day(s), (4 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 20 Organism	Unmeasured	0 mg/L / 0.001 mg/L / 0.01 mg/L / 0.1 mg/L / 1.0 mg/L / 3.0 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-LETH (3.0 mg/L)	Mortality	Medium	10063055
85-68-7	4 Day(s), (4 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Unmeasured	0 mg/L / 0.001 mg/L / 0.01 mg/L / 0.1 mg/L / 1.0 mg/L / 3.0 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC0 (0.1 mg/L)	Mortality	Medium	10063055

Continued on next page . . .

. . . continued from previous page

Aquatic: Amphibian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	1-4 Day(s), (4 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 20 Organism	Unmeasured	0 mg/L / 0.001 mg/L / 0.01 mg/L / 0.1 mg/L / 1.0 mg/L / 3.0 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NR (1.0 mg/L)	Mortality	Medium	10063055
85-68-7	4 Day(s), (4 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 20 Organism	Unmeasured	0 mg/L / 0.001 mg/L / 0.01 mg/L / 0.1 mg/L / 1.0 mg/L / 3.0 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (0.1 mg/L)	Mortality	Medium	10063055

Continued on next page . . .

. . . continued from previous page

Aquatic: Amphibian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	>0-4 Day(s), (4 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 20 Organism	Unmeasured	0 mg/L / 0.001 mg/L / 0.01 mg/L / 0.1 mg/L / 1.0 mg/L / 3.0 mg/L	Behavior (Behavior-No response, Response Site: Not reported)	NR (0.001-3.0 mg/L)	Behavioral	Medium	10063055
85-68-7	7 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Morphology-Length, Response Site: Hindlimb)	NOEC (94.5-114 ug/L)	Development/Growth	High	10063055

Continued on next page . . .

. . . continued from previous page

Aquatic: Amphibian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	7 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Morphology-Ratio, Response Site: Hindlimb)	NOEC (94.5-114 ug/L)	Development/Growth	High	10063055
85-68-7	7 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Growth-Snout-vent length, Response Site: Whole organism)	NOEC (94.5-114 ug/L)	Development/Growth	High	10063055

Continued on next page . . .

. . . continued from previous page

Aquatic: Amphibian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	7 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Growth-Weight, Response Site: Whole organism)	NOEC (26.5-40.1 ug/L)	Development/Growth	High	10063055
85-68-7	7 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 5 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Growth-Weight, Response Site: Whole organism)	LOEC (94.5-114 ug/L)	Development/Growth	High	10063055

Continued on next page . . .

. . . continued from previous page

Aquatic: Amphibian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Behavior (Behavior-Equilibrium,Movements, number of,Swimming, Response Site: Not reported)	NR (1.76-118 ug/L)	Behavioral	High	10063055
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 11 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Cellular (Histology-Hypertrophy, Response Site: Thyroid)	LOEC (105 (94.5-118) ug/L)	Endocrine	High	10063055

Continued on next page . . .

. . . continued from previous page

Aquatic: Amphibian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 20 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Development-Organ/tissue formation, Response Site: Not reported)	LOEC (3.50 (1.76-4.56) ug/L)	Development/Growth	High	10063055
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 20 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Development-Resorption, Response Site: Not reported)	LOEC (3.50 (1.76-4.56) ug/L)	Development/Growth	High	10063055

Continued on next page . . .

. . . continued from previous page

Aquatic: Amphibian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 20 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Development-Slowed, Retarded, Delayed or Non-development, Response Site: Not reported)	LOEC (3.50 (1.76-4.56) ug/L)	Development/Growth	High	10063055
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 60 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Development-Slowed, Retarded, Delayed or Non-development, Response Site: Not reported)	LOEC (3.50 (1.76-4.56) ug/L)	Development/Growth	High	10063055

Continued on next page . . .

. . . continued from previous page

Aquatic: Amphibian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 10-12 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Growth-Snout-vent length, Response Site: Whole organism)	LOEC (3.50 (1.76-4.56) ug/L)	Development/Growth	High	10063055
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 3-5 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Growth-Snout-vent length, Response Site: Whole organism)	LOEC (3.50 (1.76-4.56) ug/L)	Development/Growth	High	10063055

Continued on next page . . .

. . . continued from previous page

Aquatic: Amphibian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 10-12 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Growth-Weight, Response Site: Whole organism)	LOEC (3.50 (1.76-4.56) ug/L)	Development/Growth	High	10063055
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 3-5 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Growth-Weight, Response Site: Whole organism)	LOEC (3.50 (1.76-4.56) ug/L)	Development/Growth	High	10063055

Continued on next page . . .

. . . continued from previous page

Aquatic: Amphibian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 15 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Morphology-Length, Response Site: Hindlimb)	LOEC (3.50 (1.76-4.56) ug/L)	Development/Growth	High	10063055
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 60 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (105 (94.5-118) ug/L)	Mortality	High	10063055

Continued on next page . . .

. . . continued from previous page

Aquatic: Amphibian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 11 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Cellular (Histology-Fuse, fused, Response Site: Thyroid)	NOEC (105 (94.5-118) ug/L)	Endocrine	High	10063055
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 11 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Cellular (Histology-Hyperplasia, Response Site: Thyroid)	NOEC (105 (94.5-118) ug/L)	Endocrine	High	10063055

Continued on next page . . .

. . . continued from previous page

Aquatic: Amphibian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 11 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Cellular (Histology-Hypertrophy, Response Site: Not reported)	NOEC (105 (94.5-118) ug/L)	Endocrine	High	10063055
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 11 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Development-Organ/tissue formation, Response Site: Not reported)	NOEC (105 (94.5-118) ug/L)	Development/Growth	High	10063055

Continued on next page . . .

. . . continued from previous page

Aquatic: Amphibian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 20 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Cellular (Histology-Hypertrophy, Response Site: Thyroid)	NOEC (34.1 (26.5-51.2) ug/L)	Endocrine	High	10063055
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, Not Reported	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Morphology-Abnormal, Response Site: Spine, backbone,Whole organism)	NR (1.76-118 ug/L)	Development/Growth	High	10063055

Continued on next page . . .

...continued from previous page

Aquatic: Amphibian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Xenopus laevis* (African Clawed Frog), Tadpole, 51 Nieuwkoop-faber-stage, Not Reported, Laboratory (FROM IN-HOUSE CULTURE AT FORT ENVIRONMENTAL LABORATORIES, STILLWATER, OKLAHOMA, ORIGINALLY FROM XENOPUS 1, DEXTER, MICHIGAN)	Fresh water, Aqueous (aquatic habitat), Flow-through, 15 Organism	Measured	<0.163 ug/L / 3.50 (1.76-4.56) ug/L / 11.5 (9.65-13.8) ug/L / 34.1 (26.5-51.2) ug/L / 105 (94.5-118) ug/L	Growth (Morphology-Ratio, Response Site: Hindlimb)	LOEC (3.50 (1.76-4.56) ug/L)	Development/Growth	High	10063055

* If multiple extractions contained all identical information except the effect level, extraction rows were collapsed and the differing levels are listed by comma in this row.

Terrestrial: Vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	21 Day(s), (21 Day(s))	*Brassica rapa* (Bird Rape), Seedling, 7-12 Days post germination, Not Reported, Not reported	Natural soil, Environmental, Fumigation, Not Reported	Measured	0 ug/m3 / 0.47 (>0.2-<0.7) ug/m3 / 5.7 (>3-<10) ug/m3	Growth (Growth-Weight, Response Site: Shoot)	NOEL (5.7 (>3-<10) ug/m3)	Development/Growth	High	675180
85-68-7	28 Day(s), (28 Day(s))	*Ipomoea aquatica* (Swamp Morningglory), Seedling, 8 Day(s), Not Reported, Laboratory	Hydroponic, Environmental, Hydroponic, Not Reported	Unmeasured	0 mg/L / 1 mg/L / 10 mg/L / 30 mg/L / 50 mg/L / 100 mg/L	Biochemical (Biochemistry-Proline, Response Site: Leaf/needle)	LOEL (100 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Photosynthesis	High	807145
85-68-7	28 Day(s), (28 Day(s))	*Ipomoea aquatica* (Swamp Morningglory), Seedling, 8 Day(s), Not Reported, Laboratory	Hydroponic, Environmental, Hydroponic, Not Reported	Unmeasured	0 mg/L / 1 mg/L / 10 mg/L / 30 mg/L / 50 mg/L / 100 mg/L	Growth (Growth-Biomass, Response Site: Whole organism)	LOEL (100 mg/L)	Development/Growth	High	807145
85-68-7	28 Day(s), (28 Day(s))	*Ipomoea aquatica* (Swamp Morningglory), Seedling, 8 Day(s), Not Reported, Laboratory	Hydroponic, Environmental, Hydroponic, Not Reported	Unmeasured	0 mg/L / 1 mg/L / 10 mg/L / 30 mg/L / 50 mg/L / 100 mg/L	Biochemical (Biochemistry-Chlorophyll, Response Site: Whole organism)	NOEL (100 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Photosynthesis	High	807145
85-68-7	28 Day(s), (28 Day(s))	*Ipomoea aquatica* (Swamp Morningglory), Seedling, 8 Day(s), Not Reported, Laboratory	Hydroponic, Environmental, Hydroponic, Not Reported	Unmeasured	0 mg/L / 1 mg/L / 10 mg/L / 30 mg/L / 50 mg/L / 100 mg/L	Biochemical (Biochemistry-Proline, Response Site: Leaf/needle)	NOEL (50 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Photosynthesis	High	807145
85-68-7	28 Day(s), (28 Day(s))	*Ipomoea aquatica* (Swamp Morningglory), Seedling, 8 Day(s), Not Reported, Laboratory	Hydroponic, Environmental, Hydroponic, Not Reported	Unmeasured	0 mg/L / 1 mg/L / 10 mg/L / 30 mg/L / 50 mg/L / 100 mg/L	Growth (Growth-Biomass, Response Site: Whole organism)	NOEL (50 mg/L)	Development/Growth	High	807145

Continued on next page . . .

...continued from previous page

Terrestrial: Vascular plants Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	28 Day(s), (28 Day(s))	*Ipomoea aquatica* (Swamp Morning-glory), Seedling, 8 Day(s), Not Reported, Laboratory	Hydroponic, Environmental, Hydroponic, Not Reported	Unmeasured	0 mg/L / 1 mg/L / 10 mg/L / 30 mg/L / 50 mg/L / 100 mg/L	Growth (Growth-Biomass, Response Site: Whole organism)	NR (1-100 mg/L)	Development/Growth	High	807145
85-68-7	28 Day(s), (28 Day(s))	*Ipomoea aquatica* (Swamp Morning-glory), Seedling, 8 Day(s), Not Reported, Laboratory	Hydroponic, Environmental, Hydroponic, Not Reported	Unmeasured	0 mg/L / 1 mg/L / 10 mg/L / 30 mg/L / 50 mg/L / 100 mg/L	Growth (Growth-Number of leaves, Response Site: Not reported)	NR (1-100 mg/L)	Development/Growth	High	807145
85-68-7	28 Day(s), (28 Day(s))	*Ipomoea aquatica* (Swamp Morning-glory), Seedling, 8 Day(s), Not Reported, Laboratory	Hydroponic, Environmental, Hydroponic, Not Reported	Unmeasured	0 mg/L / 1 mg/L / 10 mg/L / 30 mg/L / 50 mg/L / 100 mg/L	Cellular (Genetics-Gene expression, Response Site: Leaf/needle)	NR (100 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Photosynthesis	High	807145
85-68-7	21 Day(s), (21 Day(s))	*Sinapis alba* (White Mustard), Seedling, 7-12 Days post germination, Not Reported, Not reported	Natural soil, Environmental, Fumigation, Not Reported	Measured	0 ug/m3 / 0.47 (>0.2-<0.7) ug/m3 / 5.7 (>3-<10) ug/m3	Growth (Growth-Weight, Response Site: Shoot)	NOEL (5.7 (>3-<10) ug/m3)	Development/Growth	High	675180
85-68-7	21 Day(s), (21 Day(s))	*Trifolium repens* (Dutch Clover), Seedling, 7-12 Days post germination, Not Reported, Not reported	Natural soil, Environmental, Fumigation, Not Reported	Measured	0 ug/m3 / 0.47 (>0.2-<0.7) ug/m3 / 5.7 (>3-<10) ug/m3	Growth (Growth-Weight, Response Site: Shoot)	NOEL (5.7 (>3-<10) ug/m3)	Development/Growth	High	675180

* If multiple extractions contained all identical information except the effect level, extraction rows were collapsed and the differing levels are listed by comma in this row.

Terrestrial: Mammalian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	4 Day(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, 19-22 male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Biochemical (Hormone(s)-Progesterone, Response Site: Testes)	LOEL (500 mg/kg bdwt/d)	Mechanistic: Cell signaling/function; Endocrine toxicity	High	689975
85-68-7	4 Day(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Growth-Weight, Response Site: Whole organism)	NR (500 mg/kg bdwt/d)	Development/Growth	High	689975
85-68-7	4 Day(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, 15-20 male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Biochemical (Hormone(s)-Testosterone, Response Site: Testes)	LOEL (500 mg/kg bdwt/d)	Mechanistic: Cell signaling/function; Endocrine toxicity	High	689975

Continued on next page . . .

. . . continued from previous page

Terrestrial: Mammalian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	4 Day(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, 16-24 male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Biochemical (Hormone(s)-Testosterone, Response Site: Testes)	LOEL (500 mg/kg bdwt/d)	Mechanistic: Endocrine toxicity	High	689975
85-68-7	4 Day(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, 35-51 male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Biochemical (Hormone(s)-Testosterone, Response Site: Whole organism)	LOEL (500 mg/kg bdwt/d)	Mechanistic: Cell signaling/function; Endocrine toxicity	High	689975
85-68-7	4 Day(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation, Female, Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, 6 Female organisms	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Growth-Weight, Response Site: Whole organism)	NOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975

Continued on next page . . .

. . . continued from previous page

Terrestrial: Mammalian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	4 Day(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: F1 generation), Female, Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA F1 generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Reproduction (Reproduction-Viability, Response Site: Not reported)	NR (500 mg/kg bdwt/d)	Reproductive/Teratogenic	High	689975
85-68-7	~9 Day(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation, Female, Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, 6 Female organisms	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Reproduction (Reproduction-Progeny counts/numbers, Response Site: Not reported)	NOEL (500 mg/kg bdwt/d)	Reproductive/Teratogenic	High	689975
85-68-7	~9 Day(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation, Female, Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, 6 Female organisms	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Reproduction (Reproduction-Number of implantations, Response Site: Not reported)	NOEL (500 mg/kg bdwt/d)	Reproductive/Teratogenic	High	689975

Continued on next page . . .

. . . continued from previous page

Terrestrial: Mammalian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	~9 Day(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEL (500 mg/kg bdwt/d)	Mortality	High	689975
85-68-7	~9 Day(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Length, Response Site: Anogenital)	LOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975
85-68-7	~20 Day(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Quantity, Response Site: Nipple)	NOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975

Continued on next page . . .

. . . continued from previous page

Terrestrial: Mammalian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Weight, Response Site: Muscle)	LOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Physiology (Physiology-Hydronephrosis, Response Site: Kidney)	LOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Abnormal, Response Site: Anogenital)	NOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975

Continued on next page . . .

. . . continued from previous page

Terrestrial: Mammalian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Abnormal, Response Site: Epididymis)	NOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Abnormal, Response Site: Seminal vesicle)	NOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Abnormal, Response Site: Prostate gland)	NOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975

Continued on next page . . .

. . . continued from previous page

Terrestrial: Mammalian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Abnormal, Response Site: Testes)	NOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Length, Response Site: Anogenital)	NOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Quantity, Response Site: Nipple)	NOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975

Continued on next page . . .

. . . continued from previous page

Terrestrial: Mammalian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Weight, Response Site: Epididymis)	NOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Weight, Response Site: Penis)	NOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Weight, Response Site: Prostate gland)	NOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975

Continued on next page . . .

. . . continued from previous page

Terrestrial: Mammalian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Weight, Response Site: Seminal vesicle)	NOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Weight, Response Site: Testes)	NOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Abnormal, Response Site: Penis)	NOEL (500 mg/kg bdwt/d)	Development/Growth	High	689975

Continued on next page . . .

...continued from previous page

Terrestrial: Mammalian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	~3.2 Month(s), (~3.2 Month(s))	*Rattus norvegicus* (Norway Rat), Gestation, 14 Days gestation (Measured in: male, 1st generation), Female (Measured in: male, 1st generation), Laboratory (CHARLES RIVER BREEDING LABORATORY, RALEIGH, NC)	No substrate, Oral (diet, drink, gavage), Gavage, NA male, 1st generation	Unmeasured	0 mg/kg bdwt/d / 500 mg/kg bdwt/d	Growth (Morphology-Abnormal, Response Site: Testes)	NR (500 mg/kg bdwt/d)	Development/Growth	High	689975

* If multiple extractions contained all identical information except the effect level, extraction rows were collapsed and the differing levels are listed by comma in this row.

Terrestrial: Worms Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (24 Hour(s))	*Caenorhabditis elegans* (Nematode), Not reported, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, USA)	Culture, Environmental, Culture medium, 10 Organism	Unmeasured	0 mg/L / 0.3 mg/L / 1.0 mg/L / 3.0 mg/L / 10 mg/L / 30 mg/L / 100 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (100 mg/L)	Mortality	Medium	1249864
85-68-7	24 Hour(s), (24 Hour(s))	*Caenorhabditis elegans* (Nematode), Not reported, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, USA)	Culture, Environmental, Culture medium, 10 Organism	Measured	0.090 mg/L / 0.14 mg/L / 0.38 mg/L / 0.80 mg/L / 1.50 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (1.50 mg/L)	Mortality	Medium	1249864
85-68-7	24 Hour(s), (24 Hour(s))	*Caenorhabditis elegans* (Nematode), Not reported, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, USA)	Culture, Environmental, Culture medium, 10 Organism	Unmeasured	0 mg/L / 0.3 mg/L / 1.0 mg/L / 3.0 mg/L / 10 mg/L / 30 mg/L / 100 mg/L	Behavior (Behavior-Behavioral changes, general, Response Site: Not reported)	NR (0.3-100 mg/L)	Behavioral	Medium	1249864
85-68-7	24 Hour(s), (24 Hour(s))	*Caenorhabditis elegans* (Nematode), Not reported, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, USA)	Culture, Environmental, Culture medium, 10 Organism	Measured	0.090 mg/L / 0.14 mg/L / 0.38 mg/L / 0.80 mg/L / 1.50 mg/L	Behavior (Behavior-Behavioral changes, general, Response Site: Not reported)	NR (0.090-1.50 mg/L)	Behavioral	Medium	1249864

Continued on next page . . .

...continued from previous page

Terrestrial: Worms Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	24 Hour(s), (24 Hour(s))	*Caenorhabditis elegans* (Nematode), Larva (Measured in: Adult), Not Reported, Laboratory (NR)	Culture, Environmental, Culture medium, >5000 Adult	Unmeasured	0 uM / 100 uM	Cellular (Genetics-Nondisjunction, Response Site: Not reported)	LOEL (100 uM)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Genotox (including DNA repair)	Medium	5043459

* If multiple extractions contained all identical information except the effect level, extraction rows were collapsed and the differing levels are listed by comma in this row.

Terrestrial: Avian Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	42 Day(s), (42 Day(s))	*Gallus gallus* (Chicken), 18 Month(s), Female, Laboratory	No substrate, Oral (diet, drink, gavage), Diet, unspecified, Not Reported	Unmeasured	0 g/kg bdwt / 5 g/kg bdwt	Reproduction (Reproduction-Fecundity, Response Site: Not reported)	NR (5 g/kg bdwt)	Reproductive/Teratogenic	Low	1359174
85-68-7	42 Day(s), (42 Day(s))	*Gallus gallus* (Chicken), 18 Month(s), Female, Laboratory	No substrate, Oral (diet, drink, gavage), Diet, unspecified, Not Reported	Unmeasured	0 g/kg bdwt / 5 g/kg bdwt	Cellular (Histology-Degeneration,Inflammation,Vacuolization, Response Site: Axons,Nervous tissue)	NR (5 g/kg bdwt)	Neurological	Low	1359174
85-68-7	42 Day(s), (42 Day(s))	*Gallus gallus* (Chicken), 18 Month(s), Female, Laboratory	No substrate, Oral (diet, drink, gavage), Diet, unspecified, Not Reported	Unmeasured	0 g/kg bdwt / 5 g/kg bdwt	Cellular (Histology-Histological changes, general, Response Site: Not reported)	NR (5 g/kg bdwt)	Neurological	Low	1359174

* If multiple extractions contained all identical information except the effect level, extraction rows were collapsed and the differing levels are listed by comma in this row.

Terrestrial: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	1-7 Day(s), (7 Day(s))	*Lasius niger* (Black Garden Ant), Not reported, Female, Wild (COLLECTED FROM AN ORCHARD NEAR TOURS, AZAY SUR CHEY, FRANCE, IN JUNE 2011 AND 2012)	No substrate, Topical, Topical, general, Not Reported	Unmeasured	0 ng/ul / 2 ng/ul	Cellular (Genetics-16S ribosomal RNA,Defensin 1 mRNA,Histone H2A mRNA,Peptidoglycan recognition protein mRNA,Superoxide dismutase 1 mRNA,Vitellogenin mRNA, Response Site: Abdomen,Ovaries,Whole organism)	NR (2 ng/ul)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/function; Epigenetics	Medium	2345940
85-68-7	0 Day(s), (5 Day(s))	*Lasius niger* (Black Garden Ant), Not reported, Not Reported, Wild (COLLECTED FROM A PERSONAL ORCHARD NEAR TOURS, A. LENOIR, AZAY SUR CHER, FRANCE)	No substrate, Environmental, Direct application, Not Reported	Unmeasured	0 ng/ul / 2000 ng/ul	Accumulation (Accumulation-Residue, Response Site: Cuticle)	LOEL (2000 ng/ul)	ADME (biotransformation)	Medium	2347468
85-68-7	1 Day(s), (5 Day(s))	*Lasius niger* (Black Garden Ant), Not reported, Not Reported, Wild (COLLECTED FROM A PERSONAL ORCHARD NEAR TOURS, A. LENOIR, AZAY SUR CHER, FRANCE)	No substrate, Environmental, Direct application, Not Reported	Unmeasured	0 ng/ul / 2000 ng/ul	Accumulation (Accumulation-Residue, Response Site: Cuticle)	NOEL (2000 ng/ul)	ADME (biotransformation)	Medium	2347468

Continued on next page . . .

...continued from previous page

Terrestrial: Arthropods Extraction Table

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	Exposure Media, Route Grouping, Type, Sample Number	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Health Effect as reported by the Study Author(s)	Effect Level as reported by the Study Author(s)*	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	2 Day(s), (5 Day(s))	*Lasius niger* (Black Garden Ant), Not reported, Not Reported, Wild (COLLECTED FROM A PERSONAL ORCHARD NEAR TOURS, A. LENOIR, AZAY SUR CHER, FRANCE)	No substrate, Environmental, Direct application, Not Reported	Unmeasured	0 ng/ul / 2000 ng/ul	Accumulation (Accumulation-Residue, Response Site: Cuticle)	NOEL (2000 ng/ul)	ADME (biotransformation)	Medium	2347468
85-68-7	3-5 Day(s), (5 Day(s))	*Lasius niger* (Black Garden Ant), Not reported, Not Reported, Wild (COLLECTED FROM A PERSONAL ORCHARD NEAR TOURS, A. LENOIR, AZAY SUR CHER, FRANCE)	No substrate, Environmental, Direct application, Not Reported	Unmeasured	0 ng/ul / 2000 ng/ul	Accumulation (Accumulation-Residue, Response Site: Cuticle)	NR (2000 ng/ul)	ADME (biotransformation)	Medium	2347468

* If multiple extractions contained all identical information except the effect level, extraction rows were collapsed and the differing levels are listed by comma in this row.

Data Extraction of Rodent Data for the Application of Environmental Hazard

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Strain	Exposure Type	Test Analysis Exposure Parameters	Dose/ Concentration for Each Main Group of the Study	Hazard Effect/ Hazard Level	Effect Level as reported by the Study Author(s)	Health Outcome Identified by the Assessor	Overall Quality Determination	HERO ID
85-68-7	136 days, (136 days)	Rat (Rattus norvegicus), Sampling Age:Juvenile Exposure Age: AdultF, Sprague-Dawley	Diet	Unmeasured	0/120/217/446	217	NOAEL	Reproduction	High	1359183
85-68-7	136 days, (136 days)	Rat (Rattus norvegicus), Sampling Age:Juvenile Exposure Age: AdultF, Sprague-Dawley	Diet	Unmeasured	0/120/217/446	446	LOAEL	Reproduction	High	1359183

Butyl benzyl phthalate- Parent compound - Short-term (>1-30 days)

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
The study did not report which, if any compliance guidelines were adhered to. Rat-Albino - [rat]-Female	Oral-Gavage-Duration: Short-term (>1-30 days)-1-F0 - gestation (GD 14-parturition) Pregnant rats were exposed from GD14 until parturition	**POD: 4 mg/kg-bw/day (LOAEL) -Developmental** n= 6 Dose= 0, n= 6 Dose= 4, n= 6 Dose= 20, Dose= 100, mg/kg-bw/dayTotal # of generations: 1 Female Exposure: F0 - gestation, GD 14- parturition	See footnotes for full summary [1]	Number of animals treated/ examined were not fully reported. Purity of test substance was not reported.	Reproductive/Developmental-PND1 (Litter size, sex ratio, and number of live and dead pups), PND 4 (viability index), PND 21 (weaning index). Gross external abnormalities, development landmarks (eye opening, fur formation, pinna detachment, testis descent), AGD; PND 5 and PND 25, pup body weight, PND 75: male offspring organ weights (testes, epididymis, prostate, vas deference, and seminal vesicle, liver, kidney, and adrenal gland), sperm quality parameters (sperm motility, sperm count, testicular spermatid count, daily sperm production, and sperm head shape abnormality), 17β-hydroxy steroidehydrogenase levels in testis, serum testosterone levels.; Medium	Ahmad et. al-2014 2219796

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Short-term (>1-30 days)

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
The study was GPL compliant. Rat-Fischer 344 - [rat]-Both	Oral-Diet-Duration: Short-term (>1-30 days)-7-24-21-day(s) 24 hours/day 7 days/week 21 day(s) Animals were fed diet containing test substance for 21 days	**POD: 639 mg/kg-bw/day (NOAEL) -Liver weight** n= 5 Dose= 0, n= 5 Dose= 639, n= 5 Dose= 1277, n= 5 Dose= 2450, mg/kg-bw/day	See footnotes for full summary [2]	Purity of test substance was not reported. Food intake was significantly reduced (>20% difference from control).	Nutritional/Metabolic-Body weight and food intake-Hepatic/Liver-Liver weight and histology. Serum triglyceride and total cholesterol. Biochemical analysis of liver (cyanide-insensitive palmitoyl-CoA oxidation and protein concentration; microsomal fraction rate of lauric acid 11-hydroxylase and 12-hydroxylase activity) and ultrastructure of liver assessing peroxisome proliferation (TEM); Uninformative	BIBRA, 1986 1325511
The study was GPL compliant. Rat-Fischer 344 - [rat]-Both	Oral-Diet-Duration: Short-term (>1-30 days)-7-24-21-day(s) 24 hours/day 7 days/week 21 day(s) Animals were fed diet containing test substance for 21 days	**POD: 0 mg/kg-bw/day (LOAEL) -Increased liver weight, decreased serum triglycerides and cholesterol levels** n= 5 Dose= 0, n= 5 Dose= 624, n= 5 Dose= 1234, n= 5 Dose= 2160, mg/kg-bw/day	See footnotes for full summary [3]	Purity of test substance was not reported. Food intake was significantly reduced (>20% difference from control).	Nutritional/Metabolic-Body weight and food intake-Hepatic/Liver-Liver weight and histology. Serum triglyceride and total cholesterol. Biochemical analysis of liver (cyanide-insensitive palmitoyl-CoA oxidation and protein concentration; microsomal fraction rate of lauric acid 11-hydroxylase and 12-hydroxylase activity) and ultrastructure of liver assessing peroxisome proliferation (TEM); Uninformative	BIBRA, 1986 1325511

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Short-term (>1-30 days)

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
The study was GPL compliant. Rat-Fischer 344 - [rat]-Both	Oral-Diet-Duration: Short-term (>1-30 days)-7-24-21-day(s) 24 hours/day 7 days/week 21 day(s) Animals were fed diet containing test substance for 21 days	**POD: 304 mg/kg-bw/day (LOAEL) -Increased liver weight** n= 5 Dose= 0, n= 5 Dose= 304, n= 5 Dose= 1134, n= 5 Dose= 2100, mg/kg-bw/day	See footnotes for full summary [4]	Purity of test substance was not reported. Food intake was significantly reduced (>20% difference from control).	Nutritional/Metabolic-Body weight and food intake-Hepatic/Liver-Liver weight and histology. Serum triglyceride and total cholesterol. Biochemical analysis of liver (cyanide-insensitive palmitoyl-CoA oxidation and protein concentration; microsomal fraction rate of lauric acid 11-hydroxylase and 12-hydroxylase activity) and ultrastructure of liver assessing peroxisome proliferation (TEM); Uninformative	BIBRA, 1986 1325511
The study was GPL compliant. Rat-Fischer 344 - [rat]-Both	Oral-Diet-Duration: Short-term (>1-30 days)-7-24-21-day(s) 24 hours/day 7 days/week 21 day(s) Animals were fed diet containing test substance for 21 days	**POD: 639 mg/kg-bw/day (LOAEL) -Increased liver weight, decreased serum triglyceride and cholesterol levels** n= 5 Dose= 0, n= 5 Dose= 639, n= 5 Dose= 1192, n= 5 Dose= 2195, mg/kg-bw/day	See footnotes for full summary [5]	Purity of test substance was not reported. Food intake was significantly reduced (>20% difference from control).	Nutritional/Metabolic-Body weight and food intake-Hepatic/Liver-Liver weight and histology. Serum triglyceride and total cholesterol. Biochemical analysis of liver (cyanide-insensitive palmitoyl-CoA oxidation and protein concentration; microsomal fraction rate of lauric acid 11-hydroxylase and 12-hydroxylase activity) and ultrastructure of liver assessing peroxisome proliferation (TEM); Uninformative	BIBRA, 1986 1325511

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Short-term (>1-30 days)

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
The study was GPL compliant. Rat-Fischer 344 - [rat]-Both	Oral-Diet-Duration: Short-term (>1-30 days)-7-24-21-day(s) 24 hours/day 7 days/week 21 day(s) Animals were fed diet containing test substance for 21 days	**POD: 1149 mg/kg-bw/day (LOAEL) -Increased liver weight, decrease in serum triglyceride and total cholesterol, increased incidence of reduced cytoplasmic basophilia in the liver** n= 40 Dose= 0, n= 40 Dose= 1149, mg/kg-bw/day	See footnotes for full summary [6]	Purity of test substance was not reported. Food intake was significantly reduced (>20% difference from control).	Nutritional/Metabolic-Body weight and food intake-Hepatic/Liver-Liver weight and histology. Serum triglyceride and total cholesterol. Biochemical analysis of liver (cyanide-insensitive palmitoyl-CoA oxidation and protein concentration; microsomal fraction rate of lauric acid 11-hydroxylase and 12-hydroxylase activity) and ultrastructure of liver assessing peroxisome proliferation (TEM); Uninformative	BIBRA, 1986 1325511

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Short-term (>1-30 days)

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
None Rat-Sprague-Dawley - [rat]-Male	nan 1 days/week 4 week(s) Animals were treated 4 weeks, although it doesn't specifically say 7 days/week.	**POD: 500 mg/kg-bw/day (LOAEL) -Male reproductive effects (decreased sperm counts/motility)** n= 6 Dose= 0, n= 6 Dose= 500, mg/kg-bw/day	Male SD rats (5-6/group) were exposed by oral gavage to one of multiple phthalates, including BBP, DEHP, DBP, DIDP, and DINP. It is assumed that animals were exposed one time per day, 7 days per week for 4 weeks, although it is not explicitly stated. Negative controls were exposed to corn oil (vehicle) only. Animals were monitored for clinical signs and mortality, and body weights were measured every three days. Urinalysis was collected, and following euthanasian, blood was collected for hematology and serum chemistry parameters. Organ weights and sperm quality were also analyzed.No animals died during the exposure period, and the only clinical sign observed was salivation. Body weights were decreased starting at 2 weeks of exposure in animals exposed to BBP, DBP, and DINP, but not in animals exposed to DEHP or DIDP, and no differences in food consumption were measured in any group. Increased relative liver weights were observed in animals exposed to BBP, DBP, DEHP, DIDP, and DINP, while relative testis weights were decreased and relative thymus weights were increased in animals exposed to DEHP. No other organ weight changes were observed. Animals exposed to DBP and DIDP had altered hematology parameters, while animals exposed to DEHP, DBP, DINP, and DIDP had altered serum chemistry parameters. Urinalysis results were not shown, but text stated that animals exposed to DIDP add altered results. Sperm counts and motility were decreased in animals exposed to BBP, DEHP, DBP, DIDP, and DINP. The only dose examined (500 mg/kg/day) was the LOAEL for male reproductive effects.	The major limitation of this study is the lack of reporting. Very little information is provided on the exposure methods, test substance preparation, number of animals per group, and dosing frequency. The urinalysis information was also not reported.	Reproductive/Developmental-Testis and epididymis weights, sperm count and motility; Medium	Kwack et. al-2009 697382

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Short-term (>1-30 days)

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
None Rat-Sprague-Dawley - [rat]-Male	nan 1 days/week 4 week(s) Animals were treated 4 weeks, although it doesn't specifically say 7 days/week.	**POD: 500 mg/kg-bw/day (LOAEL) -Male reproductive effects (decreased sperm counts/motility)** n= 6 Dose= 0, n= 6 Dose= 500, mg/kg-bw/day	Male SD rats (5-6/group) were exposed by oral gavage to one of multiple phthalates, including BBP, DEHP, DBP, DIDP, and DINP. It is assumed that animals were exposed one time per day, 7 days per week for 4 weeks, although it is not explicitly stated. Negative controls were exposed to corn oil (vehicle) only. Animals were monitored for clinical signs and mortality, and body weights were measured every three days. Urinalysis was collected, and following euthanasian, blood was collected for hematology and serum chemistry parameters. Organ weights and sperm quality were also analyzed.No animals died during the exposure period, and the only clinical sign observed was salivation. Body weights were decreased starting at 2 weeks of exposure in animals exposed to BBP, DBP, and DINP, but not in animals exposed to DEHP or DIDP, and no differences in food consumption were measured in any group. Increased relative liver weights were observed in animals exposed to BBP, DBP, DEHP, DIDP, and DINP, while relative testis weights were decreased and relative thymus weights were increased in animals exposed to DEHP. No other organ weight changes were observed. Animals exposed to DBP and DIDP had altered hematology parameters, while animals exposed to DEHP, DBP, DINP, and DIDP had altered serum chemistry parameters. Urinalysis results were not shown, but text stated that animals exposed to DIDP add altered results. Sperm counts and motility were decreased in animals exposed to BBP, DEHP, DBP, DIDP, and DINP. The only dose examined (500 mg/kg/day) was the LOAEL for male reproductive effects.	The major limitation of this study is the lack of reporting. Very little information is provided on the exposure methods, test substance preparation, number of animals per group, and dosing frequency. The urinalysis information was also not reported.	Reproductive/Developmental-Testis and epididymis weights, sperm count and motility; Medium	Kwack et. al-2009 697382

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Short-term (>1-30 days)

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
None Rat-Sprague-Dawley - [rat]-Male	nan 1 days/week 4 week(s) Animals were treated 4 weeks, although it doesn't specifically say 7 days/week.	**POD: 500 mg/kg-bw/day (LOAEL) -Male reproductive effects (decreased sperm counts/motility)** n= 6 Dose= 0, n= 6 Dose= 500, mg/kg-bw/day	Male SD rats (5-6/group) were exposed by oral gavage to one of multiple phthalates, including BBP, DEHP, DBP, DIDP, and DINP. It is assumed that animals were exposed one time per day, 7 days per week for 4 weeks, although it is not explicitly stated. Negative controls were exposed to corn oil (vehicle) only. Animals were monitored for clinical signs and mortality, and body weights were measured every three days. Urinalysis was collected, and following euthanasian, blood was collected for hematology and serum chemistry parameters. Organ weights and sperm quality were also analyzed.No animals died during the exposure period, and the only clinical sign observed was salivation. Body weights were decreased starting at 2 weeks of exposure in animals exposed to BBP, DBP, and DINP, but not in animals exposed to DEHP or DIDP, and no differences in food consumption were measured in any group. Increased relative liver weights were observed in animals exposed to BBP, DBP, DEHP, DIDP, and DINP, while relative testis weights were decreased and relative thymus weights were increased in animals exposed to DEHP. No other organ weight changes were observed. Animals exposed to DBP and DIDP had altered hematology parameters, while animals exposed to DEHP, DBP, DINP, and DIDP had altered serum chemistry parameters. Urinalysis results were not shown, but text stated that animals exposed to DIDP add altered results. Sperm counts and motility were decreased in animals exposed to BBP, DEHP, DBP, DIDP, and DINP. The only dose examined (500 mg/kg/day) was the LOAEL for male reproductive effects.	The major limitation of this study is the lack of reporting. Very little information is provided on the exposure methods, test substance preparation, number of animals per group, and dosing frequency. The urinalysis information was also not reported.	Reproductive/Developmental Testis and epididymis weights, sperm count and motility; Medium	Kwack et. al-2009 697382

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Short-term (>1-30 days)

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
None Rat-Sprague-Dawley - [rat]-Male	nan 1 days/week 4 week(s) Animals were treated 4 weeks, although it doesn't specifically say 7 days/week.	**POD: 500 mg/kg-bw/day (LOAEL) -Male reproductive effects (decreased sperm counts/motility)** n= 6 Dose= 0, n= 6 Dose= 500, mg/kg-bw/day	Male SD rats (5-6/group) were exposed by oral gavage to one of multiple phthalates, including BBP, DEHP, DBP, DIDP, and DINP. It is assumed that animals were exposed one time per day, 7 days per week for 4 weeks, although it is not explicitly stated. Negative controls were exposed to corn oil (vehicle) only. Animals were monitored for clinical signs and mortality, and body weights were measured every three days. Urinalysis was collected, and following euthanasian, blood was collected for hematology and serum chemistry parameters. Organ weights and sperm quality were also analyzed.No animals died during the exposure period, and the only clinical sign observed was salivation. Body weights were decreased starting at 2 weeks of exposure in animals exposed to BBP, DBP, and DINP, but not in animals exposed to DEHP or DIDP, and no differences in food consumption were measured in any group. Increased relative liver weights were observed in animals exposed to BBP, DBP, DEHP, DIDP, and DINP, while relative testis weights were decreased and relative thymus weights were increased in animals exposed to DEHP. No other organ weight changes were observed. Animals exposed to DBP and DIDP had altered hematology parameters, while animals exposed to DEHP, DBP, DINP, and DIDP had altered serum chemistry parameters. Urinalysis results were not shown, but text stated that animals exposed to DIDP add altered results. Sperm counts and motility were decreased in animals exposed to BBP, DEHP, DBP, DIDP, and DINP. The only dose examined (500 mg/kg/day) was the LOAEL for male reproductive effects.	The major limitation of this study is the lack of reporting. Very little information is provided on the exposure methods, test substance preparation, number of animals per group, and dosing frequency. The urinalysis information was also not reported.	Reproductive/Developmental-Testis and epididymis weights, sperm count and motility; Medium	Kwack et. al-2009 697382

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Short-term (>1-30 days)

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
None Rat-Sprague-Dawley - [rat]-Male	nan 1 days/week 4 week(s) Animals were treated 4 weeks, although it doesn't specifically say 7 days/week.	**POD: 500 mg/kg-bw/day (LOAEL) -Male reproductive effects (decreased sperm counts/motility)** n= 6 Dose= 0, n= 6 Dose= 500, mg/kg-bw/day	Male SD rats (5-6/group) were exposed by oral gavage to one of multiple phthalates, including BBP, DEHP, DBP, DIDP, and DINP. It is assumed that animals were exposed one time per day, 7 days per week for 4 weeks, although it is not explicitly stated. Negative controls were exposed to corn oil (vehicle) only. Animals were monitored for clinical signs and mortality, and body weights were measured every three days. Urinalysis was collected, and following euthanasian, blood was collected for hematology and serum chemistry parameters. Organ weights and sperm quality were also analyzed.No animals died during the exposure period, and the only clinical sign observed was salivation. Body weights were decreased starting at 2 weeks of exposure in animals exposed to BBP, DBP, and DINP, but not in animals exposed to DEHP or DIDP, and no differences in food consumption were measured in any group. Increased relative liver weights were observed in animals exposed to BBP, DBP, DEHP, DIDP, and DINP, while relative testis weights were decreased and relative thymus weights were increased in animals exposed to DEHP. No other organ weight changes were observed. Animals exposed to DBP and DIDP had altered hematology parameters, while animals exposed to DEHP, DBP, DINP, and DIDP had altered serum chemistry parameters. Urinalysis results were not shown, but text stated that animals exposed to DIDP add altered results. Sperm counts and motility were decreased in animals exposed to BBP, DEHP, DBP, DIDP, and DINP. The only dose examined (500 mg/kg/day) was the LOAEL for male reproductive effects.	The major limitation of this study is the lack of reporting. Very little information is provided on the exposure methods, test substance preparation, number of animals per group, and dosing frequency. The urinalysis information was also not reported.	Reproductive/Developmental-Testis and epididymis weights, sperm count and motility; Medium	Kwack et. al-2009 697382

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Short-term (>1-30 days)

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
OECD protocol for detecting endocrine disruptors (OECD, 2001). Rat-Sprague-Dawley - [rat]-Male	Oral-Gavage-Duration: Short-term (>1-30 days)-7-10-day(s) 7 days/week 10 day(s) Animals were treated for 10 days	**POD: mg/kg-bw/day (Dichotomous (P/N)) -Positive in Hershberger assay at 100 mg/kg/day** n= 6 Dose= 0, n= 6 Dose= 20, n= 6 Dose= 100, n= 6 Dose= 500, mg/kg-bw/day	See footnotes for full summary [7]	No major limitation.	Nutritional/Metabolic-Body weight-Other (please specify below) (Clinical signs)-Clinical signs-Hepatic/Liver-Liver weight-Renal/Kidney-Kidney weight-Other (please specify below) (Endocrine)-Adrenal weight-Reproductive/Developmental-The following 5 tissues were weighed: testes, ventral prostates, combined seminal vesicles and coagulating glands, levator ani/bulbocavernosus (LABC), and Cowper's gland.Serum testosterone and luteinizing hormone; Medium	Lee et. al 2007 673292

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Short-term (>1-30 days)

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
OECD protocol for detecting endocrine disruptors (OECD, 2001). Rat-Sprague-Dawley - [rat]-Male	Oral-Gavage-Duration: Short-term (>1-30 days)-7-10-day(s) 7 days/week 10 day(s) Animals were treated for 10 days	**POD: mg/kg-bw/day (Dichotomous (P/N)) -Negative in Hershberger assay** n= 6 Dose= 0, n= 6 Dose= 20, n= 6 Dose= 100, n= 6 Dose= 500, mg/kg-bw/day	Hershberger assay was performed in castrated Sprague-Dawley male rats. One week after surgery, animals were administered 0, 20, 100 or 500 mg/kg/day dibutyl phthalate (DBP) in corn oil via oral gavage along with 0.4 mg/kg/day testosterone propionate delivered subcutaneously for 10 days. Endpoints evaluated included lethality, clinical signs, body weight, serum testosterone and luteinizing hormone, organ weights (liver, kidneys, adrenal gland, testes, glans penis, ventral prostates, combined seminal vesicles and coagulating glands, levator ani/bulbocavernosus [LABC], and Cowper's glands).All animals survived the entirety of the experiment. No clinical signs of toxicity were seen. No significant differences in terminal body weights were seen compared to control. No significant difference in serum LH levels were seen compared to testosterone alone control. A significant decrease in serum testosterone was seen (~30) at 100 and 500 mg/kg/day compared to testosterone alone control. No significant difference in absolute liver, kidney, or adrenal glands compared to testosterone control. Significant decreases in absolute ventral weight were seen (19%, 23%, and 19%) at 20, 100, and 500 mg/kg/day compared to testosterone alone. No other significant changes in weights of sex accessory tissues were seen. DBP is considered to be negative for this assay given a decrease in 2/5 androgen-dependent tissues was not seen. A positive control group for antiandrogenic effects (treated with flutamide) was included and gave expected results (data not shown).	No major limitation.	Nutritional/Metabolic-Body weight-Other (please specify below) (Clinical signs)-Clinical signs-Hepatic/Liver-Liver weight-Renal/Kidney-Kidney weight-Other (please specify below) (Endocrine)-Adrenal weight-Reproductive/Developmental-The following 5 tissues were weighed: testes, ventral prostates, combined seminal vesicles and coagulating glands, levator ani/bulbocavernosus (LABC), and Cowper's gland.Serum testosterone and luteinizing hormone; Medium	Lee et. al 2007 673292

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Short-term (>1-30 days)

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
OECD protocol for detecting endocrine disruptors (OECD, 2001). Rat-Sprague-Dawley - [rat]-Male	Oral-Gavage-Duration: Short-term (>1-30 days)-7-10-day(s) 7 days/week 10 day(s) Animals were treated for 10 days	**POD: mg/kg-bw/day (Dichotomous (P/N)) -Negative in Hershberger assay** n= 6 Dose= 0, n= 6 Dose= 20, n= 6 Dose= 100, n= 6 Dose= 500, mg/kg-bw/day	Hershberger assay was performed in castrated Sprague-Dawley male rats. One week after surgery, animals were administered 0, 20, 100 or 500 mg/kg/day of butyl benzyl phthalate (BBP) in corn oil via oral gavage along with 0.4 mg/kg/day testosterone propionate delivered subcutaneously for 10 days. Endpoints evaluated included lethality, clinical signs, body weight, serum testosterone and luteinizing hormone, organ weights (liver, kidneys, adrenal gland, testes, glans penis, ventral prostates, combined seminal vesicles and coagulating glands, levator ani/bulbocavernosus [LABC], and Cowper's glands).All animals survived the entirety of the experiment. No clinical signs of toxicity were seen. No significant differences in terminal body weights were seen compared to control. Serum LH was significantly increased ~25% and serum testosterone was decreased ~30% at 100 and 500 mg/kg/day compared to testosterone alone control. No significant difference in absolute liver, kidney, or adrenal glands weights were seen compared to testosterone control. No significant difference in the weights of the sex accessory tissues were seen compared to testosterone alone. BBP is considered to be negative for this assay given a decrease in the weights of 2/5 androgen-dependent tissues was not seen. A positive control group for antiandrogenic effects (treated with flutamide) was included and gave expected results (data not shown).	No major limitation.	Nutritional/Metabolic-Body weight-Other (please specify below) (Clinical signs)-Clinical signs-Hepatic/Liver-Liver weight-Renal/Kidney-Kidney weight-Other (please specify below) (Endocrine)-Adrenal weight-Reproductive/Developmental-The following 5 tissues were weighed: testes, ventral prostates, combined seminal vesicles and coagulating glands, levator ani/bulbocavernosus (LABC), and Cowper's gland.Serum testosterone and luteinizing hormone; Medium	Lee et. al 2007 673292

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Short-term (>1-30 days)

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
OECD protocol for detecting endocrine disruptors (OECD, 2001). Rat-Sprague-Dawley - [rat]-Male	Oral-Gavage-Duration: Short-term (>1-30 days)-7-10-day(s) 7 days/week 10 day(s) Animals were treated for 10 days	**POD: mg/kg-bw/day (Dichotomous (P/N)) -Positive in Hershberger assay at 500 mg/kg/day** n= 6 Dose= 0, n= 6 Dose= 20, n= 6 Dose= 100, n= 6 Dose= 500, mg/kg-bw/day	Hershberger assay was performed in castrated Sprague-Dawley male rats. One week after surgery, animals were administered 0, 20, 100 or 500 mg/kg/day of di-isononyl phthalate (DINP) in corn oil via oral gavage along with 0.4 mg/kg/day testosterone propionate delivered subcutaneously for 10 days. Endpoints evaluated included lethality, clinical signs, body weight, serum testosterone and luteinizing hormone, organ weights (liver, kidneys, adrenal gland, testes, glans penis, ventral prostates, combined seminal vesicles and coagulating glands, levator ani/bulbocavernosus [LABC], and Cowper's glands).All animals survived the entirety of the experiment. No clinical signs of toxicity were seen. No significant differences in terminal body weights were seen compared to control. At 500 mg/kg/day, serum LH was significantly increased (~32%) and serum testosterone was significantly decreased (~18%) compared to testosterone alone control. No significant difference in absolute liver, kidney, or adrenal glands weights were seen compared to testosterone control. Significant decreases in absolute seminal vesicles weight (22%, 20%, and 22%) at 20, 100, and 500 mg/kg/day, respectively, and LBC weight (18%) at 500 mg/kg/day were seen compared to testosterone alone. Ventral prostate, Cowper's gland or Glans penis weights were not significantly different compared to testosterone alone. A reduction in the weight of two out of the five androgen-dependent tissues occurred at 500 mg/kg/day, indicating a positive response. A positive control group for antiandrogenic effects (treated with flutamide) was included and gave expected results (data not shown).	No major limitation.	Nutritional/Metabolic-Body weight-Other (please specify below) (Clinical signs)-Clinical signs-Hepatic/Liver-Liver weight-Renal/Kidney-Kidney weight-Other (please specify below) (Endocrine)-Adrenal weight-Reproductive/Developmental-The following 5 tissues were weighed: testes, ventral prostates, combined seminal vesicles and coagulating glands, levator ani/bulbocavernosus (LABC), and Cowper's gland.Serum testosterone and luteinizing hormone; Medium	Lee et. al 2007 673292

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Short-term (>1-30 days)

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
OECD protocol for detecting endocrine disruptors (OECD, 2001). Rat-Sprague-Dawley - [rat]-Male	Oral-Gavage-Duration: Short-term (>1-30 days)-7-10-day(s) 7 days/week 10 day(s) Animals were treated for 10 days	**POD: mg/kg-bw/day (Dichotomous (P/N)) -Positive in Hershberger assay at 500 mg/kg/day** n= 6 Dose= 0, n= 6 Dose= 20, n= 6 Dose= 100, n= 6 Dose= 500, mg/kg-bw/day	Hershberger assay was performed in castrated Sprague-Dawley male rats. One week after surgery, animals were administered 0, 20, 100 or 500 mg/kg/day of di-isodecyl phthalate (DIDP) in corn oil via oral gavage along with 0.4 mg/kg/day testosterone propionate delivered subcutaneously for 10 days. Endpoints evaluated included lethality, clinical signs, body weight, serum testosterone and luteinizing hormone, organ weights (liver, kidneys, adrenal gland, testes, glans penis, ventral prostates, combined seminal vesicles and coagulating glands, levator ani/bulbocavernosus [LABC], and Cowper's glands).All animals survived the entirety of the experiment. No clinical signs of toxicity were seen. No significant differences in terminal body weights were seen compared to control. Significant increases in serum LH ~33% occurred at 100 and 500 mg/kg/day and significant decreases in testosterone (~27%) was seen in all dose groups compared to testosterone alone control. Absolute liver weight was significantly increased at 500 mg/kg/day (17%) compared to testosterone alone. At 500 mg/kg/day, significant decreases in absolute seminal vesicles weight (9%) and ventral prostate weight (21%) compared to testosterone alone. No significant differences in LAB, Cowper's glands or glans penis weight were seen compared to testosterone alone. A reduction in the weight of two out of the five androgen-dependent tissues occurred at 500 mg/kg/day, indicating a positive response.A positive control group for antiandrogenic effects (treated with flutamide) was included and gave expected results (data not shown).	No major limitation.	Nutritional/Metabolic-Body weight-Other (please specify below) (Clinical signs)-Clinical signs-Hepatic/Liver-Liver weight-Renal/Kidney-Kidney weight-Other (please specify below) (Endocrine)-Adrenal weight-Reproductive/Developmental-The following 5 tissues were weighed: testes, ventral prostates, combined seminal vesicles and coagulating glands, levator ani/bulbocavernosus (LABC), and Cowper's gland.Serum testosterone and luteinizing hormone; Medium	Lee et. al 2007 673292

* Overall Quality Determination

[1] 2219796: Pregnant albino rats (at least 6/group; not specified) were administered 0, 4, 20, or 100 mg/kg/day of butyl benzyl phthalate (BBP) in corn oil via gavage from gestational day (GD) 14 up to parturition. An untreated control and a positive control (6 ug/kg diethylstilbestrol) group were also included. Dams were allowed to deliver naturally. Dams were monitored for clinical signs of toxicity, weight gain and gestation length. Endpoints evaluated included litter size, sex ratio, and number of live and dead pups on PND 1 (live birth index), PND 4 (viability index), and PND 21 (weaning index). Pups were examined for gross external abnormalities, physical development landmarks (eye opening, fur formation, pinna detachment, and testis descend), anogenital distance (PND 5 and PND 25), pups body weight (PND 1, PND 21, and biweekly thereafter until PND 75). On PND 75, representative number of male animals from each dam were sacrificed. Endpoints evaluated in sacrificed males included organ weights (testes, epididymis, prostate, vas deference, and seminal vesicle, liver, kidney, and adrenal gland), sperm quality parameters (sperm motility, sperm count, testicular spermatid count, daily sperm production, and sperm head shape abnormality), 17β-hydroxy steroidehydrogenase (HSD) in testis, and serum testosterone levels. No dams died during treatment. Clinical signs were not reported. Body weight gain was significantly decreased (~9%, 6%, and 9%) in the 4, 20, and 100 mg/kg/day, respectively from untreated control group on GD 21. No significant difference in body weight gain was seen between control (29%) and vehicle treated group (27%). Gestation length was significantly increased in all dosed groups (~21.25 days in control, ~21.6 days in vehicle control; ~23.2, 23.0, and 23.0 days at 4, 20, 100 mg/kg/day, respectively) compared to control. No significant difference in litter size, live pups/litter, fetal mortality, sex ratio, live birth index, viability index, weanling index, AGD in males on PND 5 and 25 from control. Male body weights were significantly decreased on PND 1 (3%, 4%, and 5%) and PND 21 (12%, 22%, and 16%) at 4, 20, and 100 mg/kg/day, respectively compared to control. No significant difference in age of developmental landmarks (pinna detachment, fur formation, eye opening, and testis descend) compared to control. On PND 75, significant decreases in body weight (2% and 4%) at 20 and 100 mg/kg/day, respectively compared to control. Significant decreases in absolute epididymis weight (13%), prostate weight (12%), and kidney weight (11%) were seen in the 100 mg/kg/day compared to control. Significant decreases in cauda epididymal sperm count (10%) and percentage of motile sperm (6%) were seen in the 100 mg/kg/day group compared to control. The percentage of sperm abnormalities was significantly increased from 1.12% in control to 1.72% in the 100 mg/kg/day. No significant difference in spermatid count or daily sperm production compared to control. No significant difference in testicular 17b-HSD (although trended downward) compared to control. Serum testosterone was significantly decreased (64%) at 100 mg/kg/day compared to control. The positive control group gave expected results. No significant differences in parameters were seen between the untreated control and vehicle control group. A LOAEL of 4 mg/kg/day was determined by this reviewer.

[2] 1325511: Fisher 344 rats (5/sex/group) were provided a diet containing 0, 0.6, 1.2, or 2.5% BBP for 21 days. Authors calculated mean BBP intake based on food intake and body weight as 639, 1277, and 2450 mg/kg/day in males and 679, 1346, and 2628 mg/kg/day in females at 0.6%, 1.2%, and 2.5% BBP in diet, respectively. Endpoints evaluated included clinical signs (daily), body weight (days: -3, 0, 3, 7, 10, 14, 17, and 20), food intake (measured in intervals from days: -3 to 0; 0-3; 3-7; 7-10; 10-14; 14-17; and 17-20), serum concentrations of triglyceride and total cholesterol, gross necropsy, organ weights (liver, kidney, and testes), histopathology (liver, kidney, and testes), biochemical analysis of liver (cyanide-insensitive palmitoyl-CoA oxidation levels and protein concentration; microsomal fraction rate of lauric acid hydroxylation) and ultrastructure of liver to assess peroxisome proliferation (TEM; one negative control, 2 positive controls and 2 from high-dose groups). A positive control group was also included in which rats (n=5/sex) were fed 1.2% DEHP (1135 mg/kg/day for males and 1150 mg/kg/day for females).The study did not report that any animals died, and all animals were accounted for in the results. Clinical signs were not reported. Male body weights were significantly decreased in the mid-dose group (10-12%) on days 3-20 and in the high-dose group 18% on day 3 and 27-28% on days 7-20, compared to control. In females, body weights were significantly decreased in the high-dose group (10-17%) on days 3-17 compared to control. Terminal body weights were significantly decreased in the high-dosed males (29%) and females (10%) compared to control. Food intake was significantly decreased on days 0-3 in males (14%, 24% and 61%) and females (21%, 27%, and 58%) in the low-, mid- and high-dose groups, respectively compared to control. After the third day, food intake remained significantly decreased throughout study in the high dose groups (21-42% in males; 13-21% in females) compared to control. Serum triglycerides were significantly decreased in males (33% and 34%) in the mid-, and high-dose groups and significantly increased in the high-dose females (100%) compared to control. Serum total cholesterol levels in females were significantly decreased (20% and 15%) in the low- and mid-dosed group compared to control; no difference in males was observed. Absolute liver weights were significantly increased in males (24% and 21%) and females (21% and 53%) in the mid and high-dose groups, respectively; and relative liver weights in males (21%, 38% and 71%) and females (11%, 23% and 71%) in the low-, mid-, and high-dose groups, respectively compared to control. Absolute kidney weights were significantly decreased in the high-dose males (20%) and significantly increased in mid-dosed females (11%) compared to control. Relative kidney weights were significantly increased in males (9%, 14%, 13%) and females (9%, 13%, 8%) in the low-, mid-, and high-dose groups, respectively. In the high-dose group, significant decreases in absolute (73%) and relative (62%) testis weight and a significant increase in relative testis weight in the low-dose group (11%) compared to control. In the livers, cyanide-insensitive palmitoyl-CoA oxidation levels were significantly increased in males (73%, 150% and 341%) in low-, mid-, and high-dose groups and high-dose females (185%) compared to control. In male livers, significant increases in lauric acid 11-hydroxylase activities (107%, 143% and 164%) and 12-hydroxylase activities (454%, 701% and 669%) were seen in the low-, mid-, and high-dose groups. In female livers, significant increases in lauric acid 11-hyroxylase activities (73% and 119%) and 12-hydroxylase activities (29% and 301%) were seen in the mid-and high-dose groups compared to control. No significant differences in total protein levels in livers were seen in males and females compared to control. Microsomal protein levels were significantly decreased (15%) in the high-dose group males and low-dose females (15%) compared to control. In the high-dose group, histological examination of liver showed increased incidences of slight reduction cytoplasmic basophilia in males (5/5) and females (4/5) compared to control (0/5) and increased centrilobular eosinophilia in males (3/5) compared to control (0/5). Severe atrophy of the testis was seen in all males in the high-dose group, compared to control (0/5). Centrilobular and periportal peroxisome proliferation were moderately increased in high-dose male and females compared to control groups.In the positive control DEHP group, expected effects on the liver were observed (increased liver weights, decreased serum triglycerides and total cholesterol increased liver PCoA levels and lauric acid 11 and 12 hydroxylase activities, reduction in cytoplasmic basophilia, marked increase in peroxisome proliferation.

[3] 1325511: Fisher 344 rats (5/sex/group) were provided a diet containing 0, 0.6, 1.2, or 2.5% DBP for 21 days. Authors calculated mean DBP intake based on food intake and body weight as 624, 1234, and 2160 mg/kg/day in males, and 632, 1262 and 2111 mg/kg/day in females at 0.6%, 1.2%, and 2.5% DBP in diet, respectively Endpoints evaluated included clinical signs (daily), body weight (days: -3, 0, 3, 7, 10, 14, 17, and 20), food intake (measured in intervals from days: -3 to 0; 0-3; 3-7; 7-10; 10-14; 14-17; and 17-20), serum concentrations of triglyceride and total cholesterol, gross necropsy, organ weights (liver, kidney, and testes), histopathology (liver, kidney, and testes), biochemical analysis of liver (cyanide-insensitive palmitoyl-CoA oxidation levels and protein concentration; microsomal fraction rate of lauric acid hydroxylation) and ultrastructure of liver to assess peroxisome proliferation (TEM; one negative control, 2 positive controls and 2 from high-dose groups). A positive control group was also included in which rats (n=5/sex) were fed 1.2% DEHP (1160 mg/kg/day for males and 1095 mg/kg/day for females).The study did not report that any animals died, and all animals were accounted for in the results. Clinical signs were not reported. Male body weights were significantly decreased in the mid-dose group (4-5%) on days 7-14; and the high-dose group (16%) on day 3 and 24-31% on days 7-20. In females, body weights were significantly decreased in the high-dose group (7-12%) from day 3-17 compared to control. Terminal body weights were significantly decreased in high-dose males (29%) and females (8%) compared to control. Food intake in males was significantly increased in the low-dose group (18-21%) on days 0-7, and in the mid-dose group (16%) on day 3-7 and (12%) on day 14-17. In the high-dose group, food intake was significantly decreased in males (16-50%) throughout the study and in females (28-55%) on days 0-7. Serum triglycerides were significantly decreased in males (31%, 44%, 40%) in the low-, mid-, and high-dose groups, respectively and significantly increased in females (32%) in high-dose females, compared to control. Serum total cholesterol was significantly decreased in males (42%, 31%, and 30%) and females (31%, 30% and 20%) in low-, mid-, and high-dose groups, respectively compared to control. Significant increases in absolute liver weight in males (28%, 56% and 31%) and females (9%, 16% and 48%) and relative liver weights in males (30%, 61% and 86%) and females (8%, 16% and 61%) were seen in the low-, mid-, and high-dose group, respectively compared to control. Absolute kidney weight was significantly decreased 16% in the high-dose group and relative kidney weight was significantly increased (9% and 19%) in the mid- and high-dose males, respectively compared to control. In females, absolute kidney weight was increased in low-dose group (7%) and relative kidney weight (8%) in the high-dose group, compared to control. In the high-dose group, significant decreases in absolute (71%) and relative (58%) testis weight were seen compared to control. In the liver, significant increases in cyanide-insensitive palmitoyl-CoA oxidation levels were seen in males (220% and 498%) in the mid- and high-dose groups, respectively and in females (78%) in the high-dose group compared to control. In males, significant increases in lauric acid 11-hydroxylase activities (150%, 183% and 183%) and 12-hydroxylase activities (541%, 647% and 582%) occurred in the liver in the low-, mid-, and high-dose groups, respectively compared to control. In females, significant increases in lauric acid 11-hydroxylase activities (67% and 150%) were seen in the mid- and high-dose group livers, respectively; and 12-hydroxylase activities in the liver (357%) of the high-dose group compared to control. Total protein levels were significantly increased in male livers (8% and 17%) in the low-and mid-dose group, respectively and in female livers (13% and 21%) in the mid-and high-dose groups. No significant differences in microsomal protein levels were seen compared to control. Histological examination of liver showed increased incidences of slight reduction cytoplasmic basophilia in males (5/5) and females (5/5) in the high-dose group and in mid-dose males (4/5) compared to control (0/5). Severe atrophy of the testes was seen in all males in the high-dose group, compared to control (0/5). Centrilobular and periportal peroxisome proliferation were moderately and markedly increased in high-dose male and females compared to control groups.In the positive control DEHP group, expected effects on the liver were observed (increased liver weights, decreased serum triglycerides and total cholesterol increased liver PCoA levels and lauric acid 11 and 12 hydroxylase activities, reduction in cytoplasmic basophilia, marked increase in peroxisome proliferation.

[4] 1325511: Fisher 344 rats (5/sex/group) were provided a diet containing 0, 0.3, 1.2, 2.5% DIDP for 21 days. Authors calculated mean DIDP intake based on food intake and body weight as 304, 1134 and 2100 mg/kg/day in males and 263, 1042 and 1972 mg/kg/day in females at 0, 0.3, 1.2, 2.5% DIDP in diet, respectively. Endpoints evaluated included clinical signs (daily), body weight (days: -3, 0, 3, 7, 10, 14, 17, and 20), food intake (measured in intervals from days: -3 to 0; 0-3; 3-7; 7-10; 10-14; 14-17; and 17-20), serum concentrations of triglyceride and total cholesterol, gross necropsy, organ weights (liver, kidney, and testes), histopathology (liver, kidney, and testes), biochemical analysis of liver (cyanide-insensitive palmitoyl-CoA oxidation levels and protein concentration; microsomal fraction rate of lauric acid hydroxylation) and ultrastructure of liver to assess peroxisome proliferation (TEM; one negative control, 2 positive controls and 2 from high-dose groups). A positive control group was also included in which rats (n=5/sex) were fed 1.2% DEHP (1077 mg/kg/day for males and 966 mg/kg/day for females).The study did not report that any animals died, and all animals were accounted for in the results. Clinical signs were not reported. Body weights were significantly decreased in the high-dose group males (18-31%) on days 3-20 and females (13-17%) on days 10-20 compared to control. Terminal body weights were significantly decreased 32% in males and 20% in females compared to control. Food intake in the high-dose group was significantly decreased from day 0-3 in males (48%) and females (41%) compared to control; male food intake remained decreased (28-36%) throughout the study. Serum triglycerides in males

were significantly decreased (34% and 34%) in the mid- and high-dose males; no difference was seen in females compared to control. Serum total cholesterol was significantly decreased in the mid-dose males (25%) and low-dose females (22%) compared to control. In males, significant increases in absolute liver weight (21%, 86% and 71%) and relative liver weights (21%, 101% and 153%) were seen in the low-, mid- and high-dose groups, respectively compared to control. In females, significant increases in absolute liver weights (60% and 92%) and relative liver weight (76% and 138%) were seen in the mid- and high-dose groups, respectively, compared to control. Absolute kidney weights were significantly increased (11% and 11%) as were relative kidney weights (10% and 19%) in males the low-and mid-dosed groups, respectively compared to control. In the high-dose male group, absolute kidney weight was significantly decreased (19%), relative kidney weight was significantly increased (19%), absolute testis weight was significantly decreased (11%) and relative testis weight was significantly increased (31%) compared to control; this maybe a reflection of the significant decrease in body weight in this group. In females, absolute kidney weight was significantly decreased in the high-dose group (13%) and relative kidney weights were significantly increased (9% and 9%) in the mid- and high-dose groups compared to control. In the liver, levels of cyanide-insensitive palmitoyl-CoA oxidation were significantly increased in males (10-fold and 16-fold) and in females (7-fold and 13-fold) in the mid- and high-dose groups compared to control. Activities of lauric acid 11-hydroxylase in the liver were significantly increased in males in the mid- (4-fold) and high-dose group (4-fold); no difference was seen in females compared to control. Activities of lauric acid 12-hydroxylase in the liver were significantly decreased in males (4-fold, 11-fold and 11-fold) in the low-, mid- and high-dose group, respectively and in females in the high-dose group (4-fold) compared to control. Total protein in the liver significantly increased in males (19% and 18%) and females (20% and 21%) in mid- and high-dose groups, respectively compared to control. In the high-dose group, histological examination of liver showed increased incidences of reduced cytoplasmic basophilia and increased cytoplasmic eosinophilia in 5/5 males and 5/5 females compared 0/5 males and females in controls. Proliferation of centrilobular and periportal peroxisomes were markedly increase in males and very markedly increase in females compared to control.In the positive control DEHP group, expected effects on the liver were observed (increased liver weights, decreased serum triglycerides and total cholesterol increased liver PCoA levels and lauric acid 11 and 12 hydroxylase activities, reduction in cytoplasmic basophilia, marked increase in peroxisome proliferation.

[5] 1325511: Fisher 344 rats (5/sex/group) were provided a diet containing 0, 0.3, 1.2, 2.5% DINP for 21 days. Authors calculated mean DINP intake based on food intake and body weight as 639, 1192, and 2195 mg/kg/day in males and 607, 1193, 2289 mg/kg/day in females at 0, 0.3, 1.2, 2.5% DINP in diet, respectively. Endpoints evaluated included clinical signs (daily), body weight (days: -3, 0, 3, 7, 10, 14, 17, and 20), food intake (measured in intervals from days: -3 to 0; 0-3; 3-7; 7-10; 10-14; 14-17; and 17-20), serum concentrations of triglyceride and total cholesterol, gross necropsy, organ weights (liver, kidney, and testes), histopathology (liver, kidney, and testes), biochemical analysis of liver (cyanide-insensitive palmitoyl-CoA oxidation levels and protein concentration; microsomal fraction rate of lauric acid hydroxylation) and ultrastructure of liver to assess peroxisome proliferation (TEM; one negative control, 2 positive controls and 2 from high-dose groups). A positive control group was also included in which rats (n=5/sex) were fed 1.2% DEHP (1084 mg/kg/day for males and 896 mg/kg/day for females).The study did not report that any animals died, and all animals were accounted for in the results. Clinical signs were not reported. Body weights were significantly decreased in mid-dose males (6-12%) from days 7-20 and high-dose males (10-28%) from days 3-20; and in females in the mid-dose group (6-7%) on days 7-10 and high-dose group (9-14%) on days 3-20. Terminal body weights were significantly decreased in males (13% and 30%) in mid-and high-dose groups, respectively and in high-dose females (16%) compared to control. Food intake in males was decreased in (10-14%) on day 7-20 in the mid-dose groups. In the high-dose group, food intake was decreased the first 3 days 48% in males and 41% in females; food intake in males remained decreased (19-36%) for the remainder of the study in males but returned to control levels in females. Serum triglycerides were significantly decreased in males (24%, 42% and 48%) in the low-, mid-, and high-dose groups, respectively and in females (23% and 26%) in the mid- and high dose groups compared to control. Serum total cholesterol levels were significantly decreased in males (24%, 32%, and 9%) and females (24%, 15%, and 14%) in the low-, mid-, and high-dose groups, respectively. Significant increases in absolute liver weight were seen in males (36%, 50% and 65%) and females (24%, 64%, and 98%) and relative liver weight in males (36%, 73%, 132%) and females (31%, 75% and 137%) in the low-, mid- and high-dose groups, respectively compared to control. Absolute kidney weights in males were significantly increased 14% in the low-dose group and decreased in the high-dose group (13%) compared to control. No significant differences in absolute kidney weight were seen in females compared to control. Relative kidney weights were increased in males (15%, 22% and 24%) and females (7%, 8% and 14%) in the low-, mid-, and high-dose groups respectively compared to control. Relative (but not absolute) testis weight was significantly increased 35% in the high-dose group compared to control; this may be a reflection of the severe decrease in body weight in this group. In the liver cyanide-insensitive palmitoyl-CoA oxidation levels were significantly increased in males (5-fold and 10-fold) and females (4-fold and 11-fold) in mid- and high-dose groups, respectively compared to control. In males, significant increases in the activities of lauric acid 11-hydroxylase (2-fold, 3-fold, and 3-fold) and lauric acid 12-hydroxylase (5-fold, 8-fold, and 10-fold) in the low-, mid- and high-dose groups, respectively compared to control. In the high-dosed females, significant increases in the activities of lauric acid 11-hydroxylase (5-fold) and lauric acid 12-hydroxylase (8-fold) were seen in the liver compared to control. Total protein levels in the liver were significantly increased in males (8%, 10%, and 18%) and females (19%, 20%, and 23%) in the low-, mid, and high-dose group. Microsomal protein levels were significantly in females (17% and 17%) in the low- and mid-dose groups respectively compared to control. In the high-dose group, histological examination of liver showed increased incidences of reduction cytoplasmic basophilia and increased cytoplasmic eosinophilia in 5/5 males and 5/5 females compared 0/5 males and females in controls. In the mid-dose group, increased incidences of reduction cytoplasmic basophilia was seen in 5/5 males and 5/5 females compared to 0/5 in controls. Proliferation of centrilobular and periportal peroxisomes were very markedly increase in males and markedly increase in females compared to control.In the positive control DEHP group, expected effects on the liver were observed (increased liver weights, decreased serum triglycerides and total cholesterol increased liver PCoA levels and lauric acid 11 and 12 hydroxylase activities, reduction in cytoplasmic basophilia, marked increase in peroxisome proliferation.

[6] 1325511: Fisher 344 rats (5/sex/group) were provided a diet containing 0 or 1.2% DEHP for 21 days. The experiment was repeated 7 times, as rats receiving DEHP served as a positive control group for hepatic peroxisome proliferation experiments performed with different phthalic acid esters. Authors calculated mean DEHP intake for each experiment based on dietary intake. This reviewer averaged the intake for all eight experiments. The mean intake for males was 1149 +/- 64 mg/kg/day and in females as 1115 +/- 117 mg/kg/day for all experiments. Endpoints evaluated included clinical signs (daily), body weight (days-3, 0, 3, 7, 10, 14, 17, and 20), food intake (measured in intervals from days: -3 to 0; 0-3; 3-7; 7-10; 10-14; 14-17; and 17-20), serum concentrations of triglyceride and total cholesterol, gross necropsy, organ weights (liver, kidney, and testes), histopathology (liver, kidney, and testes), biochemical analysis of liver (cyanide-insensitive palmitoyl-CoA oxidation [PCoA] levels and protein concentration; microsomal fraction rate of lauric acid hydroxylation) and ultrastructure of liver to assess peroxisome proliferation).The study did not report that any animals died, and all animals were accounted for in the results. Clinical signs were not reported. Body weights were significantly decreased in males (in 6 out 8 experiments) and females (in 8 out of 8 experiments) compared to control. Food intake was significantly decreased in males (in 7/8 experiments and increased in 1/8 experiments) and females (6/8 experiments and no change in 2/8 experiments) compared to control. In males significant decreases in serum triglycerides (in 6/8 experiments) and total cholesterol (in 8/8 experiments) were seen. In females, no changes in serum triglycerides or total cholesterol were seen in 5/8 experiments; decreases in serum total cholesterol was observed in 3/8 experiments compared to control. A significant increase in absolute and relative liver weights were seen in males and females in all 8 experiments, compared to control. No changes in absolute kidney weights were seen but significant increases in relative kidney weights were observed (males 7/8 experiments; females (in 6/8 experiments) compared to control. These changes may be a reflection of the decreased body weight and not effect on the kidney itself. Changes in testis weights were not consistent between the eight experiments. Absolute and relative testis weights were significantly decreased in 1/8 experiments; increases in relative testis weight were reported in 2/8 experiments; decreases in relative testis weight was reported in 1/8 experiments; no change absolute or relative testis weights were seen in 4/8 experiments compared to control. Histologically, reduction of cytoplasmic basophilia in the liver was observed in 5/5 males and 5/5 females in all 8 experiments. No significant histological changes were seen in the kidneys or testis in male or females in all 8 experiments. Significant increases in liver PCoA levels and lauric acid 11 and 12 hydroxylase activities, and marked increase in peroxisome proliferation were observed in male and female rats after exposure.

[7] 673292: Hershberger assay was performed in castrated Sprague-Dawley male rats. One week after surgery, animals were administered 0, 20, 100 or 500 mg/kg/day DEHP in corn oil via oral gavage along with 0.4 mg/kg/day

testosterone propionate delivered subcutaneously for 10 days. Endpoints evaluated included lethality, clinical signs, body weight, serum testosterone and luteinizing hormone, organ weights (liver, kidneys, adrenal gland, testes, glans penis, ventral prostates, combined seminal vesicles and coagulating glands, levator ani/bulbocavernosus [LABC], and Cowper's glands).All animals survived the entirety of the experiment. No clinical signs of toxicity were seen. No significant differences in terminal body weights were seen compared to control. Serum LH levels were significantly increased (~ 38% and 50%) at 100 and 500 mg/kg/day, respectively compared to testosterone alone. Serum testosterone was not significantly different from testosterone alone group. Absolute liver weight was significantly increased (27%) at 500 mg/kg/day compared to testosterone alone treated rats. No significant difference in kidney or adrenal gland weights were seen between the groups. Significant decreases in absolute seminal vesicle weight (13% and 28%) at 100 and 500 mg/kg/day, respectively, ventral prostate weight (17%, 18%, and 31%) at 20, 100, and 500 mg/kg/day, and LABC weight (21%) at 500 mg/kg/day were seen compared to testosterone alone control. No difference in Cowper's gland or Glans penis weight were seen. A reduction in the weight of two out of the five androgen-dependent tissues occurred at 100 mg/kg/day, indicating a positive response.A positive control group for antiandrogenic effects (treated with flutamide) was included and gave expected results (data not shown).

Butyl benzyl phthalate- Parent compound - Reproductive/Developmental

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
OECD 416 Rat-Crj: CD(SD) - [rat]-Both	Oral-Gavage-Duration: Reproductive/Developmental-2-F0- premating (10 weeks)-F0- mating (0-14 days)-F0 - gestation (21-22 days)-F0- lactation (3 weeks)-F1- premating (10 weeks)-F1- mating (0-14 days)-F1 - gestation (21-22 days)-F1- lactation (3 weeks)-F1- post-natal (3 weeks)-F0- premating (10 weeks)-F0- mating (0-14 days)-F1- premating (10 weeks)-F1- mating (0-14 days)-F1- post-natal (3 weeks) Specific days are not provided, dosing described as 10 weeks prior to mating, mating period, gestation, and lactation, followed OECC 416	**POD: 100 mg/kg-bw/day (LOAEL) -Reproductive changes in offspring** n= 24 Dose= 0, n= 24 Dose= 100, n= 24 Dose= 200, n= 24 Dose= 400, mg/kg-bw/dayTotal # of generations: 2 Male Exposure: F0- premating, 10 weeks, F0- mating, 0-14 days, F1- premating, 10 weeks, F1- mating, 0-14 days, F1- post-natal, 3 weeks Female Exposure: F0- premating, 10 weeks, F0- mating, 0-14 days, F0 - gestation, 21-22 days, F0- lactation, 3 weeks, F1- premating, 10 weeks, F1- mating, 0-14 days, F1 - gestation, 21-22 days, F1- lactation, 3 weeks, F1- post-natal, 3 weeks	See footnotes for full summary [1]	The major limitation of this study is the lack of reporting. Some of the data are presented qualitatively or not at all, suggesting that differences may not have been observed, but this is not completely clear.	Reproductive/Development; Mating index, fertility index, gestation index and length, number of implantations, number of pups, hormones, sperm index, sex ratios, reproductive development, body and organ weights, and gross necropsy of the offspring; Medium	Aso et. al 2005 674931

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Reproductive/Developmental

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
The study did not report any compliance guidelines or state if GLP condition were adhered to. Rat-Sprague-Dawley - [rat]-Both	Oral-Gavage-Duration: Reproductive/Developmental-F0 - gestation (GD14-GD18) Exposed from GD14- GD18	**POD: 100 mg/kg-bw/day (LOAEL) -Developmental: decreased fetal testosterone production from testes (ex vivo), decreased fetal viability** n= 3 Dose= 0, n= 2 Dose= 100, n= 2 Dose= 300, n= 3 Dose= 600, Dose= 900, mg/kg-bw/day Female Exposure: F0 - gestation, GD14- GD18	Pregnant Harlan SD rats and/or Charles Rivers SD rats were mated by the supplier and shipped GD1. For the following data, the rat species utilized was the Harlan SD rats. Animals were gavaged with various doses of BBP between GD 14-18. Dams were sacrificed on GD 18 approximately two hours after dosing, and fetal testes were obtained for determination of fetal testicular testosterone production. DBP experiments were conducted over several blocks (Blocks 2, 36, and 37) and results were reported for each individual block. Each block consisted of about 15 pregnant rats that were then randomly divided into groups based on weight to ensure equal distribution. Block 2 (n=5 control; n=2 BBP group) there was a reduction in fetal testicular testosterone production at the 750 mg/kg/day group (LOAEL). There was no change in fetal viability or maternal weight. Block 36 (n=2-3) there was a reduction in fetal testicular testosterone production at the 100 mg/kg/day group (LOAEL). Although there was a pup lost in one of the dose groups, there was not a significant decrease in fetal viability or maternal weight. Block 37 (n=3-4) there was no significant change in fetal testicular testosterone production (NOAEL was 100 mg/kg/day). Supplemental material considered in evaluation (HERO number 3045543).	The overall number of animals per experiment for the fetal measurements was often quite low, which would impact overall statistical power. Also, since the animals were stated to be shipped on GD1, there is likely stress related effects that is consistent across groups. Although maternal weight was recorded, fetal weight was not accounted for.	Reproductive/Developmental - Developmental - fetal survival-Reproductive/Developmental-Female reproductive - maternal weight gain-Reproductive/Developmental-Male Reproductive - testosterone; High	Furr et. al 2014 2510906
No guideline or use of GLP conditions was specified Rat-Other (Crl:(CD)SD)-Female	Oral-Gavage-Duration: Reproductive/Developmental-1-F0 - gestation (GD14-GD18) Daily gavage from GD14-GD18	**POD: 300 mg/kg-bw/day (LOAEL) -Decreased ex vivo fetal testicular testosterone production** n= 3 Dose= 0, n= 3 Dose= 100, n= 3 Dose= 300, n= 3 Dose= 600, n= 3 Dose= 900, mg/kg-bw/dayTotal # of generations: 1 Female Exposure: F0 - gestation, GD14-GD18	The current reference is a continuation from the same dataset discussed in Furr et al. 2014 (HERO: 2510906). Pregnant female rats were divided into blocks where either Harlan SD rats and/or Charles Rivers SD rats were utilized. For the following study, the Charles Rivers SD rats (Crl:(CD)SD) species were utilized. Each pregnant rat was randomly divided into groups based on weight to ensure equal distribution. Figure 2B showed decreased fetal testosterone production across multiple doses; 0, 100, 300, 600, or 900 mg/kg-day. Statistical analysis indicated a LOAEL of 300 mg/kg-day and a NOAEL of 100 mg/kg-day.	The overall number of animals per experiment for the fetal measurements was often quite low, which would impact overall statistical power. Also, since the animals were stated to be shipped on GD1, there is likely stress related effects that is consistent across groups. Although maternal weight was recorded, fetal weight was not accounted for.	Reproductive/Developmental - Fetal testosterone production ex vivo; High	Gray et. al 2021 9419406

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Reproductive/Developmental

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
Study did not state which, if any, compliance guidelines were adhered to. Rat-Crj: CD(SD) - [rat]-Both	Oral-Gavage-Duration: Reproductive/Developmental-2-F0- premating (2 weeks)-F0- mating (2 weeks)-F0 - gestation (3 weeks)-F0- lactation (3 weeks)-F1- premating (10 weeks)-F1- mating (2 weeks)-F1 - gestation (3 weeks)-F1- lactation (3 weeks)-F1- post-natal (3 weeks)-F0- premating (12 weeks)-F0- mating (2 weeks)-F1- premating (10 weeks)-F1- mating (2 weeks) 8-week-old male and female rats, 8 of each sex, were treated orally with BBP at 20, 100, or 500 mg/kg/day for 2 weeks. Exposure to BBP continued during cohabitation (at most for 7 days), and female exposure continued during gestation and lactation until postpartum day 21. F0 male rats were treated for 12 weeks prior to the 2-week cohabitation, until necropsy. F0 female rats were treated for 2 weeks prior to cohabitation, until necropsy (including during gestation, delivery, and lactation through postpartum day 21). F1 animals were treated by oral gavage after weaning (postnatal day 22)	**POD: 20 mg/kg-bw/day (NOAEL) - Reproductive effects on parent rats and the next generation** n= 25 Dose= 0, n= 25 Dose= 20, n= 25 Dose= 100, n= 25 Dose= 500, mg/kg-bw/dayTotal # of generations: 2 Male Exposure: F0- premating, 12 weeks, F0- mating, 2 weeks, F1- premating, 10 weeks, F1- mating, 2 weeks Female Exposure: F0- premating, 2 weeks, F0- mating, 2 weeks, F0 - gestation, 3 weeks, F0- lactation, 3 weeks, F1- premating, 10 weeks, F1- mating, 2 weeks, F1 - gestation, 3 weeks, F1- lactation, 3 weeks, F1- post-natal, 3 weeks	See footnotes for full summary [2]	Study did not state which, if any, compliance guidelines were adhered to.	Reproductive/Developmental-F0 and F1: Female: estrous cycle, serum levels of prolactin, LH, FSH, TSH, T3, T4 and estradiol; ovary and uterus weight, histology on ovaries, uterus, mammary gland, and vaginaF0 and F1 Male: testes, serum levels of testosterone, LH, FSH, TSH, T3, and T4epididymides, ventral prostate, and serial vesicle weight; histology on testes, epidiymides, prostate, and seminal vesicle with coagulating gland; percentage of motile sperm, progressive motile sperm, and sperm counts.Mating index, fertility index, gestation length, delivery index, Implantation sites, live and dead pups, pup weight, sex ratio, viability, external and internal abnormalities in pups, anogenital distance, developmental milestones, day of vaginal opening, and preputial separation, performance in behavioral and functional test (open-field, water multiple T-maze, and spontaneous motor activity); Medium	Nagao et. al-2000 675335

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Reproductive/Developmental

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
This study was conducted under GLP conditions and followed OECD 415 guidelines. Rat-Wistar - [rat]-Both	Oral-Diet-Duration: Reproductive/Developmental-1-F0- premating (2-weeks)-F0- mating (up to 3 week (exact time not reported))-F0 - gestation (3 weeks)-F0- lactation (3 weeks)-F1- premating-F1-mating-F0- premating (10 weeks)-F0- mating (up to 3 week (exact time not reported))-F1-premating-F1- mating Exposure was through diet, which was available ad libitum to males during the premating and postmating phase; and to females in the premating, gestation, and lactation phase. F0 males and females were mated a second time to generate 2 F1 litters. Food consumption was measured to calculate the exposure level for each animal	**POD: 0.4 % (in water or food) (NOAEL) - Decreased body weight gains and food consumption in pregnant dams** n= 36 Dose= 0, n= 36 Dose= 0.2, n= 36 Dose= 0.4, n= 36 Dose= 0.8, % (in water or food)Total # of generations: 1 Male Exposure: F0- premating, 10 weeks, F0- mating, up to 3 week (exact time not reported), F1- premating, F1- mating Female Exposure: F0- premating, 2-weeks, F0- mating, up to 3 week (exact time not reported), F0 - gestation, 3 weeks, F0- lactation, 3 weeks, F1- premating, F1- mating	See footnotes for full summary [3]	This study had some minor limitations. There was a small decrease in mean pup weight in the 0.8% exposure group. This decrease only reached statistical significance on lactation day 21 and only in the second litter. Authors speculate that the decrease is likely due to direct intake of the test substance via diet but given the experimental design, it is impossible to know for sure. Designing the experiment in a way that eliminates this possibility would have allowed the authors to more confidently interpret this finding. Another limitation was that the authors only examined the pathology results of the control and 0.8% experimental groups. While unlikely, it is possible that an adverse effect not present in the 0.8% group would have presented itself in the 0.2 or 0.4% dose groups.	Nutritional/Metabolic-Body weight, body weight gain, food consumption-Hepatic/Liver-Liver weight, histopathology, and gross necropsy; High	TNO (CIVO), 1993 1359183

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Reproductive/Developmental

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID
The study was conducted according to U.S. EPA Office of Prevention, Pesticides and Toxic Substances (OPPTS), Health Effects Test Guidelines, OPPTS 870.3800 and was GLP compliant. Rat-Sprague-Dawley - [rat]- Both	Oral-Diet-Duration: Reproductive/Developmental- 2-F0- premating (10-weeks)-F0- mating-F0 - gestation-F0- lactation-F1- premating (10-weeks)-F1- mating-F1 - gestation-F1- lactation-F0- premating (10-weeks)-F0- mating-F1- premating (10-weeks)-F1- mating-F1- post-natal (necropsy at the end of female gestation period) Two generation study. P0 and F1 males were necropsied at the time of gestation periods for F1 and F2 offspring, respectively (PND0). Parental females were necropsied at weaning	**POD: 50 mg/kg-bw/day (NOAEL) -Increased liver weights and liver histopathology; decreased mating and fertility indices, sperm parameters, and male reproductive organs; decreased pup body-weights and AGD, delayed acquisition of puberty, retention of nipples and areolae, and male reproductive system malformations.** n= 60 Dose= 0, n= 60 Dose= 50, n= 60 Dose= 250, n= 60 Dose= 750, mg/kg-bw/dayTotal # of generations: 2 Male Exposure: F0- premating, 10-weeks, F0- mating, F1- premating, 10-weeks, F1- mating, F1- post-natal, necropsy at the end of female gestation period Female Exposure: F0- premating, 10-weeks, F0- mating, F0 - gestation, F0- lactation, F1- premating, 10-weeks, F1- mating, F1 - gestation, F1- lactation	See footnotes for full summary [4]	The study had several instances of ”data not shown” or only qualitative reporting of data. Raw data were not provided in supplementary files to allow for an independent review. The dosing provided in mg/kg-day was approximate and separate dosing by sex, time (e.g., gestation, lactation), or generation was not provided.	Nutritional/Metabolic- Food consumption and body weights- Reproductive/Developmental- Parental: Estrous cyclicity and normality, necropsy with attention to the reproductive system, reproductive organ weights, ovarian primordial follicle counts (high dose F0 and F1 females), sperm parameters, histopathology of ovaries, vagina, uterus, testis, epididymis, seminal vesicles, prostate, reproductive outcomes (mating, fertility, gestational, pregnancy indices, precoital intervals). Developmental F1 and F2 offspring: Live and dead pups, pup weight, AGD, sex, stillbirth, liver birth, and survival indices, necropsy with focus on the reproductive system, retained nipples (males), acquisition of puberty, reproductive organ weights, and weights of brain, spleen, thymus in weanlings (PND 21)- Hepatic/Liver-Liver histopathology in parental animals.; Medium	Tyl et. al 2004 675462

Continued on next page . . .

. . . continued from previous page

Butyl benzyl phthalate- Parent compound - Reproductive/Developmental

Guideline and Animal Species, Strain, Sex	Exposure Route and Exposure Duration	Study-wide POD and Dose/ Concentration(s)	Summary	Major Limitations	Principal Target Organs/Systems and OQD*	HERO ID

* Overall Quality Determination

[1] 674931: The reproductive effects of butyl benzyl phthalate were examined using a 2-generation toxicity study in SD rats. Groups of 24 male and female rats were gavaged with doses of 0, 100, 200, or 400 mg/kg/day, 7 days/week. A range-finding study was briefly described as justification for the selection of doses; however, the range-finding details were limited and therefore not evaluated. Dosing in the F0 generation began 10 weeks prior to mating, and continued through mating (at 15 weeks), gestation, and lactation. F1 were dosed beginning at weaning using similar methods. Mating of the F1 generation began at 13 weeks and continued previously described. Body weights and food consumption were measured throughout the study. Reproductive indices were measured, including mating index, fertility index, gestation index and length, number of implantations, and number of pups. Sperm and hormone levels were evaluated in the F1 pups. Clinical signs, organ weights, gross necropsy, and histological examination were conducted on the F0 and F1 parents. Developmental indices were also measured, including sex ratios, reproductive development, body and organ weights, and gross necropsy of the offspring.Salivation was observed in the treated animals. Some variation occurred in food consumption, but no changes in body weights were observed in the F0 and F1 parents of either sex at any dose. No abnormal reproductive indices, hormone levels, or gross necropsy findings were observed in the F0 or F1 parents. Some differences in various non-reproductive organ weights were observed, but there was associated histopathology, so the significance was unknown. At 400 mg/kg/day, the incidence of small testes was noted in the F1 male rats, along with diffuse atrophy of the seminiferous tubules and Leydig cell hyperplasia. Altered anogenital distances were measured in the F1 females and the F2 males at 100 mg/kg/day.

[2] 675335: In a two-generation reproductive study, six-week-old male and thirteen-week-old female Crj:CD(SD)IGS rats (25/sex/group) were administered 0, 20, 100, or 500 mg/kg/day of butyl benzyl phthalate (BBP) in corn oil via gavage daily. F0 males were treated 12 weeks prior to the 2-week cohabitation until necropsy. F0 females were treated 2 weeks prior to cohabitation until necropsy. F1 animals were treated from weaning (postnatal day 22) until necropsy. Estrous cycle of females was monitored for two weeks prior to administration of BBP, during administration (prior to mating) and vaginal lavages continued until confirmation of copulation (gestation day 0). Dams were allowed to deliver naturally. F0 females were sacrifice on PND 22, and F0 males at 23 weeks of age (17 weeks of treatment; after confirmation of fertility by pairing with females). Endpoint evaluated included clinical signs, body weight, organ weight (brain, heart, lung, liver, spleen, kidneys, adrenal glands, thymus, testes, epididymides, ventral prostate, seminal vesicles, ovaries , uterus, thyroid gland, and pituitary), serum levels of the following in females: prolactin, luteinizing hormone (LH), follicle stimulating hormone (FSH), thyroid-stimulating hormone (TSH), triiodothyronine (T3), thyroxine (T4) and estradiol (E2), serum levels of the following in males: testosterone, LH, FSH, TSH, T3, and T4. Histopathologic examination was done on 10 mice from the control and 500 mg/kg groups only (ovaries, uterus, vagina, testes, epididymides, prostate, seminal vesicle with coagulating gland, liver, kidneys, mammary glands, thyroid gland, parathyroid gland, pituitary gland, and adrenal gland). The numbers of live and dead pups were recorded for each litter on PND 0-21, viability from PND 0-4 (pre-culling) and from PND 4-21. Pups were examined grossly for external abnormalities on PND 0, observed daily for clinical signs, sexed, and had body weights measured on PND 0, 4, 7, 14, and 21 and weekly thereafter until 13 weeks of age. Anogenital distance was determined on PND 0. On PND 4 pups were culled to 8 pups (4/sex) when possible. F1 pups were observed daily for developmental landmarks. Two pups/sex/litter in each group were examined daily for developmental neural reflexes (righting response, cliff-drop aversion response, negative geotaxis) and for physical development (pinna opening, upper tooth eruption, eyelid opening). On PND 22, two pups/sex/litter were sacrificed and to determine serum levels of testosterone, LH, TSH, FSH, T3, T4 in males and prolactin, LH, FSH, TSH, T3, T4 and E2 in females, organ weights (testes, epididymides, seminal vesicle with prostate, ovaries and uterus), and histopathology (testes and ovaries from 10 pups in all groups; epididymides, ventral prostate and seminal vesicle with coagulation gland, and uterus in 10 pups in the 500 mg/kg group and control only). Females were examined for vaginal opening (beginning on PND 28) and males for preputial separation (beginning PND 35) (two/sex/litter) and weighted on day when achieved. After weaning, one pup/sex/litter to be studied in a series of behavior and functional tests. The following test were performed: open-field activity (5-6 weeks of age), water multiple T-maze test (6-7 weeks of age), and spontaneous motor activity (7-8 weeks of age). These animals were then sacrificed at 10 weeks of age and the following organs weighed (testes, epididymides, prostate, seminal vesicles, uterus, and ovaries). At 13 weeks of age, F1 were mated in a 1:1 ratio within the same treatment group, avoiding sibling mating. Daily vaginal lavages were done from week 11 of age until copulation had been confirmed. Inseminated F1 females were allowed to deliver naturally. F1 males were sacrificed at 18 weeks and females at PND 21. Parameters described above (pregnancy, delivery, lactation, serum hormones, organ weights, histology, sperm motion and counts) were evaluated in F2 offspring. F2 pups were necropsied on PND21. No animals died during administration. Salivation was observed immediately after dosing in 18/25 males and 10/25 females at 100 mg/kg/day and all males and females in the 500 mg/kg/day group. In the 500 mg/kg/day group, male body weights were significantly decreased from days 101-119 (<10%) compared to control; food consumption was not significantly different (data not shown). Terminal body weight of males in the 500 mg/kg/day group were significantly decreased (7%) compared to control. No difference in body weight or food consumption was seen in females compared to control. No treatment related changes in estrous cycle were seen (cycle length pretreatment vs cycle during treatment). There were no significant differences in cohabitation days until copulation or in the number of vaginal estruses during cohabitation (data not shown). No significant difference in mating index, fertility index, gestation length or delivery index were seen compared to control. No abnormalities of lactation were observed in any dam. In the F0 males and females, no significant treatment-related differences in gross observation of any organ were seen at necropsy compared to control. In the 500 mg/kg/day males, significant increases in absolute liver weight (11%), relative liver weight (20%), absolute kidney weight (7%), relative brain weight (9%), and relative lung weight (8%) were seen compared to control. In females, significant increases in absolute kidney weight (7% and 7%) and relative kidney weight (8% and 6%) were seen at 100 and 500 mg/kg/day, respectively; and significant decreases in absolute and relative ovarian weight (11% and 11%, respectively) compared to control. No significant histological changes were seen in males or females in the 500 mg/kg/day group compared to control (only groups evaluated). The percentage of motile sperm, progressive motile sperm, and sperm counts were similar to control. In males, significant decreases in serum testosterone (46%), T3 (11%), T4 (21%) at 500 mg/kg/day and significant increases in serum FSH at 100 mg/kg/day (22%) and at 500 mg/kg/day (19%) were seen compared to control. In females, significant increases in serum prolactin (76%) and decreases in serum T4 (21%) at 500 mg/kg/day were seen compared to control. No significant differences in number of implantation sites/litter, mean number of pups/litter (at birth, born alive, PND4, PND21), sex ratio, and mean % born alive. Viability of F1 pups was significantly decreased from PND 0-4 (100% in control to 96.7% in 500 mg/kg/day group); no difference in pup viability was seen during PND 4-21 compared to control. Mean pup weights were significantly decreased on PND 0 in males (6% and 7%) and females (6% and 6%) at 100 and 500 mg/kg/day, respectively. Also, at 500 mg/kg/day, significant decreases in mean pup weights were seen in males on PND 14 (8%) and PND 21 (7%) and in females on PND 14 (8%) and PND 21 (7%) compared to control. Anogenital distance at birth was significantly decreased in F1 male pups (8%) and increased females pups in the 500 mg/kg/day group compared to control. No significant difference in landmarks for the development of neural reflexes were seen between the groups except the 100 mg/kg/day males had significant delay in the day in which cliff-drop aversion response was completed. Upper tooth eruption occurred earlier in the 500 mg/kg/day males, and in both sexes there was a significant delay in pinna opening (20 and 100 mg/kg/day groups) and eyelid opening (20 mg/kg/day group) compared to control (data not shown). No significant external or internal abnormalities were seen at PND 0, 4 or 22. Neither cryptorchidism nor hypospadias was observed in any exposed offspring. The following significant changes were seen in F1 male pups sacrificed on PND 22 in the 500 mg/kg/day group: significant decreases in terminal body weight (6%), absolute testis weight (12%), relative testis weight (6%), absolute epididymides weight (9%), and serum FSH (36%); and at 100 and 500 mg/kg/day, significant decreases in serum TSH (15% and 22%, respectively) compared to control. The following significant changes were seen at 500 mg/kg/day in F1 female pups sacrificed on PND 22: significant decrease in terminal body weight (9%), absolute ovary weight (16%), increase in relative uterus weight (13%); and at 100 and 500 mg/kg/day, significant decrease in serum T3 (17% and 33%, respectively) compared to control. Histological evaluation of reproductive organs found 9/10 F1 males in the 500 mg/kg/day group had decreased spermatocytes in the seminiferous tubule compared to 0/10 in control group. No other histological changes were seen in male or females F1 pups at PND22. After weaning on PND 22, F1 pups were exposed to BPP until necropsy. No deaths occurred after weaning, salivation was observed after daily administration. No other clinical signs of toxicity were observed. No significant difference in body weight gains from PND 21-91 were seen compared to control. From PND 23 to 24, food consumption was significant decreased in 500 mg/kg/day males and increased in the 20 mg/kg/day females. The day of preputial separation was significantly increased in F1 males (from PND 43.2 to PND 44.5); body weights at the time were comparable. No significant difference in day of vaginal opening was seen between the groups. No differences in estrous cycling (length or number of females with irregular cycles) were seen compared to control. In the panel of behavioral test conducted on post-weaned F1 offspring, no significant compound related effects were observed in the open-field activity or water multiple T-maze test in males and females compared to control. In the spontaneous motor activity test, significant increases in the number of wheel revolutions was seen in 500 mg/kg/day females (data not shown). In the animals necropsies at 10 weeks, no significant changes in reproductive organs were observed compared to control. In F1 rats, no differences in mating index, fertility index, gestation length or delivery index were seen compared to control. Body weight and food consumption of dams during gestation and lactation were similar (data not shown). In F1 males necropsied at 18-weeks of age, significant decreases in terminal body weights were seen at 100 mg/kg/day (7%) and 500 mg/kg/day (13%) compared to control. Also, in F1 males, significant decreases in absolute testes (12%), epididymides (21%), and spleen (12%) weights at 500 mg/kg/day; and absolute heart weight at 100 mg/kg/day (7%) and 500 mg/kg/day (12%) were seen compared to control. Also in F1 males, significant increases in relative lung (4%), liver (15%), thyroid (11%), and pituitary gland (11%) weight in the 500 mg/kg/day males; and relative kidney weight at 100 mg/kg/day (9%) and 500 mg/kg/day (18%) were seen compared to control; however the increase in relative organ weights may be a reflection of the decrease in body weight rather than an effect of the compound itself since absolute weights were not different. In F1 females necropsied after lactation (PND 22 of F2 pups) no significant differences in body weight, or absolute and relative organ weights were seen compared to control. In the 500 mg/kg/day F1 males sacrificed at 18-weeks, significant decreases in serum testosterone (43%), LH (21%) and T4 (21%) were seen compared to control. No differences in the percent of mobile sperm, progressive motile sperm or count were seen. In the F1 females sacrificed after lactation, no differences in serum hormones were observed compared to control. Histological examination of testis showed increased incidence of atrophy of the seminiferous tubules (6/10), decrease in germ cells in seminiferous tubules (4/10), edema in the interstium (4/10), and decrease sperm in the epididymis (5/10) in the 500 mg/kg/day group; none of these changes were seen in the control or other dose groups. No compound-related histological changes were seen in F1 females. In F2 generation, no significant difference in number of implantation sites, pups born, birth index, sex ratios, viability indices on PND 0 and 21, and body weights of pups during lactation. No external abnormalities were seen

at PND 0, 4 or 21; and no internal abnormalities were seen at PND4 or 21. From the data, the study authors report an NOAEL of 20 mg/kg/day for reproductive effects on parent rats and the next generation.

[3] 1359183: A one generation reproductive study was conducted in accordance with OECD 415 guidelines. Male (12/group) and female (24/group) Wistar rats were provided diets containing 0, 0.2, 0.4, or 0.8% butyl benzyl phthalate (BBP). Males were provided food containing BBP (purity 98.1%) ad libitum during the 10-week premating period, during mating and until sacrifice. Females were given food containing BBP ad libitum during the 2-weeks prior to mating, during gestation and lactation until sacrifice. Control animals were treated the same but with regular feed. After weaning the first litter, F0 males and females were mated again, generating two F1 litters. Study authors calculated doses during premating to be 0, 108, 206 and 418 mg/kg/day for males, and 0, 106, 217, and 446 mg/kg/day for females, respectively. Increased intake of BBP was seen in females during gestation: average of 0, 132, 235, and 458 mg/kg/day, and during lactation: 0, 251, 580, and 1078 mg/kg/day, respectively (intake from both pregnancies averaged from reported information by this Reviewer). During the exposure period, mortality, clinical signs and animal behavior were observed daily. Body weights and food consumption were measured weekly for males and for females weekly during premating and on GD 0, 7, 14, and 21 and PND 1, 7, 14, and 21. F0 males were sacrificed after the second mating and females after weaning of the second litter. Both litters were sacrificed on PND 21. Endpoints included gross pathology, liver weights histopathology (in control and 0.8% group only: ovaries, uterus [including cervix], vagina, testes, epididymides, seminal vesicles, prostate, coagulating glands, pituitary gland, liver, and other organs or tissues showing severe macroscopic abnormalities). Reproductive parameters (number of successful copulations, pregnant females, implantation sites, females surviving delivery, females giving birth to live pups, and females giving birth to stillborn pups, and duration of gestation) were all recorded. Litters were assessed for size, sex, abnormalities and weight (PND 1, 4 [before culling], 7, 14); pups were individually weight at PND 21. Three rats in the F0 generation were found moribund (1 control male; 1 control female; and 1 female in the 0.2% group). These deaths were not considered treatment related. No treatment related clinical signs or behavioral changes were observed. No dose-related significant difference in weekly body weights or body weight gains were seen in males compared to control. In females, significant dose-related decreases in body gains were significantly seen from GD 7-14 (18%), and PND 1-7 (54%) during first litter; and from GD 0-7 (24%), PND1-7 (49%), and PND 14-21 (79%) during litter 2 in the 0.8% group compared to control. Terminal body weights in females were not different from controls. Sporadic non-dose related changes in food consumption were seen in males. In females decreased food consumption was observed during gestation in the 0.8% group (7-11% during GD 0-14 both litters). No gross abnormalities were seen in the F0 parents at necropsy. No treatment related changes in liver weights were seen in males. Relative liver weight was increased 7% in the 0.8% group females, however no difference in absolute weight was seen. The toxicological relevance of this is unclear. No treatment related histological changes were observed. Significant decreases in precoital time (37% and 25%) were seen at 0.4% and 0.8% for the first litter, respectively compared to control but not in the second mating. Study authors consider this a chance event and not related to treatment since this effect was not seen in the second mating. No other significant treatment related changes in reproductive parameters were seen. No significant difference in litter size, sex or pup abnormalities were observed. On PND21, significant decreases in second litter body weights of males (11%) and females (12%) were seen compared to control; however study authors consider this a direct effect of diet intake by the pups and not developmental (pups began eating the diet directly at PND 14). The study authors report a NOAEL for parental toxicity of 0.4% (206 mg/kg/day for males and 217 mg/kg/day for females) and a NOAEL for reproductive performance and development of the offspring as 0.8% (418 mg/kg/day form males and 446 mg/kg/day for females). A NOAEL of 0.4% (217 mg/kg/day) and a LOAEL of 0.8% (446 mg/kg/day) was determined for females based on decreased body weight gains during pregnancy and lactation and decreased food consumption by this Reviewer.

[4] 675462: In a U.S. EPA OPPTS 837.3800 guideline two-generation reproduction study, parental (F0) CD (SD) rats (30/sex/group) were exposed to BBP in the diet at 750, 3,750, or 11,250 ppm (equivalent to approximate intakes of 0, 50, 250, or 750 mg/kg-day) for two generations (one litter/generation). Exposure began 10 weeks (70 days) prior to mating, and through mating (14 days), gestation, and lactation (F0 females only). F0 males were sacrificed after the gestation period. After weaning, select F1 offspring (30/sex/group) were exposed via the diet in a similar manner to generate the F2 generation. All diets were within 90-110% of the target concentrations. Between the end of the pre-breeding period to the last week of lactation, consumption BBP ranged from 40-150, 180-760, and 590-2,330 mg/kg-day depending on age, body weight, and sex. Parental animals were monitored for mortality, clinical signs of toxicity, body weight, and feed consumption. Females were monitored for estrous cyclicity and normality. All reproductive indices (mating, fertility, gestational, pregnancy) were determined. Litter parameters included litter size, number of live and dead pups, and pup body weights (PND 0 and 4). Litters were culled and on PND4; sacrificed pups were necropsied. In other offspring, nipple and or areolae retention in males was assessed on PND 11-13. At weaning 30/sex/group were selected for mating, and the other offspring were sacrificed and necropsied. The same schedule was used for the F2 pups, with the final sacrifice being at the study end at the time of F2 weaning. Organ weights from necropsied pups and weanlings were restricted to the brain, spleen, thymus, ovaries, uterus, testes, epididymides, and seminal vesicles. In parental animals (F0 and F1), the kidneys, adrenal glands, liver, and prostate were also weighed. The number of primordial follicles was counted in females from the control and high-dose groups, and sperm analysis in males was conducted. Histopathology analysis was done on all reproductive tissues and on the adrenals, thyroid, liver, and kidneys of parental high-dose and control groups. Male reproductive organs, livers, and kidneys were also examined in mid and low-dose males. Moralities occurred in one low, and one high-dose F0 male, and one control and one low-dose female. In F1 animals, 1 F1 male at 750 ppm, and 2 males from each of the 3,750 ppm and 11,250 ppm groups died. During the pre-breeding period, overall, there were no notable effects on male F0 body weight gain or feed consumption (in g/day). However, F1 male body weights and feed consumption (g/day) were significantly decreased at 11,250 ppm throughout the pre-breeding and mating periods. Feed consumption (g/kg/day) was increased, and feed efficiency was unaffected. F0 and F1 females' body weights were significantly reduced at 12,250 ppm throughout the pre-breeding period, gestation, and to lactation day 14. Absolute and relative liver weights were significantly increased in F0 males (13% and 16%, respectively) and females (15% and 19%, respectively) at 11,250 ppm. In F1 males, absolute and relative liver weights were increased by 10% and 5.9%, compared to controls at 3,750 ppm. At 11,250 ppm, only relative liver weights were increased (16%). Kidney weights were statistically significantly increased by $<$10% in F0 males and females. In F1 animals, absolute and/or relative kidney weights were only increased at the mid-dose. Other weight changes (adrenal glands, brain, and pituitary in adult males were likely a reflection of decreased body weights in these animals. The only microscopic changes occurred in the liver. Incidences were 0, 0, 0, and 8 in F0 males, 1, 0, 2, and 9 in F0 females, and 0, 0, 0, 5 in F1 females in the control, 750, 3,750, and 11,250 ppm groups, respectively. No liver lesions were observed in F1 males. The lesions were described as "cytologic alteration, hepatic, minimal." There were no effects on reproductive function in F0 animals. In F1 males and females, the mating and fertility indices were significantly decreased at 11,250 ppm; the number of uterine implants was also reduced in the absence of any effects on ovarian primordial follicle counts. High-dose F1 parental females exhibited a reduced number of litters and a reduced number of total and live pups/litter at birth. Absolute (but not relative) testes, epididymides, seminal vesicles, and absolute and relative prostate weights were decreased also at the high dose. Paired ovaries and uterus weights were decreased in F0 and F1 females at 11,250 ppm and there was an increase in incidences of fluid-filled uteri. Additionally, F1 males exhibited decreased sperm counts, motility, progressive motility, and missing reproductive organs or parts of organs, aspermia, seminiferous tubule degeneration and atrophy, and testis dilation. Developmental effects included significantly decreased high-dose F1 pup body weights from birth through PND21 and F2 pup body weights from PND 7 through PND21, decreased anogenital distance in F1 and F2 pups at $\geq$3,750 ppm, and an increase in the percentage and number of male F1 and F2 pups with nipples and the number of areolae per male at 11,250 ppm. There was a significant delay in the age of preputial separation and in vaginal patency in high-dose F1 males and females, respectively. Changes in F1 and F2 weanling organ weights at the high dose likely reflected the decrease in body weights and included decreased absolute (but not relative) thymus, epididymis, ovarian, and uterine weights, and changes in brain weights. Changes that may be treatment-related included decreases in absolute and relative spleen weights in both F1 and F2 weanlings of both sexes at 11,250 ppm, and reductions in male absolute and relative testes weights at the same dose (although absolute and relative testes weights were increased in F1 males at 3,750 ppm). 32.9% of F1 males and 24.17% of F2 males in the 11,250-ppm group showed gross reproductive organ malformations including undescended or small testis (F1) and missing or small epididymides (F1 and F2), or seminal vesicles (F2).The author reported toxicity values were as follows: The F0 and F1 parental systemic NOAEL = 3,750 ppm (equivalent to approximately 250 mg/kg-day), based on reduced body weights and weight gains, increased absolute and relative liver weights, and histopathology in the liver consistent with peroxisome proliferation. F1 (but not F0) parental reproductive toxicity NOAEL = 3,750 ppm (250 mg/kg-day), based on reduced mating and fertility indices, reduced number of implantations and total and live pups on PND0, reduced sperm counts and sperm motility, increased incidences of male reproductive tract malformations, and increased incidences of

gross and histopathologic lesions in the testes, epididymides, and prostate. The developmental toxicity NOAEL = 3,750 ppm (250 mg/kg-day) based on reduced pup body weights, decreased AGD, delayed acquisition of puberty, retention of nipples and areolae, and male reproductive system malformations. Although anogenital distance was significantly reduced at 3,750 ppm, the authors did not consider this to be adverse due to the lack of other effects on reproductive development, structures, or functions at that dose. Therefore, an F1 and F2 offspring reproductive toxicity NOEL of 750 ppm (50 mg/kg-day) was noted.

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Lung function (FEV1, FVC, FEV1% predicted, FVC% predicted)	Health Effect: Lung/Respiratory-Spirometry measurements (FEV1, FVC, FEV1% predicted, FVC% predicted)-Non-cancer. Outcome measure: Spirometry	General public, Fenceline communities. Adults (18+), Older Adults (65+). Taiwan; Kaohsiung County. Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Older adults (age >= 65 years). Participants in the Dalinpu Community for Health Care cohort (2016-2018), Kaohsiung County, Taiwan, n=397 (159 men, 238 women). Dalinpu Community for Health Care (DCHC). 2016-2018.	Biomonitoring Biomonitoring matrix: Other (specify), forehead skin wipe Exposure Route: Dermal Absorption Acute (less than 24 hours) Exposure measured via forehead skin wide during cross-sectional study.	Linear Regression. Confounders adjusted for: age, gender, BMI, smoking, exercise, education.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (Beta) (95% CI) for a 1 log-unit increase in BBP:FVC, full study population: −0.09 (−0.16, −0.02)FVC% predicted, full study population: −3.48 (−5.60, −1.36)FVC, participants age >= 60: −0.26 (−0.47, −0.06)FVC% predicted, participants age >= 60: −11.25 (−18.32, −4.71)FEV1, participants age >=60: −0.17 (−0.33, −0.01)FEV1% predicted, participants age >=60: −10.31 (−18.02, −2.59). Significant inverse associations with FVC and FVC% predicted in all study participants and among participants age >= 60. Significant inverse associations with FEV1 and FEV1% predicted only among participants age >= 60..	Wang et. al 2021 7502437 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Forced Expiratory Volume in 1 second as % predicted (FEV1%)	Health Effect: Lung/Respiratory-Forced Expiratory Volume in 1s as % predicted value (FEV1%)-Non-cancer. Outcome measure: Spirometry (trained technicians, harmonized protocol)	General public. Middle childhood (6-11). France, Greece, Lithuania, Norway, Spain, and the UK. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 1033 healthy singleton children (489 girls, 544 boys) born between 2003 and 2009 with lung function evaluated at age 6-12 years. Participants were randomly selected from 6 prospective, general population birth cohorts in Europe (France, Greece, Lithuania, Norway, Spain, and the UK).. European Human Early-Life Exposome (HELIX) cohort. Children born 2003 to 2009.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrently at age 6-12 years (significant).	Linear Regression. Confounders adjusted for: study center, child sex, child age, child height, parental country of birth, breastfeeding duration, season of conception, older siblings, parental education, maternal age, maternal pre-pregnancy BMI, postnatal passive smoking status, prenatal maternal active and passive smoking status, 22 co-exposures with p<0.20 and no excessive collinearity.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI) for adjusted difference in FEV1% per IQR increase in childhood concentrations of the following DEHP phthalate measures (ug/g creatinine): -sum of DEHP metabolites = –1·3 (–2·3 to –0·3), p=0.014-MECPP = –1·3 (–2·3 to –0·2), p=0.016-MEHHP = –1·2 (–2·2 to –0·2), p=0.023-MEOPH = –1·3 (–2·3 to –0·3), p=0.0085. Both the sum of DEHP metabolites and 3 individual metabolites were associated with significantly poorer lung function in children.	Agier et. al 2019 5043613 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
percentage of fertilization rate, biochemical pregnancy, clinical pregnancy, live birth	Health Effect: Reproductive/Developmental-percentage of fertilization rate, biochemical pregnancy, failed clinical pregnancy, failed live birth-Non-cancer. Outcome measure: medical records	Patients in clinics. Adults (18+). Saudi Arabia; Riyadh. Female, Male. Cross-Sectional. PESS: Studies focusing on reproductive parameters. Females and their male partners recruited at the IVF clinic from a single hospital in Riyadh, Saudi Arabia (n=599 couples). March 2015-January 2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured 1) 2-3 days prior to follicle aspiration and 2) on the day of oocyte retrieval.	Logistic Regression. Confounders adjusted for: For models including data from the women only: age, BMI, cause of infertility, cotinine, creatinine, For models including data from both men and women: same variables for woman and men separately (e.g. female age, male age, female BMI, male BMI, etc.).	Lowest exposure concentration for a significant adverse health outcome response: continuous. %MEHP and absence of biochemical pregnancy, women only, RR (95% CI): 1.54 (1.02, 2.35)MEHP and absence of biochemical pregnancy, women and men, RR (95% CI): 1.35 (1.01, 1.81)%MEHP and absence of biochemical pregnancy, women and men, RR (95% CI): 1.55 (1.00, 2.40)%MEHP and absence of clinical pregnancy, women only, RR (95% CI): 1.75 (1.124, 2.72)MEHP and absence of clinical pregnancy, women and men, RR (95% CI): 1.56 (1.14, 2.14)%MEHP and absence of clinical pregnancy, women and men, RR (95% CI): 1.73 (1.09, 2.74)%MEHP and absence of live birth, women only, RR (95% CI): 1.69 (1.06, 2.7)MEHP and absence of live birth, women and men, RR (95% CI): 1.54 (1.11, 2.16)%MEHP and absence of live birth, women and men, RR (95% CI): 1.65 (1.01, 2.68)Among women with %MEHP>75th percentile, MEHHP and absence of biochemical pregnancy, RR (95% CI): 1.61 (1.08, 2.41)Among women with %MEHP>75th percentile, MEOHP and absence of biochemical pregnancy, RR (95% CI): 1.87 (1.05, 3.33)Among women with %MEHP>75th percentile, MEHP and absence of biochemical pregnancy, RR (95% CI): 1.78 (1.01, 3.13)Among women with %MEHP>75th percentile, summary DEHP and absence of biochemical pregnancy, RR (95% CI): 1.94 (1.06, 3.55)Among women with %MEHP>75th percentile, MEHHP and absence of clinical pregnancy, RR (95% CI): 1.73 (1.128, 2.65)Among women with %MEHP>75th percentile, MEOHP and absence of clinical pregnancy, RR (95% CI): 2.48 (1.278, 4.82)Among women with %MEHP>75th percentile, MEHP and absence of clinical pregnancy, RR (95% CI): 2.47 (1.29, 4.75)Among women with %MEHP>75th percentile, summary DEHP and absence of clinical pregnancy, RR (95% CI): 2.63 (1.309, 5.28)Among women with %MEHP>75th percentile, MEHHP and absence of live birth, RR (95% CI): 1.59 (1.01, 2.5)Among women with %MEHP>75th percentile, MEOHP and absence of live birth, RR (95% CI): 2.37 (1.17, 4.81)Among women with %MEHP>75th percentile, MEHP and absence of live birth, RR (95% CI): 2.25 (1.13, 4.47)Among women with %MEHP>75th percentile, summary DEHP and absence of live birth, RR (95% CI): 2.45 (1.17, 5.13). Significant associations between MEHP and %MEHP with biochemical pregnancy, absence of clinical pregnancy, and absence of live birth were noted; although some women-only models did not	Al-Saleh et. al 2019 5499157 High

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
percentage of fertilization rate, biochemical pregnancy, clinical pregnancy, live birth	Health Effect: Reproductive/Developmental-percentage of fertilization rate, biochemical pregnancy, failed clinical pregnancy, failed live birth-Non-cancer. Outcome measure: medical records	Patients in clinics. Adults (18+). Saudi Arabia; Riyadh. Female, Male. Cross-Sectional. PESS: Studies focusing on reproductive parameters. Females and their male partners recruited at the IVF clinic from a single hospital in Riyadh, Saudi Arabia (n=599 couples). March 2015-January 2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured 1) 2-3 days prior to follicle aspiration and 2) on the day of oocyte retrieval.	Logistic Regression. Confounders adjusted for: For models including data from the women only: age, BMI, cause of infertility, cotinine, creatinine, For models including data from both men and women: same variables for woman and men separately (e.g. female age, male age, female BMI, male BMI, etc.).	Lowest exposure concentration for a significant adverse health outcome response: continuous. %MEHP and absence of biochemical pregnancy, women only, RR (95% CI): 1.54 (1.02, 2.35)MEHP and absence of biochemical pregnancy, women and men, RR (95% CI): 1.35 (1.01, 1.81)%MEHP and absence of biochemical pregnancy, women and men, RR (95% CI): 1.55 (1.00, 2.40)%MEHP and absence of clinical pregnancy, women only, RR (95% CI): 1.75 (1.124, 2.72)MEHP and absence of clinical pregnancy, women and men, RR (95% CI): 1.56 (1.14, 2.14)%MEHP and absence of clinical pregnancy, women and men, RR (95% CI): 1.73 (1.09, 2.74)%MEHP and absence of live birth, women only, RR (95% CI): 1.69 (1.06, 2.7)MEHP and absence of live birth, women and men, RR (95% CI): 1.54 (1.11, 2.16)%MEHP and absence of live birth, women and men, RR (95% CI): 1.65 (1.01, 2.68)Among women with %MEHP>75th percentile, MEHHP and absence of biochemical pregnancy, RR (95% CI): 1.61 (1.08, 2.41)Among women with %MEHP>75th percentile, MEOHP and absence of biochemical pregnancy, RR (95% CI): 1.87 (1.05, 3.33)Among women with %MEHP>75th percentile, MEHP and absence of biochemical pregnancy, RR (95% CI): 1.78 (1.01, 3.13)Among women with %MEHP>75th percentile, summary DEHP and absence of biochemical pregnancy, RR (95% CI): 1.94 (1.06, 3.55)Among women with %MEHP>75th percentile, MEHHP and absence of clinical pregnancy, RR (95% CI): 1.73 (1.128, 2.65)Among women with %MEHP>75th percentile, MEOHP and absence of clinical pregnancy, RR (95% CI): 2.48 (1.278, 4.82)Among women with %MEHP>75th percentile, MEHP and absence of clinical pregnancy, RR (95% CI): 2.47 (1.29, 4.75)Among women with %MEHP>75th percentile, summary DEHP and absence of clinical pregnancy, RR (95% CI): 2.63 (1.309, 5.28)Among women with %MEHP>75th percentile, MEHHP and absence of live birth, RR (95% CI): 1.59 (1.01, 2.5)Among women with %MEHP>75th percentile, MEOHP and absence of live birth, RR (95% CI): 2.37 (1.17, 4.81)Among women with %MEHP>75th percentile, MEHP and absence of live birth, RR (95% CI): 2.25 (1.13, 4.47)Among women with %MEHP>75th percentile, summary DEHP and absence of live birth, RR (95% CI): 2.45 (1.17, 5.13). Significant associations between MEHP and %MEHP with biochemical pregnancy, absence of clinical pregnancy, and absence of live birth were noted; although some women-only models did not	Al-Saleh et. al 2019 5499157 High

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Free T4	Health Effect: Thyroid-Hormone levels: thyroid-stimulating hormone (TSH), free triiodothyronine (T3), and free thyroxine (T4)-Non-cancer. Outcome measure: Serum samples analyzed by chemi-luminescent assays	General public. Adults (18+). Canada; Montreal. Male. Cross-Sectional. PESS: Studies focusing on reproductive parameters. 153 men in Montreal, Canada. 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Un-clear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concur-rently with outcome.	Linear Regression. Con-founders adjusted for: university graduate, age≥30, BMI≥25, North American birthplace, income≥60,000, smoking status.	Lowest exposure concentration for a significant ad-verse health outcome response: continuous; median (25th-75th percentiles) MECPP = 13.00 ug/L (6.00-25.00 ug/L). Beta (95% CI) per 10-fold increase in MECPP: 0.98 (0.02, 1.94). Significant positive associations between MECPP with free T4 (MECPP p = 0.05) and near significant associations between DEHP metabolites and free T3 (MECPP p =0.08, MEHP p=0.05, MEHHP p=0.07, MEOHP p=0.07). No other significant results re-ported for hormones or for sperm parameters..	Albert et. al 2018 4728683 Medium
Low-HDL cholesterol	Health Effect: Cardiovascular-Blood pressure, HDL cholesterol, triglycerides-Non-cancer. Outcome measure: Direct measurement	General public. Middle childhood (6-11), Teens (12-17). Iran; Isfahan. Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Children and adolescents aged 6-18 living in the city of Isfahan, Iran (n=242). NR.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Un-clear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concur-rently with outcome.	Logistic Regression. Confounders adjusted for: age, physical activity, use of cosmetics, use of plastic packaging, use of bottled drinks, waist circumference, fasting blood sugar, total cholesterol, BMI, HDL-C, LDL-C, SBP, DBP.	Lowest exposure concentration for a significant adverse health outcome response: Tertiles [specific tertile ranges not provided; geometric mean (SD) MEOHP = 178.72 (143.07) ug/L]. OR (95%) for low-HDL Cholesterol for T2 vs. T1 of MEOHP = 3.63 (1.21, 10.89). Positive significant association between MEOHP and low-HDL cholesterol for T2 vs. T1. T3 vs. T1 positive but not significant. p-trend = 0.06.	Amin et. al 2018 4829277 Low
Obesity	Health Effect: Reproductive/Developmental-Body mass index-Non-cancer-Nutritional/Metabolic-Body mass index, fasting blood sugar-Non-cancer. Outcome measure: Direct measurement	General public. Middle childhood (6-11), Teens (12-17). Iran; Isfahan. Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Children and adolescents aged 6-18 living in the city of Isfahan, Iran (n=242). NR.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Un-clear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concur-rently with outcome.	Logistic Regression. Confounders adjusted for: age, physical activity, use of cosmetics, use of plastic packaging, use of bottled drinks, waist circumference, fasting blood sugar, total cholesterol, triglycerides, HDL-C, LDL-C, SBP, DBP.	Lowest exposure concentration for a significant adverse health outcome response: Tertiles [specific tertile ranges not provided; geometric mean (SD) MBzP = 173.18 (196.35) ug/L]. OR (95%) for obesity for T3 vs. T1 of MBzP = 5.54 (4.79, 6.28). Positive significant association between MBzP and obesity for T3 vs. T1. T2 vs. T1 positive but not significant. p-trend = 0.001.	Amin et. al 2018 4829277 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Low-HDL cholesterol	Health Effect: Cardiovascular-Blood pressure, HDL cholesterol, triglycerides-Non-cancer. Outcome measure: Direct measurement	General public. Middle childhood (6-11), Teens (12-17). Iran; Isfahan. Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Children and adolescents aged 6-18 living in the city of Isfahan, Iran (n=242). NR.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrently with outcome.	Logistic Regression. Confounders adjusted for: age, physical activity, use of cosmetics, use of plastic packaging, use of bottled drinks, waist circumference, fasting blood sugar, total cholesterol, triglycerides, BMI, LDL-C, SBP, DBP.	Lowest exposure concentration for a significant adverse health outcome response: Tertiles [specific tertile ranges not provided; geometric mean (SD) MBzP = 173.18 (196.35) ug/L]. OR (95%) for low-HDL cholesterol for T3 vs. T1 of MBzP = 0.31 (0.09, 0.95). Negative significant association between MBzP and low-HDL cholesterol for T3 vs. T1. T2 vs. T1 negative but not significant. p-trend = 0.12.	Amin et. al 2018 4829277 Low
High triglycerides	Health Effect: Cardiovascular-Blood pressure, HDL cholesterol, triglycerides-Non-cancer. Outcome measure: Direct measurement	General public. Middle childhood (6-11), Teens (12-17). Iran; Isfahan. Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Children and adolescents aged 6-18 living in the city of Isfahan, Iran (n=242). NR.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrently with outcome.	Logistic Regression. Confounders adjusted for: age, physical activity, use of cosmetics, use of plastic packaging, use of bottled drinks, waist circumference, fasting blood sugar, total cholesterol, HDL-C, BMI, LDL-C, SBP, DBP.	Lowest exposure concentration for a significant adverse health outcome response: Tertiles [specific tertile ranges not provided; geometric mean (SD) MBzP = 173.18 (196.35) ug/L]. OR (95%) for high triglycerides for T3 vs. T1 of MBzP = 2.71 (1.23, 6.22). Positive significant association between MBzP and high triglycerides for T3 vs. T1. T2 vs. T1 positive but not significant. p-trend = 0.03.	Amin et. al 2018 4829277 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Low-HDL cholesterol	Health Effect: Cardiovascular-Blood pressure, HDL cholesterol, triglycerides-Non-cancer. Outcome measure: Direct measurement	General public. Middle childhood (6-11), Teens (12-17). Iran; Isfahan. Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Children and adolescents aged 6-18 living in the city of Isfahan, Iran (n=242). NR.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrently with outcome.	Logistic Regression. Confounders adjusted for: age, physical activity, use of cosmetics, use of plastic packaging, use of bottled drinks, waist circumference, fasting blood sugar, total cholesterol, triglycerides, BMI, LDL-C, SBP, DBP.	Lowest exposure concentration for a significant adverse health outcome response: Tertiles [specific tertile ranges not provided; geometric mean (SD) MBP = 165.26 (159.14) ug/L]. OR (95%) for low-HDL cholesterol for T3 vs. T1 of MBP = 0.27 (0.08, 0.87). Negative significant association between MBP and low-HDL cholesterol for T3 vs. T1. T2 vs. T1 negative but not significant. p-trend = 0.186.	Amin et. al 2018 4829277 Low
Obesity	Health Effect: Reproductive/Developmental-Body mass index-Non-cancer-Nutritional/Metabolic-Body mass index, fasting blood sugar-Non-cancer. Outcome measure: Direct measurement	General public. Middle childhood (6-11), Teens (12-17). Iran; Isfahan. Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Children and adolescents aged 6-18 living in the city of Isfahan, Iran (n=242). NR.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrently with outcome.	Logistic Regression. Confounders adjusted for: age, physical activity, use of cosmetics, use of plastic packaging, use of bottled drinks, waist circumference, fasting blood sugar, total cholesterol, triglycerides, HDL-C, LDL-C, SBP, DBP.	Lowest exposure concentration for a significant adverse health outcome response: Tertiles [specific tertile ranges not provided; geometric mean (SD) MEHHP = 114.20 (147.29) ug/L]. OR (95%) for obesity for T3 vs. T1 of MEHHP = 4.16 (3.31, 5.01). Positive significant association between MEHHP and obesity for T3 vs. T1. T2 vs. T1 positive but not significant. p-trend = 0.001.	Amin et. al 2018 4829277 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Obesity	Health Effect: Reproductive/Developmental-Body mass index-Non-cancer-Nutritional/Metabolic-Body mass index, fasting blood sugar-Non-cancer. Outcome measure: Direct measurement	General public. Middle childhood (6-11), Teens (12-17). Iran; Isfahan. Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Children and adolescents aged 6-18 living in the city of Isfahan, Iran (n=242). NR.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrently with outcome.	Logistic Regression. Confounders adjusted for: age, physical activity, use of cosmetics, use of plastic packaging, use of bottled drinks, waist circumference, fasting blood sugar, total cholesterol, triglycerides, HDL-C, LDL-C, SBP, DBP.	Lowest exposure concentration for a significant adverse health outcome response: Tertiles [specific tertile ranges not provided; geometric mean (SD) MEHP = 78.60 (43.80) ug/L]. OR (95%) for obesity for T3 vs. T1 of MEHP = 3.63 (2.95, 4.31). Positive significant association between MEHP and obesity for T3 vs. T1. T2 vs. T1 positive but not significant. p-trend = 0.001.	Amin et. al 2018 4829277 Low
High triglycerides	Health Effect: Cardiovascular-Blood pressure, HDL cholesterol, triglycerides-Non-cancer. Outcome measure: Direct measurement	General public. Middle childhood (6-11), Teens (12-17). Iran; Isfahan. Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Children and adolescents aged 6-18 living in the city of Isfahan, Iran (n=242). NR.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrently with outcome.	Logistic Regression. Confounders adjusted for: age, physical activity, use of cosmetics, use of plastic packaging, use of bottled drinks, waist circumference, fasting blood sugar, total cholesterol, BMI, HDL-C, LDL-C, SBP, DBP.	Lowest exposure concentration for a significant adverse health outcome response: Tertiles [specific tertile ranges not provided; geometric mean (SD) MEHP = 78.60 (43.80) ug/L]. OR (95%) for high triglycerides for T3 vs. T1 of MEHP =3.57 (1.55, 8.21). Positive significant association between MEHP and high triglycerides for T3 vs. T1. T2 vs. T1 positive but not significant. p-trend = 0.01.	Amin et. al 2018 4829277 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
BMI z-score and waist circumference	Health Effect: Nutritional/Metabolic-Body mass index (BMI), waist circumference-Non-cancer-Reproductive/Developmental-Body mass index (BMI), waist circumference-Non-cancer. Outcome measure: Weight, height, and waist circumference measured during physical examination	General public. Middle childhood (6-11), Teens (12-17), Adults (18+). Iran; Isfahan. Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Children and adolescents age 6-18 living in Isfahan, Iran (n=242). 2016.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in fasting morning urine samples after enrollment.	Multivariate Regression. Confounders adjusted for: sex, age, physical activity.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (p-value): MBP and BMI z-score: 0.22 (<0.001)MBP and waist circumference: 0.29 (<0.001). Significant positive associations reported between MBP and both BMI z-score and waist circumference..	Amin et. al 2018 4728682 Low
BMI z-score and waist circumference	Health Effect: Nutritional/Metabolic-Body mass index (BMI), waist circumference-Non-cancer-Reproductive/Developmental-Body mass index (BMI), waist circumference-Non-cancer. Outcome measure: Weight, height, and waist circumference measured during physical examination	General public. Middle childhood (6-11), Teens (12-17), Adults (18+). Iran; Isfahan. Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Children and adolescents age 6-18 living in Isfahan, Iran (n=242). 2016.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in fasting morning urine samples after enrollment.	Multivariate Regression. Confounders adjusted for: sex, age, physical activity.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (p-value): MBzP and BMI z-score: 0.18 (0.002)MBzP and waist circumference: 0.22 (<0.001). Significant positive associations reported between MBzP and both BMI z-score and waist circumference..	Amin et. al 2018 4728682 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
BMI z-score and waist circumference	Health Effect: Nutritional/Metabolic-Body mass index (BMI), waist circumference-Non-cancer. Outcome measure: Weight, height, and waist circumference measured during physical examination	General public. Middle childhood (6-11), Teens (12-17), Adults (18+). Iran; Isfahan. Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Children and adolescents age 6-18 living in Isfahan, Iran (n=242). 2016.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in fasting morning urine samples after enrollment.	Multivariate Regression. Confounders adjusted for: sex, age, physical activity.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (p-value): MEHP and BMI z-score: 0.23 (<0.001)MEHP and waist circumference: 0.37 (<0.001)MEOHP and BMI z-score: 0.17 (0.005)MEOHP and waist circumference: 0.19 (0.003)MEHHP and BMI z-score: 0.3 (<0.001)MEHHP and waist circumference: 0.39 (<0.001). Significant positive associations reported between MEHP, MEOHP, and MEHHP and both BMI z-score and waist circumference..	Amin et. al 2018 4728682 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Anoclitoral distance	Health Effect: Reproductive/Developmental-Anoclitoris distance (ACD), anofourchette distance (AFD), anopenile distance (APD), anoscrotal distance (ASD), second to fourth finger (2D:4D) digit ratio-Non-cancer. Outcome measure: Direct measurement from study research personnel	General public, Pregnant people. Infant (0-1), Adults (18+). Canada; Vancouver, Edmonton, Winnipeg, Sudbury, Toronto, Hamilton, Kingston, Ottawa, Montreal, Halifax. Female, Male. Cohort (Prospective). PESS: Lifestage , Other Chemical and Non-chemical stressors (ex. exposure to other substances that affect same organ as test chemical). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Canadian women from Maternal-Infant Research on Environmental Chemicals (MIREC) cohort recruited during pregnancy and enrolled in follow up study (MIREC-ID) (analysis sample included 396 mother-child pairs). Maternal-Infant Research on Environmental Chemicals (MIREC) study. Recruitment: 2008-2011; Follow-up: 6 months after birth.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Maternal exposure measured during first trimester of pregnancy.	Linear Regression. Confounders adjusted for: Specific gravity, education, mother born in Canada, gestational age, maternal age, weight-for-length z score.	Lowest exposure concentration for a significant adverse health outcome response: continuous Geometric mean (95% CI) maternal MBzP = 5.15 (4.52-5.86) ug/L. Regression coefficient (95% CI) for per 1 ln-unit MBzP = -1.2401 (-1.9080, -0.5723). The anoclitoral distance (ACD) was significantly negatively associated with MBzP in females. Non-significant, inverse associations were reported for most other measures of AGD and 2D:4D ratio..	Arbuckle et. al 2018 4829228 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
2D:4D digit ratio	Health Effect: Reproductive/Developmental-Anoclitoris distance (ACD), anofourchette distance (AFD), anopenile distance (APD), anoscrotal distance (ASD), second to fourth finger (2D:4D) digit ratio-Non-cancer. Outcome measure: Direct measurement from study research personnel	General public, Pregnant people. Infant (0-1), Adults (18+). Canada; Vancouver, Edmonton, Winnipeg, Sudbury, Toronto, Hamilton, Kingston, Ottawa, Montreal, Halifax. Female, Male. Cohort (Prospective). PESS: Lifestage , Other Chemical and Non-chemical stressors (ex. exposure to other substances that affect same organ as test chemical). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Canadian women from Maternal-Infant Research on Environmental Chemicals (MIREC) cohort recruited during pregnancy and enrolled in follow up study (MIREC-ID) (analysis sample included 396 mother-child pairs). Maternal-Infant Research on Environmental Chemicals (MIREC) study. Recruitment: 2008 - 2011; Follow-up: 6 months after birth.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Maternal exposure measured during first trimester of pregnancy.	Linear Regression. Confounders adjusted for: Specific gravity, site, mother born in Canada, infant age.	Lowest exposure concentration for a significant adverse health outcome response: continuous Geometric mean (95% CI) maternal MnBP = 10.66 (9.43-12.05) ug/L. Regression coefficient (95% CI) for 2D:4D ratio (right hand) in females per 1 ln-unit increase MnBP = 0.0122 (0.0018, 0.0227). The second to fourth digit ratio in the right hand had a slight but significant positive association with prenatal MnBP. Results were positive, non-significant in the left hand and close to null in male infants..	Arbuckle et. al 2018 4829228 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Anopenile distance	Health Effect: Reproductive/Developmental-Anoclitoris distance (ACD), anofourchette distance (AFD), anopenile distance (APD), anoscrotal distance (ASD), second to fourth finger (2D:4D) digit ratio-Non-cancer. Outcome measure: Direct measurement from study research personnel	General public, Pregnant people. Infant (0-1), Adults (18+). Canada; Vancouver, Edmonton, Winnipeg, Sudbury, Toronto, Hamilton, Kingston, Ottawa, Montreal, Halifax. Female, Male. Cohort (Prospective). PESS: Lifestage , Other Chemical and Non-chemical stressors (ex. exposure to other substances that affect same organ as test chemical). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Canadian women from Maternal-Infant Research on Environmental Chemicals (MIREC) cohort recruited during pregnancy and enrolled in follow up study (MIREC-ID) (analysis sample included 396 mother-child pairs). Maternal-Infant Research on Environmental Chemicals (MIREC) study. Recruitment: 2008 - 2011; Follow-up: 6 months after birth.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Maternal exposure measured during first trimester of pregnancy.	Linear Regression. Confounders adjusted for: Specific gravity, site, smoking status, BMI, maternal race, gestational age, weight-for-length z score.	Lowest exposure concentration for a significant adverse health outcome response: continuous Geometric mean (95% CI) maternal MnBP = 10.66 (9.43-12.05) ug/L. Regression coefficient (95% CI) for per 1 ln-unit increase MnBP = 1.1689 (0.0207, 2.317). The anopenile distance (APD) was significantly positively associated with MnBP in males. Non-significant positive associations were reported for all AGD measures in girls, and a non-significant negative association was reported for anoscrotal distance..	Arbuckle et. al 2018 4829228 Medium

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child age 11 motor function	Health Effect: Neurological/Behavioral-Age 11 motor skills-Non-cancer. Outcome measure: Short form of the Bruininks- Oseretsky Test of Motor Proficiency, 2nd edition (BOT-2)	Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). U.S.; New York City, northern Manhattan, South Bronx. Female, Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Columbia Center for Children's Environmental Health (CCCEH) (recruitment 1999-2006, follow-up through age 11), United States, New York, overall n=209 mother-child pairs (116 girls, 93 boys). Sample size for the relevant metabolites varied based on measurement time point in children.. Columbia Center for Children's Environmental Health (CCCEH) cohort. Recruitment: delivery 1999-2006 and 3rd trimester spot urine; Follow-up child age 11 year visit..	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy third trimester.	Linear Regression. Confounders adjusted for: prenatal specific gravity, maternal ethnicity, prenatal maternal demoralization, prenatal maternal alcohol consumption, quality of the home environment (HOME score), child BMI z-score at age 11, and child's age in months at BOT-2 administration.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Among girls, the BOT-2 total composite score was lower with higher prenatal concentrations of ln MBzP (b=-1.14; [95%CI: -2.13, -0.14]),Among boys, BOT-2 fine motor composite score was associated inversely with prenatal concentrations of ln MBzP (b = –0.79; 95% CI: [–1.40, - 0.19]).. Among girls, the adjusted BOT-2 total composite score was lower with higher prenatal concentrations of ln (MBzP). Among boys, BOT-2 fine motor composite scores was associated inversely with prenatal concentrations of ln (MBzP). No other significant associations with prenatal ln (MBzP). In contrast to prenatal phthalate results, none of the child MBzP phthalates were associated with BOT-2 scores..	Balalian et. al 2019 5039985 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child age 11 motor function	Health Effect: Neurological/Behavioral- Age 11 motor skills-Non-cancer. Outcome measure: Short form of the Bruininks- Oseretsky Test of Motor Proficiency, 2nd edition (BOT-2)	Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). U.S.; New York City, northern Manhattan, South Bronx. Female, Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Columbia Center for Children's Environmental Health (CCCEH) (recruitment 1999-2006, follow-up through age 11), United States, New York, overall n=209 mother-child pairs (116 girls, 93 boys). Sample size for the relevant metabolites varied based on measurement time point in children.. Columbia Center for Children's Environmental Health (CCCEH) cohort. Recruitment: delivery 1999-2006 and 3rd trimester spot urine; Follow-up child age 11 year visit..	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy third trimester.	Linear Regression. Confounders adjusted for: prenatal specific gravity, maternal ethnicity, prenatal maternal demoralization, prenatal maternal alcohol consumption, quality of the home environment (HOME score), child BMI z-score at age 11, and child's age in months at BOT-2 administration.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Age 3 boys phthalate exposures and BOT-2 fine motor composite score: ln sum(DEHP) (b= - 1.30; 95% CI: [-2.34, -0.26]).Age 7 boys phthalate exposure and BOT-2 fine motor composite score: ln sum(DEHP) (b = –0.96; 95% CI = [–1.79, –0.13]).Age 7 boys phthalate exposure and BOT-2 total composite score: ln sum(DEHP) (b = -1.30; 95% CI: [-2.56, -0.03]).. Prenatal and age 5 sum (DEHP) metabolites were not significantly associated with BOT-2 scores in either boys or girls. Among boys, age 3 ln sum(DEHP) and age 7 ln sum(DEHP) were significantly inversely associated with BOT-2 fine motor composite score, and age 7 ln sum(DEHP) was additionally inversely associated with BOT-2 total composite score. In sensitivity analyses examining individual DEHP metabolites (Table S5a), among boys, age 3 and age 7 MECPP was inversely associated with BOT-2 total composite scores, while age 3 and age 7 MEHHP, MECPP, and MEOHP were inversely associated with BOT-2 fine motor composite scores. Among girls, none of the age 3 or age 7 phthalate metabolites (either as sum(DEHP) or as individual metabolites) were associated with any outcomes..	Balalian et. al 2019 5039985 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child age 11 motor function	Health Effect: Neurological/Behavioral-Age 11 motor skills-Non-cancer. Outcome measure: Short form of the Bruininks- Oseretsky Test of Motor Proficiency, 2nd edition (BOT-2)	Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). U.S.; New York City, northern Manhattan, South Bronx. Female, Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Columbia Center for Children's Environmental Health (CCCEH) (recruitment 1999-2006, follow-up through age 11), United States, New York, overall n=209 mother-child pairs (116 girls, 93 boys). Sample size for the relevant metabolites varied based on measurement time point in children.. Columbia Center for Children's Environmental Health (CCCEH) cohort. Recruitment: delivery 1999-2006 and 3rd trimester spot urine; Follow-up child age 11 year visit..	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy third trimester.	Linear Regression. Confounders adjusted for: prenatal specific gravity, maternal ethnicity, prenatal maternal demoralization, prenatal maternal alcohol consumption, quality of the home environment (HOME score), child BMI z-score at age 11, and child's age in months at BOT-2 administration.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Among girls, the BOT-2 total composite score was lower with higher prenatal concentrations of ln MBzP (b=-1.14; [95%CI: -2.13, -0.14]),Among boys, BOT-2 fine motor composite score was associated inversely with prenatal concentrations of ln MBzP (b = –0.79; 95% CI: [–1.40, - 0.19]).. Among girls, the adjusted BOT-2 total composite score was lower with higher prenatal concentrations of ln (MBzP). Among boys, BOT-2 fine motor composite scores was associated inversely with prenatal concentrations of ln (MBzP). No other significant associations with prenatal ln (MBzP). In contrast to prenatal phthalate results, none of the child MBzP phthalates were associated with BOT-2 scores..	Balalian et. al 2019 5039985 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child age 11 motor function	Health Effect: Neurological/Behavioral- Age 11 motor skills-Non-cancer. Outcome measure: Short form of the Bruininks- Oseretsky Test of Motor Proficiency, 2nd edition (BOT-2)	Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). U.S.; New York City, northern Manhattan, South Bronx. Female, Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Columbia Center for Children's Environmental Health (CCCEH) (recruitment 1999-2006, follow-up through age 11), United States, New York, overall n=209 mother-child pairs (116 girls, 93 boys). Sample size for the relevant metabolites varied based on measurement time point in children.. Columbia Center for Children's Environmental Health (CCCEH) cohort. Recruitment: delivery 1999-2006 and 3rd trimester spot urine; Follow-up child age 11 year visit..	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy third trimester.	Linear Regression. Confounders adjusted for: prenatal specific gravity, maternal ethnicity, prenatal maternal demoralization, prenatal maternal alcohol consumption, quality of the home environment (HOME score), child BMI z-score at age 11, and child's age in months at BOT-2 administration.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Age 3 boys phthalate exposures and BOT-2 fine motor composite score: ln sum(DEHP) (b= - 1.30; 95% CI: [-2.34, -0.26]).Age 7 boys phthalate exposure and BOT-2 fine motor composite score: ln sum(DEHP) (b = –0.96; 95% CI = [–1.79, –0.13]).Age 7 boys phthalate exposure and BOT-2 total composite score: ln sum(DEHP) (b = -1.30; 95% CI: [-2.56, -0.03]).. Prenatal and age 5 sum (DEHP) metabolites were not significantly associated with BOT-2 scores in either boys or girls. Among boys, age 3 ln sum(DEHP) and age 7 ln sum(DEHP) were significantly inversely associated with BOT-2 fine motor composite score, and age 7 ln sum(DEHP) was additionally inversely associated with BOT-2 total composite score. In sensitivity analyses examining individual DEHP metabolites (Table S5a), among boys, age 3 and age 7 MECPP was inversely associated with BOT-2 total composite scores, while age 3 and age 7 MEHHP, MECPP, and MEOHP were inversely associated with BOT-2 fine motor composite scores. Among girls, none of the age 3 or age 7 phthalate metabolites (either as sum(DEHP) or as individual metabolites) were associated with any outcomes..	Balalian et. al 2019 5039985 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Age at thelarche (months)	Health Effect: Reproductive/Developmental-Timing of puberty (thelarche)-Non-cancer. Outcome measure: Clinical Tanner staging assessment	General public. Middle childhood (6-11), Teens (12-17), Adults (18+). United States; Salinas Valley, California. Female. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Mothers and their children from the CHAMACOS study (n=159 boys; n=179 girls). The Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS). Recruitment: 1999-2000; Follow-up 9-13 years later.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Multivariable accelerated failure time (AFT). Confounders adjusted for: maternal education, years in United States, family poverty during pregnancy, Diet Quality Index during pregnancy, maternal prepregnancy BMI.	Lowest exposure concentration for a significant adverse health outcome response: continuous (central tendency not provided for Sum DEHP metabolites). Mean shift in months (95% CI) per log2 increase in sum DEHPAll girls: 2.5 (0.7, 4.3)Normal weight girls: 2.6 (0.8, 4.4)Overweight/obese girls: 4.9 (1.7, 8.2). Significant positive association for all girls, and stratified by normal and overweight. p for interaction = 0.57.	Berger et. al 2018 4829221 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Age at menarche (months)	Health Effect: Reproductive/Developmental-Timing of puberty (pubarche, menarche, gonadarche)-Non-cancer. Outcome measure: Clinical Tanner staging assessment	General public. Middle childhood (6-11), Teens (12-17), Adults (18+). United States; Salinas Valley, California. Female. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Mothers and their children from the CHAMACOS study (n=159 boys; n=179 girls). The Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS). Recruitment: 1999-2000; Follow-up 9-13 years later.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Multivariable accelerated failure time (AFT). Confounders adjusted for: maternal education, years in United States, family poverty during pregnancy, Diet Quality Index during pregnancy, maternal prepregnancy BMI.	Lowest exposure concentration for a significant adverse health outcome response: continuous (central tendency not provided for Sum DEHP metabolites). Mean shift in months (95% CI) per log2 increase in sum DEHPAll girls: 2.5 (1.1, 4.1)Normal weight girls: 2.7 (0.7, 4.6)Overweight/obese girls: 3.2 (0.9, 5.5). Significant positive association for all girls, and stratified by normal and overweight. p for interaction = 0.96.	Berger et. al 2018 4829221 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Age at thelarche (months)	Health Effect: Reproductive/Developmental-Timing of puberty (thelarche)-Non-cancer. Outcome measure: Clinical Tanner staging assessment	General public. Middle childhood (6-11), Teens (12-17), Adults (18+). United States; Salinas Valley, California. Female. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Mothers and their children from the CHAMACOS study (n=159 boys; n=179 girls). The Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS). Recruitment: 1999-2000; Follow-up 9-13 years later.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Multivariable accelerated failure time (AFT). Confounders adjusted for: maternal education, years in United States, family poverty during pregnancy, Diet Quality Index during pregnancy, maternal prepregnancy BMI.	Lowest exposure concentration for a significant adverse health outcome response: continuous; median = 9.2 ng/mL. Mean shift in months (95% CI) per log2 increase in MBzPAll girls: 1.9 (0.2, 3.6)Overweight/obese girls: 3.9 (1.2, 6.7). Significant positive association for all girls, and for overweight/obese girls in stratified analyses. p for interaction = 0.58.	Berger et. al 2018 4829221 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Age at gonadarche (months)	Health Effect: Reproductive/Developmental-Timing of puberty (pubarche, menarche, gonadarche)-Non-cancer. Outcome measure: Clinical Tanner staging assessment	General public. Middle childhood (6-11), Teens (12-17), Adults (18+). United States; Salinas Valley, California. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Mothers and their children from the CHAMACOS study (n=159 boys; n=179 girls). The Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS). Recruitment: 1999-2000; Follow-up 9-13 years later.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Multivariable accelerated failure time (AFT). Confounders adjusted for: maternal education, years in United States, family poverty during pregnancy, Diet Quality Index during pregnancy, maternal prepregnancy BMI.	Lowest exposure concentration for a significant adverse health outcome response: continuous; median = 9.2 ng/mL. Mean shift in months (95% CI) per log2 increase in MBzPAll boys: -3.1 (-5.2, -0.9)Overweight/obese boys: -4.3 (-6.8, -1.8). Significant negative association for all boys, and for overweight/obese boys in stratified analyses. p for interaction = 0.07.	Berger et. al 2018 4829221 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Age at pubarche (months)	Health Effect: Reproductive/Developmental-Timing of puberty (pubarche, menarche, gonadarche)-Non-cancer. Outcome measure: Clinical Tanner staging assessment	General public. Middle childhood (6-11), Teens (12-17), Adults (18+). United States; Salinas Valley, California. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Mothers and their children from the CHAMACOS study (n=159 boys; n=179 girls). The Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS). Recruitment: 1999-2000; Follow-up 9-13 years later.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Multivariable accelerated failure time (AFT). Confounders adjusted for: maternal education, years in United States, family poverty during pregnancy, Diet Quality Index during pregnancy, maternal prepregnancy BMI.	Lowest exposure concentration for a significant adverse health outcome response: continuous; median = 9.2 ng/mL. Mean shift in months (95% CI) per log2 increase in MBzPNormal weight boys: 3.5 (0.4, 6.5)Overweight/obese boys: -3.6 (-5.7, -1.4)Non-significant, near-zero results for girls.. Significant negative association for boys when stratified by weight status, but non-significant negative in all boys. p for interaction = <0.01.	Berger et. al 2018 4829221 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Age at pubarche (months)	Health Effect: Reproductive/Developmental-Timing of puberty (pubarche, menarche, gonadarche)-Non-cancer. Outcome measure: Clinical Tanner staging assessment	General public. Middle childhood (6-11), Teens (12-17). United States; Salinas Valley, California. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Mothers and their children from the CHAMACOS study (n=159 boys; n=179 girls). The Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS). Recruitment: 1999-2000; Follow-up 9-13 years later.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Multivariable accelerated failure time (AFT). Confounders adjusted for: maternal education, years in United States, family poverty during pregnancy, Diet Quality Index during pregnancy, maternal prepregnancy BMI.	Lowest exposure concentration for a significant adverse health outcome response: continuous (central tendency not provided for Sum DEHP metabolites). Mean shift in months (95% CI) per log2 increase in sum DEHPOverweight/obese boys: -3.8 (-6.7, -0.7)No significant results for girls. Significant negative association for overweight/obese boys, but not in normal weight boys or in all boys. Positive non-significant associations were reported in girls. p for interaction = 0.03.	Berger et. al 2018 4829221 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Age at gonadarche (months)	Health Effect: Reproductive/Developmental-Timing of puberty (pubarche, menarche, gonadarche)-Non-cancer. Outcome measure: Clinical Tanner staging assessment	General public. Middle childhood (6-11), Teens (12-17), Adults (18+). United States; Salinas Valley, California. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Mothers and their children from the CHAMACOS study (n=159 boys; n=179 girls). The Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS). Recruitment: 1999-2000; Follow-up 9-13 years later.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Multivariable accelerated failure time (AFT). Confounders adjusted for: maternal education, years in United States, family poverty during pregnancy, Diet Quality Index during pregnancy, maternal prepregnancy BMI.	Lowest exposure concentration for a significant adverse health outcome response: continuous (central tendency not provided for Sum DEHP metabolites). Mean shift in months (95% CI) per log2 increase in Sum DEHPOverweight/obese boys: -6.3 (-10.7, -1.8). Significant negative association for overweight/obese boys, but not in normal weight boys or for all boys. p for interaction = <0.01.	Berger et. al 2018 4829221 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Small-for-gestational age	Health Effect: Reproductive/Developmental-Small for gestational age (SGA), Birth weight for gestational age z-scores (Z-BW), Preterm birth (PTB), Low birth weight (LBW)-Non-cancer. Outcome measure: Medical Records	Pregnant people. Infant (0-1), Adults (18+). United States; Charleston, South Carolina metropolitan area. Female, Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women and their children in South Carolina (n=310; African-American n=152; White n=158). 2011-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy prior to birth outcomes.	Logistic Regression. Confounders adjusted for: maternal age, BMI, education, smoking in pregnancy, race.	Lowest exposure concentration for a significant adverse health outcome response: 2nd Tertile (range not provided). OR (95% CI) for exposure measured during GW 18-22:T2 vs. T1: 0.30 (0.10 - 0.85)T3 vs. T1: 0.29 (0.10 - 0.81)OR (95% CI) for exposure measured during GW 24-32:T2 vs. T1: 0.32 (0.06 - 1.68)T3 vs. T1: 0.29 (0.05 - 1.58). Significant negative associations were reported for all tertiles of MBzP and SGA. Negative, non-consistent associations were observed for all other birth outcomes and no significant findings were reported by race..	Bloom et. al 2019 5494469 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Birth weight z-scores	Health Effect: Reproductive/Developmental-Small for gestational age (SGA), Birth weight for gestational age z-scores (Z-BW), Preterm birth (PTB), Low birth weight (LBW)-Non-cancer. Outcome measure: Medical Records	Pregnant people. Infant (0-1), Adults (18+). United States; Charleston, South Carolina metropolitan area. Female, Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women and their children in South Carolina (n=310; African-American n=152; White n=158). 2011-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy prior to birth outcomes.	Logistic Regression. Confounders adjusted for: maternal age, BMI, education, smoking in pregnancy, race.	Lowest exposure concentration for a significant adverse health outcome response: 2nd Tertile (range not provided). Mean change (95% CI) per 1-ln unit increase MiBP during GW 18-22:Continuous: -0.01 (-0.16, 0.15)T2 vs. T1: 0.11 (-0.15, 0.37)T3 vs. T1: -0.02 (-0.29, 0.24)Mean change (95% CI) per 1-ln unit increase MiBP during GW 24-32:Continuous: -0.28 (-0.54, -0.02)T2 vs. T1: -0.35 (-0.66, -0.04)T3 vs. T1: -0.51 (-0.86, -0.17). Significant negative associations were reported for MiBP during GW 24-32 and birth weight z-scores. Non-significant negative associations were reported for MBP and all birth outcomes, , although a significant negative association was reported for the odds of low birth weight in MBP in females only..	Bloom et. al 2019 5494469 High

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Small-for-gestational age	Health Effect: Reproductive/Developmental-Small for gestational age (SGA), Birth weight for gestational age z-scores (Z-BW), Preterm birth (PTB), Low birth weight (LBW)-Non-cancer. Outcome measure: Medical Records	Pregnant people. Infant (0-1), Adults (18+). United States; Charleston, South Carolina metropolitan area. Female, Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women and their children in South Carolina (n=310; African-American n=152; White n=158). 2011-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy prior to birth outcomes.	Logistic Regression. Confounders adjusted for: maternal age, BMI, education, smoking in pregnancy, race.	Lowest exposure concentration for a significant adverse health outcome response: 2nd Tertile (range not provided). OR (95% CI) for MiBP during GW 18-22:Continuous (per 1-ln increase): 1.24 (0.71, 2.16)T2 vs. T1: N/AT3 vs. T1: N/AOR (95% CI) for MiBP during GW 24-32:Continuous: (per 1-ln increase): 2.82 (1.21, 6.56)T2 vs. T1: N/AT3 vs. T1: N/AOR (95% CI) for MiBP during GW 18-22 stratified by sex:Females Continuous (per 1-ln increase): 3.14 (1.54, 6.40)Males Continuous (per 1-ln increase): 0.71 (0.32, 1.56)OR (95% CI) for MiBP during GW 24-32 stratified by sex:Females Continuous (per 1-ln increase): 3.52 (1.23, 10.11)Males Continuous (per 1-ln increase): 3.22 (1.35, 7.66). Significant positive associations were reported for MiBP and SGA. Non-significant negative associations were reported for MBP and all birth outcomes. The tertile model for MiBP did not converge and was not displayed. When stratified by infant sex, MiBP was still significantly positively associated with SGA, although negative in males at GW 18-22..	Bloom et. al 2019 5494469 High

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Small-for-gestational age	Health Effect: Reproductive/Developmental-Small for gestational age (SGA), Birth weight for gestational age z-scores (Z-BW), Preterm birth (PTB), Low birth weight (LBW)-Non-cancer. Outcome measure: Medical Records	Pregnant people. Infant (0-1), Adults (18+). United States; Charleston, South Carolina metropolitan area. Female, Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women and their children in South Carolina (n=310; African-American n=152; White n=158). 2011-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy prior to birth outcomes.	Logistic Regression. Confounders adjusted for: maternal age, BMI, education, smoking in pregnancy, race.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. OR (95% CI) for MEOHP during GW 18-22:Continuous (per 1-ln increase): 0.83 (0.40, 1.69)T2 vs. T1: 1.87 (0.74, 4.76)T3 vs. T1: 0.66 (0.22, 1.94)OR (95% CI) for MEOHP during GW 24-32:Continuous (per 1-ln increase): 2.80 (1.05, 7.42)T2 vs. T1: 2.80 (0.54, 14.61)T3 vs. T1: 2.53 (0.50, 12.75)OR (95% CI) for MEHP during GW 18-22 stratified by race:African-American Continuous (per 1-ln increase): 0.80 (0.36, 1.75)White Continuous (per 1-ln increase): 0.16 (0.03, 0.78)OR (95% CI) for MEHP during GW 24-32 stratified by race:African-American Continuous (per 1-ln increase): 0.71 (0.07, 7.17)White Continuous (per 1-ln increase): 3.26 (0.64, 16.56). MEHP was not significantly associated with birth outcomes except for SGA when stratified by race. In African-American infants, significant negative associations were observed. In white infants, a significant positive association was reported for GW 18-22, but not GW 24-32.A significant positive association was observed for MEOHP during GW 24-32 and SGA. No significant associations were observed for other birth outcomes, other DEHP metabolites, or sum DEHP metabolites..	Bloom et. al 2019 5494469 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Language delay	Health Effect: Neurological/Behavioral-Language delay-Non-cancer. Outcome measure: Questionnaire	General public. Toddler (2-3). SELMA: Sweden; TIDES: US; SELMA: county of Värmland; TIDES: University of Minnesota Medical Center [Minneapolis], University of California-San Francisco Clinical Center [San Francisco], University of Rochester Medical Center [Rochester, NewYork], and Seattle Children's Hospital, University of Washington [Seattle]). Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). SELMA: Swedish women and their offspring (Women enrolled n=2582; children used in analysis n=963); TIDES: US women and their offspring (Women enrolled n=969; children used in analysis n=370). Swedish Environmental Longitudinal Mother and Child, Asthma and Allergy (SELMA) study; The Infant Development and the Environment Study (TIDES). Recruitment: 2007-2010 (SELMA, 2010-2012 (TIDES); Data collection: 2007-2013 (SELMA), 2010-2016 (TIDES); Analysis: 2016-2018 (SELMA), 2016-2018 (TIDES).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured via biomonitoring during <13 weeks of pregnancy.	Logistic Regression. Confounders adjusted for: SELMA: creatinine level in urine, sex, preterm birth, mother's educational level, mother's smoking status, mother's weight at study enrollment; TIDES: urinary-specific gravity, sex, preterm birth, mother's educational level, mother's race/ethnicity, mother's smoking status, mother's weight at study enrollment.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR (95% CI) for SELMA: 1.29 (1.03-1.63). Significant positive associations between MBP exposure and language delay in SELMA children. Association was positive in TIDES children but not significant.In SELMA, boys were non-significantly more likely to experience language delay than girls..	Bornehag et. al 2018 5043345 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Language delay	Health Effect: Neurological/Behavioral-Language delay-Non-cancer. Outcome measure: Questionnaire	General public. Toddler (2-3). SELMA: Sweden; TIDES: US; SELMA: county of Värmland; TIDES: University of Minnesota Medical Center [Minneapolis], University of California-San Francisco Clinical Center [San Francisco], University of Rochester Medical Center [Rochester, NewYork], and Seattle Children's Hospital, University of Washington [Seattle]). Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). SELMA: Swedish women and their offspring (Women enrolled n=2582; children used in analysis n=963); TIDES: US women and their offspring (Women enrolled n=969; children used in analysis n=370). Swedish Environmental Longitudinal Mother and Child, Asthma and Allergy (SELMA) study; The Infant Development and the Environment Study (TIDES). Recruitment: 2007-2010 (SELMA, 2010-2012 (TIDES); Data collection: 2007-2013 (SELMA), 2010-2016 (TIDES); Analysis: 2016-2018 (SELMA), 2016-2018 (TIDES).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured via biomonitoring during <13 weeks of pregnancy.	Logistic Regression. Confounders adjusted for: SELMA: creatinine level in urine, sex, preterm birth, mother's educational level, mother's smoking status, mother's weight at study enrollment; TIDES: urinary-specific gravity, sex, preterm birth, mother's educational level, mother's race/ethnicity, mother's smoking status, mother's weight at study enrollment.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR (95% CI) for SELMA: 1.26 (1.07-1.49)Sex-specific resultsSELMA | Boys: 1.39 (1.13-1.71); Girls: 1.04 (0.76-1.41). Significant positive associations between MBzP exposure and language delay in SELMA children. In SELMA, boys were significantly more likely to experience language delay than girls..	Bornehag et. al 2018 5043345 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Preterm Birth	Health Effect: Reproductive/Developmental- Gestational age at delivery- Non-cancer. Outcome measure: Medical Records	Pregnant people. Infant (0-1), Adults (18+). United States; Boston, MA. Female, Male. Nested Case-Control. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women with prenatal visits at clinics in the Boston area (n=130 preterm infants, n=352 term infants). Recruitment: 2006 - 2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured in repeated samples collected during pregnancy.	Logistic Regression. Confounders adjusted for: specific gravity, maternal age, race, education.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) per IQR increase in mean MEHP: 1.50 (1.10 - 2.07). Significant increase in odds of preterm birth were associated with increases in mean MEHP using the mean of multiple concentrations or repeated measures. However, associations between MEHP and shorter gestational age at delivery were not significant using Cox or Accelerated Failure Time models..	Boss et. al 2018 4728664 Medium
Preterm Birth	Health Effect: Reproductive/Developmental- Gestational age at delivery- Non-cancer. Outcome measure: Medical Records	Pregnant people. Infant (0-1), Adults (18+). United States; Boston, MA. Female, Male. Nested Case-Control. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women with prenatal visits at clinics in the Boston area (n=130 preterm infants, n=352 term infants). Recruitment: 2006 - 2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured in repeated samples collected during pregnancy.	Logistic Regression. Confounders adjusted for: specific gravity, maternal age, race, education.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) preterm birth per IQR increase in mean MECPP: 1.66 (1.20, 2.30). Significant increase in odds of preterm birth were associated with either the mean of multiple MECPP measures, or repeated MECPP measures. Similarly, MECPP was associated with significantly shorter gestational age at delivery using Cox or Accelerated Failure Time models..	Boss et. al 2018 4728664 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Gestational Age at Delivery	Health Effect: Reproductive/Developmental- Gestational age at delivery- Non-cancer. Outcome measure: Medical Records	Pregnant people. Infant (0-1), Adults (18+). United States; Boston, MA. Female, Male. Nested Case-Control. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women with prenatal visits at clinics in the Boston area (n=130 preterm infants, n=352 term infants). Recruitment: 2006 - 2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured in repeated samples collected during pregnancy.	Cox Proportional Hazards Model. Confounders adjusted for: specific gravity, maternal age, race, education.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) per IQR increase in mean MECPP: 1.21 (1.09, 1.33). Significant increases in shorter time to delivery were associated with MECPP using Cox regression. Similar associations were observed using Accelerated Failure Time models or using Logistic regression models to analyze odds of preterm birth..	Boss et. al 2018 4728664 Medium
Gestational Age at Delivery	Health Effect: Reproductive/Developmental- Gestational age at delivery- Non-cancer. Outcome measure: Medical Records	Pregnant people. Infant (0-1), Adults (18+). United States; Boston, MA. Female, Male. Nested Case-Control. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women with prenatal visits at clinics in the Boston area (n=130 preterm infants, n=352 term infants). Recruitment: 2006 - 2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured in repeated samples collected during pregnancy.	Cox Proportional Hazards Model. Confounders adjusted for: specific gravity, maternal age, race, education, private vs. public health insurance.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) per IQR increase in mean MBzP: 1.15 (1.03, 1.27). Significant increases in shorter time to delivery were associated with MBzP using Cox regression. Similar associations were observed using Logistic regression models to analyze odds of preterm birth. Accelerated Failure Time model results were not significant..	Boss et. al 2018 4728664 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Gestational Age at Delivery	Health Effect: Reproductive/Developmental- Gestational age at delivery- Non-cancer. Outcome measure: Medical Records	Pregnant people. Infant (0-1), Adults (18+). United States; Boston, MA. Female, Male. Nested Case-Control. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women with prenatal visits at clinics in the Boston area (n=130 preterm infants, n=352 term infants). Recruitment: 2006 - 2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured in repeated samples collected during pregnancy.	Cox Proportional Hazards Model. Confounders adjusted for: specific gravity, maternal age, race, education, private vs. public health insurance.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) per IQR increase in mean MBP: 1.17 (1.05, 1.29). Significant increases in shorter time to delivery were associated with MBP using Cox regression. Associations were not significant using Accelerated Failure Time models, or Logistic regression to model preterm birth..	Boss et. al 2018 4728664 Medium
Preterm Birth	Health Effect: Reproductive/Developmental- Gestational age at delivery- Non-cancer. Outcome measure: Medical Records	Pregnant people. Infant (0-1), Adults (18+). United States; Boston, MA. Female, Male. Nested Case-Control. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women with prenatal visits at clinics in the Boston area (n=130 preterm infants, n=352 term infants). Recruitment: 2006 - 2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured in repeated samples collected during pregnancy.	Logistic Regression. Confounders adjusted for: specific gravity, maternal age, race, education.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) per IQR increase in mean ∑DEHP: 1.47 (1.06, 2.03). Significant increases in odds of preterm birth were associated with the mean or repeated measures of ∑DEHP using Logistic regression. Associations were significant using Cox and Accelerated Failure Time models using mean but not repeated measures of ∑DEHP..	Boss et. al 2018 4728664 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Gestational Age at Delivery	Health Effect: Reproductive/Developmental-Gestational age at delivery-Non-cancer. Outcome measure: Medical Records	Pregnant people. Infant (0-1), Adults (18+). United States; Boston, MA. Female, Male. Nested Case-Control. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women with prenatal visits at clinics in the Boston area (n=130 preterm infants, n=352 term infants). Recruitment: 2006 - 2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured in repeated samples collected during pregnancy.	Cox Proportional Hazards Model. Confounders adjusted for: specific gravity, maternal age, race, education.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) per IQR increase in ∑DEHP: 1.14 (1.04, 1.26). Significant increases in the likelihood of shorter gestational age at birth were associated with the mean ∑DEHP using Cox or Accelerated Failure Time models; models using repeated measures were not significant. Logistic regression for odds of preterm birth were significant using both mean and repeated ∑DEHP..	Boss et. al 2018 4728664 Medium
Wheeze	Health Effect: Lung/Respiratory-Asthma, wheeze-Non-cancer-Immune/Hematological-Asthma, wheeze-Non-cancer. Outcome measure: Questionnaire	General public, Pregnant people. Middle childhood (6-11), Adults (18+). Unied States; New York City, New York. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Children whose mothers had reported phthalate exposure (Mother-infant pairs enrolled with available phthalate data n=382; Follow-up n=165). Mount Sinai Children's Environmental Health Study. Recruitment: 1998-2002; Follow-up: 2004-2009.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring during the third trimester of pregnancy.	Logistic Regression. Confounders adjusted for: sociodemographics (maternal age, race/ethnicity, pre-pregnancy body mass index (BMI), education, marital status), residential characteristics (type of residence, number of occupants, pets), predictors of asthma, wheeze, and atopic skin conditions (maternal smoking during pregnancy, persons in the household with asthma, persons in the household with allergies, child's sex, age at follow-up), and creatinine.	Lowest exposure concentration for a significant adverse health outcome response: continuous; median (25th-75th) = 34 ug/L (14-84). OR (95% CI) per 1-sd change from the mean (122 ug/L) among girls: 0.40 (0.18, 0.87). Significant negative association for wheeze among girls exposed to MnBP. The association was also negative for boys and the overall sample but not significant.Nonsignificant associations for asthma and emergency room visits because of asthma..	Buckley et. al 2018 4728666 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Age at pubertal onset	Health Effect: Reproductive/Developmental-age at pubertal onset (as measured by testicular volume, genitalia Tanner stage, and pubarche Tanner stage_-Non-cancer. Outcome measure: Clinical examinations	General public. Teens (12-17), Adults (18+). Russia; Chapaevsk. Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Adolescents (age 11 years through < 21 years). 304 boys recruited at ages 8-9 for the Russia Children's Study,. Russia Children's Study. Recruitment: 2003-2005; Follow-up to 18-19 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prepubertally at ages 8-9.	Interval-censored model. Confounders adjusted for: prenatal maternal alcohol intake, urinary specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: 0.72–1.07 umol/L. Testicular volume >3mLMean shift in months (95% CI):Q3 vs. Q1: 8.0 (2.9, 13.2)p-trend = 0.72Genitalia stage >= 2Mean shift in months (95% CI):Q3 vs. Q1: 8.3 (1.8, 14.7)p-trend = 0.19Pubarche stage >= 2Mean shift in months (95% CI):Q2 vs. Q1: 8.4 (1.6, 15.3)Q3 vs. Q1: 14.1 (7.0, 21.1)Q4 vs. Q1: 10.0 (2.5, 17.4)p-trend = 0.006. For pubarche stage >=2, all quartiles of DEHP metabolites were associated with later pubertal onset. For testicular volume and genitalia stage, pubertal onset was later only for the 3rd quartile of exposure..	Burns et. al 2022 10294569 Medium
Age at pubertal onset	Health Effect: Reproductive/Developmental-age at pubertal onset (as measured by testicular volume, genitalia Tanner stage, and pubarche Tanner stage_-Non-cancer. Outcome measure: Clinical examinations	General public. Teens (12-17), Adults (18+). Russia; Chapaevsk. Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Adolescents (age 11 years through < 21 years). 304 boys recruited at ages 8-9 for the Russia Children's Study,. Russia Children's Study. Recruitment: 2003-2005; Follow-up to 18-19 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prepubertally at ages 8-9.	Interval-censored model. Confounders adjusted for: prenatal tobacco smoke exposure, mother's age at son's birth, breastfed, biological father living in home, and urinary specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: 7.2-13.1 ng/mL. Pubarche stage >= 2 for MEHPMean shift in months (95% CI):Q2 vs. Q1: 7.2 (0.5, 13.9)Q3 vs. Q1: 10.9 (4.0, 17.7)Q4 vs. Q1: 10.6 (3.6, 17.6)p-trend = 0.003. All quartiles of MEHP were associated with later pubertal onset when measured by pubarche stage. Positive, non-significant results for other measures of pubertal onset..	Burns et. al 2022 10294569 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Age at pubertal onset	Health Effect: Reproductive/Developmental-age at pubertal onset (as measured by testicular volume, genitalia Tanner stage, and pubarche Tanner stage_-Non-cancer. Outcome measure: Clinical examinations	General public. Teens (12-17), Adults (18+). Russia; Chapaevsk. Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Adolescents (age 11 years through < 21 years). 304 boys recruited at ages 8-9 for the Russia Children's Study,. Russia Children's Study. Recruitment: 2003-2005; Follow-up to 18-19 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prepubertally at ages 8-9.	Interval-censored model. Confounders adjusted for: prenatal tobacco smoke exposure, mother's age at son's birth, breastfed, biological father living in home, and urinary specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: 51.0-78.9 ng/mL. Genitalia stage >= 2 for MEHHPMean shift in months (95% CI):Q3 vs. Q1: 7.4 (1.0, 13.9)p-trend = 0.59Pubarche stage >= 2 for MEHHPMean shift in months (95% CI):Q2 vs. Q1: 9.7 (2.9, 16.4)Q3 vs. Q1: 8.7 (1.6, 15.9)p-trend = 0.18. Later pubertal onset was associated with Q3 of MEHHP exposure when measured by genitalia stage and pubarche stage. Q2 of MEHHP exposure was also associated with later onset for pubarche stage. No significant results when pubertal onset was measured by testicular volume..	Burns et. al 2022 10294569 Medium
Age at pubertal onset	Health Effect: Reproductive/Developmental-age at pubertal onset (as measured by testicular volume, genitalia Tanner stage, and pubarche Tanner stage_-Non-cancer. Outcome measure: Clinical examinations	General public. Teens (12-17), Adults (18+). Russia; Chapaevsk. Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Adolescents (age 11 years through < 21 years). 304 boys recruited at ages 8-9 for the Russia Children's Study,. Russia Children's Study. Recruitment: 2003-2005; Follow-up to 18-19 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prepubertally at ages 8-9.	Interval-censored model. Confounders adjusted for: prenatal maternal alcohol intake, urinary specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: 6.13–15.11 ng/mL. Testicular volume >3mLMean shift in months (95% CI):Q3 vs. Q1: 5.6 (0.3, 11.0)Q4 vs. Q1: 5.6 (0.6, 10.7)p-trend = 0.006Genitalia stage >= 2Mean shift in months (95% CI):Q4 vs. Q1: 7.5 (1.1, 13.8)p-trend = 0.02Pubarche stage >= 2Mean shift in months (95% CI):Q3 vs. Q1: 15.1 (8.0 - 22.2)Q4 vs. Q1: 14.2 (7.4 - 21.0)p-trend < 0.001. Later pubertal onset was associated with the fourth quartile of MBzP exposure when measured by testicular volume, genitalia stage, or pubarche stage. The same results were found for the 3rd quartile of MBzP when measured by testicular volume and pubarche stage..	Burns et. al 2022 10294569 Medium

Continued on next page ...

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Age at pubertal onset	Health Effect: Reproductive/Developmental-age at pubertal onset (as measured by testicular volume, genitalia Tanner stage, and pubarche Tanner stage_-Non-cancer. Outcome measure: Clinical examinations	General public. Teens (12-17), Adults (18+). Russia; Chapaevsk. Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Adolescents (age 11 years through < 21 years). 304 boys recruited at ages 8-9 for the Russia Children's Study,. Russia Children's Study. Recruitment: 2003-2005; Follow-up to 18-19 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prepubertally at ages 8-9.	Interval-censored model. Confounders adjusted for: prenatal maternal alcohol intake, urinary specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: 34.3–56.9 ng/mL. Testicular volume >3mLQ2 vs. Q1: 8.5 (3.7, 13.5)Q3 vs. Q1: 6.4 (1,1, 11.7)Q4 vs. Q1: 5.7 (0.2, 11.1)p-trend = 0.13Genitalia stage >= 2Mean shift in months (95% CI):Q2 vs. Q1: 6.4 (0.2, 12.6)Q3 vs. Q1: 7.2 (0.5, 13.0)p-trend = 0.11Pubarche stage >= 2Mean shift in months (95% CI):Q3 vs. Q1: 10.2 (2.9, 17.5)Q4 vs. Q1: 12.8 (5.3, 20.3)p-trend < 0.001. Later pubertal onset was associated with Q3 of MiBP exposure for all measures of puberty..	Burns et. al 2022 10294569 Medium
Age at pubertal onset	Health Effect: Reproductive/Developmental-age at pubertal onset (as measured by testicular volume, genitalia Tanner stage, and pubarche Tanner stage_-Non-cancer. Outcome measure: Clinical examinations	General public. Teens (12-17), Adults (18+). Russia; Chapaevsk. Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Adolescents (age 11 years through < 21 years). 304 boys recruited at ages 8-9 for the Russia Children's Study,. Russia Children's Study. Recruitment: 2003-2005; Follow-up to 18-19 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prepubertally at ages 8-9.	Interval-censored model. Confounders adjusted for: prenatal maternal alcohol intake, urinary specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: 299.9–1349.3 ng/mL. Pubarche stage >= 2Mean shift in months (95% CI):Q4 vs. Q1: 9.3 (1.5, 17.1)p-trend = 0.03. Later pubertal onset was associated with the 4th quartile of MBP exposure when measured by pubarche stage. Other quartiles were positive, non-significant and the trend test was significant. No significant results for other measures of pubertal onset..	Burns et. al 2022 10294569 Medium

Continued on next page ...

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Age at pubertal onset	Health Effect: Reproductive/Developmental-age at pubertal onset (as measured by testicular volume, genitalia Tanner stage, and pubarche Tanner stage_-Non-cancer. Outcome measure: Clinical examinations	General public. Teens (12-17), Adults (18+). Russia; Chapaevsk. Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Adolescents (age 11 years through < 21 years). 304 boys recruited at ages 8-9 for the Russia Children's Study,. Russia Children's Study. Recruitment: 2003-2005; Follow-up to 18-19 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prepubertally at ages 8-9.	Interval-censored model. Confounders adjusted for: prenatal tobacco smoke exposure, mother's age at son's birth, breastfed, biological father living in home, and urinary specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: 41.6-65.9 ng/mL. Genitalia stage >= 2 MEOHPMean shift in months (95% CI):Q3 vs. Q1: 6.9 (0.4, 13.3)p-trend = 0.35Pubarche stage >= 2 for MEOHPMean shift in months (95% CI):Q2 vs. Q1: 8.0 (1.0, 14.9)Q3 vs. Q1: 9.1 (2.0, 16.3)Q4 vs. Q1: 9.9 (2.4, 17.5)p-trend = 0.02. Later pubertal onset was associated with all quartiles of MEOHP exposure when measured by pubarche stage, and with Q3 of MEOHP exposure when measured by genitalia stage. No significant results for testicular volume..	Burns et. al 2022 10294569 Medium
Age at pubertal onset	Health Effect: Reproductive/Developmental-age at pubertal onset (as measured by testicular volume, genitalia Tanner stage, and pubarche Tanner stage_-Non-cancer. Outcome measure: Clinical examinations	General public. Teens (12-17), Adults (18+). Russia; Chapaevsk. Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Adolescents (age 11 years through < 21 years). 304 boys recruited at ages 8-9 for the Russia Children's Study,. Russia Children's Study. Recruitment: 2003-2005; Follow-up to 18-19 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prepubertally at ages 8-9.	Interval-censored model. Confounders adjusted for: prenatal tobacco smoke exposure, mother's age at son's birth, breastfed, biological father living in home, and urinary specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: 104.0-159.9 ng/mL. Testicular volume >3mL MECPPMean shift in months (95% CI):Q3 vs. Q1: 6.5 (1.4, 11.7)p-trend = 0.29Pubarche stage >= 2 for MECPPMean shift in months (95% CI):Q2 vs. Q1: 8.6 (1.8, 15.3)Q3 vs. Q1: 14.3 (7.3, 21,3)Q4 vs. Q1: 10.7 (3.4, 18.1)p-trend = 0.002. Later pubertal onset was associated with all quartiles of MECPP exposure when measured by pubarche stage, and with Q3 of MECPP exposure when measured by testicular volume. No significant results for genitalia stage..	Burns et. al 2022 10294569 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
dihydrotestosterone/total testosterone ratio	Health Effect: Reproductive/Developmental-Sex hormone levels (luteinizing hormone, follicle-stimulating hormone, sex hormone binding globulin, inhibinB, dehydroepiandrosterone, dehydroepiandrosterone sulfate, androstenedione, estrone, estradiol, total testosterone, free testosterone, dihydrotestosterone, dihydrotestosterone/total testosterone ratio, estradiol/total testosterone ratio, estradiol/estrone ratio)-Non-cancer. Outcome measure: measured in serum	Patients in clinics. Adults (18+), Older Adults (65+). Taiwan. Male. Cross-Sectional. PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Older adults (age >= 65 years). elderly males from National Cheng Kung University Hospital: Taiwan, 207 elderly males with diagnosed BPH, 2015-2017. 2015-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring on the same day they were diagnosed.	Linear Regression. Confounders adjusted for: age, body mass index (modeled continuously), and season during which the blood was collected for hormone analysis. Total testosterone and estradiol were additionally adjusted for SHBG. Urinary phthalate metabolites and 8-OHdG were additionally adjusted for urinary creatinine (liner).	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficients for: MEHP (95% CI): 1.10 (1.02, 1.18);MEHHP (95% CI): 1.11 (1.02, 1.20);MEOHP (95% CI): 1.17 (1.07, 1.28);MECPP (95% CI): 1.15 (1.04, 1.28). Multivariate regression coefficients showed significant positive associations between the results for DHT:TT ratio and MEHP, MEHHP, MEOHP, and MECPP..	Chang et. al 2019 5499417 Medium
estradiol/total testosterone (E2:TT) ratio	Health Effect: Reproductive/Developmental-Sex hormone levels (luteinizing hormone, follicle-stimulating hormone, sex hormone binding globulin, inhibinB, dehydroepiandrosterone, dehydroepiandrosterone sulfate, androstenedione, estrone, estradiol, total testosterone, free testosterone, dihydrotestosterone, dihydrotestosterone/total testosterone ratio, estradiol/total testosterone ratio, estradiol/estrone ratio)-Non-cancer. Outcome measure: measured in serum	Patients in clinics. Adults (18+), Older Adults (65+). Taiwan. Male. Cross-Sectional. PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Older adults (age >= 65 years). elderly males from National Cheng Kung University Hospital: Taiwan, 207 elderly males with diagnosed BPH, 2015-2017. 2015-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring on the same day they were diagnosed.	Linear Regression. Confounders adjusted for: age, body mass index (modeled continuously), and season during which the blood was collected for hormone analysis. Total testosterone and estradiol were additionally adjusted for SHBG. Urinary phthalate metabolites and 8-OHdG were additionally adjusted for urinary creatinine (liner).	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficients for: MEHP (95% CI): 1.24 (1.12, 1.39);MEHHP (95% CI): 1.17(1.06, 1.29);MEOHP (95% CI): 1.17 (1.04, 1.32);MECPP (95% CI): 1.21 (1.08, 1.36). Multivariate regression coefficients showed significant positive associations between the results for E2:TT ratio and MEHP, MEHHP, MEOHP, and MECPP..	Chang et. al 2019 5499417 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
estradiol/estrone (E2:E1) ratio	Health Effect: Reproductive/Developmental-Sex hormone levels (luteinizing hormone, follicle-stimulating hormone, sex hormone binding globulin, inhibinB, dehydroepiandrosterone, dehydroepiandrosterone sulfate, androstenedione, estrone, estradiol, total testosterone, free testosterone, dihydrotestosterone, dihydrotestosterone/total testosterone ratio, estradiol/total testosterone ratio, estradiol/estrone ratio)-Non-cancer. Outcome measure: measured in serum	Patients in clinics. Adults (18+), Older Adults (65+). Taiwan. Male. Cross-Sectional. PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Older adults (age >= 65 years). elderly males from National Cheng Kung University Hospital: Taiwan, 207 elderly males with diagnosed BPH, 2015-2017. 2015-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring on the same day they were diagnosed.	Linear Regression. Confounders adjusted for: age, body mass index (modeled continuously), and season during which the blood was collected for hormone analysis. Total testosterone and estradiol were additionally adjusted for SHBG. Urinary phthalate metabolites and 8-OHdG were additionally adjusted for urinary creatinine (liner).	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficients for: MEHP (95% CI): 1.17 (1.05, 1.31);MEHHP (95% CI): 1.14(1.04, 1.26);MEOHP (95% CI): 1.13 (1.03, 1.24);MECPP (95% CI): 1.14 (1.02, 1.27). Multivariate regression coefficients showed significant positive associations between the results for E2:E1 ratio and MEHP, MEHHP, MEOHP, and MECPP..	Chang et. al 2019 5499417 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
luteinizing hormone; InhibinB; dehydroepiandrosterone; inducible nitric oxide synthetase	Health Effect: Reproductive/Developmental-Sex hormone levels (luteinizing hormone, follicle-stimulating hormone, sex hormone binding globulin, inhibinB, dehydroepiandrosterone, dehydroepiandrosterone sulfate, androstenedione, estrone, estradiol, total testosterone, free testosterone, dihydrotestosterone, dihydrotestosterone/total testosterone ratio, estradiol/total testosterone ratio, estradiol/estrone ratio)-Non-cancer-Other (please specify below) (Oxidative stress/Inflammation)-Oxidative stress/Inflammation (malondialdehyde, inducible nitric oxide synthetase, 8-hydroxy-2'-deoxyguanosine)-Non-cancer-Reproductive/Developmental-benign prostatic hyperplasia (prostate specific antigen, prostate volume)-Non-cancer. Outcome measure: measured in serum	Patients in clinics. Adults (18+), Older Adults (65+). Taiwan. Male. Cross-Sectional. PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Older adults (age >= 65 years). elderly males from National Cheng Kung University Hospital: Taiwan, 207 elderly males with diagnosed BPH, 2015-2017. 2015-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring on the same day they were diagnosed.	Linear Regression. Confounders adjusted for: age, body mass index (modeled continuously), and season during which the blood was collected for hormone analysis. Total testosterone and estradiol were additionally adjusted for SHBG. Urinary phthalate metabolites and 8-OHdG were additionally adjusted for urinary creatinine (liner).	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficients for: LH (95% CI): 0.89 (0.84, 0.95); InhibinB (95% CI): 0.92 (0.85, 0.98); DHEA (95% CI): 1.48 (1.31, 1.66); iNOS (95% CI): 1.44 (1.17, 1.77). Multivariate regression coefficients showed significant positive associations between the results for LH, InhibinB, DHEA, and iNOS, but showed non-significant results for FSH, SHBG, AD, E1, E2, TT, FT, DHT, MDA, 8-OHdG, PSA, and prostate volume outcomes..	Chang et. al 2019 5499417 Medium

Continued on next page ...

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
estradiol	Health Effect: Reproductive/Developmental-Sex hormone levels (luteinizing hormone, follicle-stimulating hormone, sex hormone binding globulin, inhibinB, dehydroepiandrosterone, dehydroepiandrosterone sulfate, androstenedione, estrone, estradiol, total testosterone, free testosterone, dihydrotestosterone, dihydrotestosterone/total testosterone ratio, estradiol/total testosterone ratio, estradiol/estrone ratio)-Non-cancer. Outcome measure: measured in serum	Patients in clinics. Adults (18+), Older Adults (65+). Taiwan. Male. Cross-Sectional. PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Older adults (age >= 65 years). elderly males from National Cheng Kung University Hospital: Taiwan, 207 elderly males with diagnosed BPH, 2015-2017. 2015-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring on the same day they were diagnosed.	Linear Regression. Confounders adjusted for: age, body mass index (modeled continuously), and season during which the blood was collected for hormone analysis. Total testosterone and estradiol were additionally adjusted for SHBG. Urinary phthalate metabolites and 8-OHdG were additionally adjusted for urinary creatinine (liner).	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficients for: MEHP (95% CI): 1.22 (1.11, 1.35);MEHHP (95% CI): 1.15 (1.06, 1.26);MEOHP (95% CI): 1.16 (1.04, 1.30);MECPP (95% CI): 1.19 (1.19, 1.32). Multivariate regression coefficients showed significant positive associations between the results for E2 and MEHP, MEHHP, MEOHP, and MECPP..	Chang et. al 2019 5499417 Medium
estrone	Health Effect: Reproductive/Developmental-Sex hormone levels (luteinizing hormone, follicle-stimulating hormone, sex hormone binding globulin, inhibinB, dehydroepiandrosterone, dehydroepiandrosterone sulfate, androstenedione, estrone, estradiol, total testosterone, free testosterone, dihydrotestosterone, dihydrotestosterone/total testosterone ratio, estradiol/total testosterone ratio, estradiol/estrone ratio)-Non-cancer. Outcome measure: measured in serum	Patients in clinics. Adults (18+), Older Adults (65+). Taiwan. Male. Cross-Sectional. PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Older adults (age >= 65 years). elderly males from National Cheng Kung University Hospital: Taiwan, 207 elderly males with diagnosed BPH, 2015-2017. 2015-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring on the same day they were diagnosed.	Linear Regression. Confounders adjusted for: age, body mass index (modeled continuously), and season during which the blood was collected for hormone analysis. Total testosterone and estradiol were additionally adjusted for SHBG. Urinary phthalate metabolites and 8-OHdG were additionally adjusted for urinary creatinine (liner).	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient for MEOHP (95% CI): 1.05 (1.00, 1.12). Multivariate regression coefficients showed significant positive associations between the results for E1 and MEOHP..	Chang et. al 2019 5499417 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
dihydrotestosterone	Health Effect: Reproductive/Developmental-Sex hormone levels (luteinizing hormone, follicle-stimulating hormone, sex hormone binding globulin, inhibinB, dehydroepiandrosterone, dehydroepiandrosterone sulfate, androstenedione, estrone, estradiol, total testosterone, free testosterone, dihydrotestosterone, dihydrotestosterone/total testosterone ratio, estradiol/total testosterone ratio, estradiol/estrone ratio)-Non-cancer. Outcome measure: measured in serum	Patients in clinics. Adults (18+), Older Adults (65+). Taiwan. Male. Cross-Sectional. PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Older adults (age >= 65 years). elderly males from National Cheng Kung University Hospital: Taiwan, 207 elderly males with diagnosed BPH, 2015-2017. 2015-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring on the same day they were diagnosed.	Linear Regression. Confounders adjusted for: age, body mass index (modeled continuously), and season during which the blood was collected for hormone analysis. Total testosterone and estradiol were additionally adjusted for SHBG. Urinary phthalate metabolites and 8-OHdG were additionally adjusted for urinary creatinine (liner).	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient for: MEHP (95% CI): 1.12 (1.04, 1.20)MEHHP (95% CI): 1.11 (1.04, 1.18)MEOH (95% CI): 1.13 (1.04, 1.22)MECPP (95% CI): 1.12 (1.04, 1.21). Multivariate regression coefficients showed significant positive associations between the results for DHT and MEHP, MEHHP, MEOHP, and MECPP..	Chang et. al 2019 5499417 Medium
inducible nitric oxide synthetase	Health Effect: Other (please specify below) (Oxidative stress/Inflammation)-Oxidative stress/Inflammation (malondialdehyde, inducible nitric oxide synthetase, 8-hydroxy-2'-deoxyguanosine)-Non-cancer. Outcome measure: measured in serum	Patients in clinics. Adults (18+), Older Adults (65+). Taiwan. Male. Cross-Sectional. PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Older adults (age >= 65 years). elderly males from National Cheng Kung University Hospital: Taiwan, 207 elderly males with diagnosed BPH, 2015-2017. 2015-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring on the same day they were diagnosed.	Linear Regression. Confounders adjusted for: age, body mass index (modeled continuously), and season during which the blood was collected for hormone analysis. Total testosterone and estradiol were additionally adjusted for SHBG. Urinary phthalate metabolites and 8-OHdG were additionally adjusted for urinary creatinine (liner).	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient for MEHP (95% CI): 1.32 (1.04, 1.68)MEHHP (95% CI): 1.31 (1.01, 1.72)MEOHP (95% CI): 1.58 (1.10, 2.28)MECPP (95% CI): 1.42 (1.00, .00). Multivariate regression coefficients statistically significant positive associations between the results for iNOS and MEHP, MEHHP, MEOHP, and MECPP..	Chang et. al 2019 5499417 Medium

Continued on next page ...

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
8-hydroxy-2'-deoxyguanosine	Health Effect: Other (please specify below) (Oxidative stress/Inflammation)-Oxidative stress/Inflammation (malondialdehyde, inducible nitric oxide synthetase, 8-hydroxy-2'-deoxyguanosine)-Non-cancer. Outcome measure: measured in serum	Patients in clinics. Adults (18+), Older Adults (65+). Taiwan. Male. Cross-Sectional. PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Older adults (age >= 65 years). elderly males from National Cheng Kung University Hospital: Taiwan, 207 elderly males with diagnosed BPH, 2015-2017. 2015-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring on the same day they were diagnosed.	Linear Regression. Confounders adjusted for: age, body mass index (modeled continuously), and season during which the blood was collected for hormone analysis. Total testosterone and estradiol were additionally adjusted for SHBG. Urinary phthalate metabolites and 8-OHdG were additionally adjusted for urinary creatinine (liner).	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficients for MEHP (95% CI): 1.09 (0.94, 1.25)MEHHP (95% CI): 1.15 (1.02, 1.31)MEOHP (9% CI): 1.24 (1.06, 1.45)MECPP (95% CI): 1.19 (1.03, 1.38). Multivariate regression coefficients statistically significant positive associations between the results for 8-OHdG and MEHP, MEHHP, MEOHP, and MECPP..	Chang et. al 2019 5499417 Medium
prostate specific antigen	Health Effect: Reproductive/Developmental-benign prostatic hyperplasia (prostate specific antigen, prostate volume)-Non-cancer. Outcome measure: measured in serum	Patients in clinics. Adults (18+), Older Adults (65+). Taiwan. Male. Cross-Sectional. PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Older adults (age >= 65 years). elderly males from National Cheng Kung University Hospital: Taiwan, 207 elderly males with diagnosed BPH, 2015-2017. 2015-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring on the same day they were diagnosed.	Linear Regression. Confounders adjusted for: age, body mass index (modeled continuously), and season during which the blood was collected for hormone analysis. Total testosterone and estradiol were additionally adjusted for SHBG. Urinary phthalate metabolites and 8-OHdG were additionally adjusted for urinary creatinine (liner).	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficients for MEHP (95% CI): 1.37 (1.16, 1.61)MEHHP (95% CI): 1.25 (1.09, 1.43)MEOHP (95% CI): 1.42 (1.23, 1.64)MECPP (95% CI): 1.33 (1.12, 1.58). Multivariate regression coefficients statistically significant positive associations between the results for PSA and MEHP, MEHHP, MEOHP, and MECPP..	Chang et. al 2019 5499417 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
prostate volume	Health Effect: Reproductive/Developmental-benign prostatic hyperplasia (prostate specific antigen, prostate volume)-Non-cancer. Outcome measure: measured in serum	Patients in clinics. Adults (18+), Older Adults (65+). Taiwan. Male. Cross-Sectional. PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Older adults (age >= 65 years). elderly males from National Cheng Kung University Hospital: Taiwan, 207 elderly males with diagnosed BPH, 2015-2017. 2015-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring on the same day they were diagnosed.	Linear Regression. Confounders adjusted for: age, body mass index (modeled continuously), and season during which the blood was collected for hormone analysis. Total testosterone and estradiol were additionally adjusted for SHBG. Urinary phthalate metabolites and 8-OHdG were additionally adjusted for urinary creatinine (liner).	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficients for MEHP (95% CI): 1.19 (1.09, 1.29)MEHHP (95% CI): 1.17 (1.09, 1.26)MEOHP (95% CI): 1.26 (1.18, 1.36)MECPP (95% CI): 1.23 (1.13, 1.34). Multivariate regression coefficients statistically significant positive associations between the results for prostate volume and MEHP, MEHHP, MEOHP, and MECPP..	Chang et. al 2019 5499417 Medium
Renal function parameters (albumin-to-creatinine ratio (ACR), beta2-microglobulin (B2M), N-acetyl-beta-d-glucosaminidase (NAG))	Health Effect: Renal/Kidney-Renal function parameters (albumin-to-creatinine ratio (ACR), beta2-microglobulin (B2M), N-acetyl-beta-d-glucosaminidase (NAG))-Non-cancer. Outcome measure: Single spot urine samples	General public. Adults (18+), Older Adults (65+). China; Shanghai. Female, Male. Cross-Sectional. PESS: . Adult participants in the Shanghai Food Consumption Survey with complete information on demographic characteristics and health status and sufficient urine samples (n=1663). Shanghai Food Consumption Survey (SHFCS). 2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in single spot urine sample during 2012 cycle of the Shanghai Food Consumption Survey.	Linear Regression. Confounders adjusted for: age, sex, ethnicity, education, occupation, physical activity, marital status, smoking status, drinking, BMI, diabetes, systolic blood pressure, diastolic blood pressure, nutrients.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) for albumin to creatinine ratio (ACR):MEHP: 0.095 (0.072, 0.118)MEOHP: 0.022 (0.002, 0.043)MECPP: 0.112 (0.076, 0.148)MEHHP: 0.046 (0.029, 0.063)MCMHP: 0.043 (0.016, 0.070)Regression coefficient (95% CI) for beta2-microglobulin (B2M): MEHP: 0.140 (0.107, 0.173)MEOHP: 0.063 (0.033, 0.092)MECPP: 0.114 (0.061, 0.167)MEHHP: 0.051 (0.026, 0.076)MCMHP: 0.049 (0.010, 0.088)Regression coefficient (95% CI) for N-acetyl beta-d-glucosaminidase (NAG):MEHP: 0.059 (0.041, 0.077)MEOHP: 0.048 (0.032, 0.064)MECPP: 0.114 (0.086, 0.142)MEHHP: 0.028 (0.014, 0.041)MCMHP: 0.046 (0.025, 0.067). Significant positive associations between all DEHP metabolites and all three renal function outcomes. Results were similar in analyses where outcomes were dichotomized, as well as in dichotomized analyses where the outcome was potentially impaired renal function (PIRF, defined as at least one parameter above the 90th percentile)..	Chen et. al 2019 5041222 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Renal function parameters (albumin-to-creatinine ratio (ACR), beta2-microglobulin (B2M), N-acetyl-beta-d-glucosaminidase (NAG))	Health Effect: Renal/Kidney-Renal function parameters (albumin-to-creatinine ratio (ACR), beta2-microglobulin (B2M), N-acetyl-beta-d-glucosaminidase (NAG))-Non-cancer. Outcome measure: Single spot urine samples	General public. Adults (18+), Older Adults (65+). China; Shanghai. Female, Male. Cross-Sectional. PESS: . Adult participants in the Shanghai Food Consumption Survey with complete information on demographic characteristics and health status and sufficient urine samples (n=1663). Shanghai Food Consumption Survey (SHFCS). 2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in single spot urine sample during 2012 cycle of the Shanghai Food Consumption Survey.	Linear Regression. Confounders adjusted for: age, sex, ethnicity, education, occupation, physical activity, marital status, smoking status, drinking, BMI, diabetes, systolic blood pressure, diastolic blood pressure, nutrients.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) for albumin to creatinine ratio (ACR):MBzP: 0.060 (0.040, 0.081)Regression coefficient (95% CI) for beta2-microglobulin (B2M): MBzP: 0.099 (0.069, 0.128)Regression coefficient (95% CI) for N-acetyl beta-d-glucosaminidase (NAG):MBzP: 0.080 (0.064, 0.095). Significant positive associations between MBzP and all renal function outcomes. Results were similar in analyses where outcomes were dichotomized, as well as in dichotomized analyses where the outcome was potentially impaired renal function (PIRF, defined as at least one parameter above the 90th percentile)..	Chen et. al 2019 5041222 Medium
Renal function parameters (albumin-to-creatinine ratio (ACR), beta2-microglobulin (B2M), N-acetyl-beta-d-glucosaminidase (NAG))	Health Effect: Renal/Kidney-Renal function parameters (albumin-to-creatinine ratio (ACR), beta2-microglobulin (B2M), N-acetyl-beta-d-glucosaminidase (NAG))-Non-cancer. Outcome measure: Single spot urine samples	General public. Adults (18+), Older Adults (65+). China; Shanghai. Female, Male. Cross-Sectional. PESS: . Adult participants in the Shanghai Food Consumption Survey with complete information on demographic characteristics and health status and sufficient urine samples (n=1663). Shanghai Food Consumption Survey (SHFCS). 2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in single spot urine sample during 2012 cycle of the Shanghai Food Consumption Survey.	Linear Regression. Confounders adjusted for: age, sex, ethnicity, education, occupation, physical activity, marital status, smoking status, drinking, BMI, diabetes, systolic blood pressure, diastolic blood pressure, nutrients.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) for albumin to creatinine ratio (ACR):MnBP: -0.015 (-0.025, -0.006)Regression coefficient (95% CI) for beta2-microglobulin (B2M): MnBP: -0.040 (-0.054, -0.027)Regression coefficient (95% CI) for N-acetyl beta-d-glucosaminidase (NAG):MnBP: -0.016 (-0.023, -0.009). Significant inverse associations between MnBP and all three renal function outcomes. Results were similar in analyses where outcomes were dichotomized, as well as in dichotomized analyses where the outcome was potentially impaired renal function (PIRF, defined as at least one parameter above the 90th percentile)..	Chen et. al 2019 5041222 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Renal function parameters (albumin-to-creatinine ratio (ACR), beta2-microglobulin (B2M), N-acetyl-beta-d-glucosaminidase (NAG))	Health Effect: Renal/Kidney-Renal function parameters (albumin-to-creatinine ratio (ACR), beta2-microglobulin (B2M), N-acetyl-beta-d-glucosaminidase (NAG))-Non-cancer. Outcome measure: Single spot urine samples	General public. Adults (18+), Older Adults (65+). China; Shanghai. Female, Male. Cross-Sectional. PESS: . Adult participants in the Shanghai Food Consumption Survey with complete information on demographic characteristics and health status and sufficient urine samples (n=1663). Shanghai Food Consumption Survey (SHFCS). 2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in single spot urine sample during 2012 cycle of the Shanghai Food Consumption Survey.	Linear Regression. Confounders adjusted for: age, sex, ethnicity, education, occupation, physical activity, marital status, smoking status, drinking, BMI, diabetes, systolic blood pressure, diastolic blood pressure, nutrients.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) for albumin to creatinine ratio (ACR):MiBP: -0.013 (-0.024, -0.001)Regression coefficient (95% CI) for beta2-microglobulin (B2M): MiBP: -0.047 (-0.064, -0.030)Regression coefficient (95% CI) for N-acetyl beta-d-glucosaminidase (NAG):MiBP: -0.016 (-0.025, -0.007). Significant inverse associations between MiBP and all three renal function outcomes. Results were similar in analyses where outcomes were dichotomized, as well as in dichotomized analyses where the outcome was potentially impaired renal function (PIRF, defined as at least one parameter above the 90th percentile)..	Chen et. al 2019 5041222 Medium
Time from ovulation to implantation, hCG rise, type of corpus luteum "rescue" (sustained ovarian progesterone production)	Health Effect: Reproductive/Developmental-Early pregnancy outcome measures: time from ovulation to implantation, pattern of human chorionic gonadotropin (hCG) hormone rise (an early indicator of pregnancy), and type of ovarian corpus luteum "rescue" (timing and pattern of ovarian progesterone rise, necessary for maintaining an early pregnancy)-Non-cancer. Outcome measure: Urinary measures of major metabolites of estrogen (estrone 3-glucuronide (E1G)) and progesterone (pregnanediol 3-glucuronide (PdG), along with human chorionic gonadotropin (hCG) hormone.	Pregnant people. Adults (18+). United States; North Carolina. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). 137 healthy women without known fertility problems in the North Carolina Early Pregnancy Study, 1982-1986. Women enrolled from the time they discontinued birth control and followed for up to 6 months for the occurrence of a clinical pregnancy.. North Carolina Early Pregnancy Study (EPS). 1982-1986.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Short-term (between 24 hours and less than 28 days) Exposure measured during the conception cycle.	Linear Regression. Confounders adjusted for: None (considered but excluded age, smoking status, BMI).	Lowest exposure concentration for a significant adverse health outcome response: >32.2 ng/mg creatinine. Elevated MBzP (above the median) was associated with a significantly faster rate of hCG rise (p=0.04) [Figure 1, quantitative effect estimates not shown].. -Elevated MBzP (above the median) was associated with a significantly faster rate of hCG rise (p=0.04). -Time from ovulation to implantation and type of corpus luteum rescue were not significantly associated with MBzP..	Chin et. al 2019 5043528 Medium

Continued on next page ...

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Time from ovulation to implantation, hCG rise, type of corpus luteum "rescue" (sustained ovarian progesterone production)	Health Effect: Reproductive/Developmental-Early pregnancy outcome measures: time from ovulation to implantation, pattern of human chorionic gonadotropin (hCG) hormone rise (an early indicator of pregnancy), and type of ovarian corpus luteum "rescue" (timing and pattern of ovarian progesterone rise, necessary for maintaining an early pregnancy)-Non-cancer. Outcome measure: Urinary measures of major metabolites of estrogen (estrone 3-glucuronide (E1G)) and progesterone (pregnanediol 3-glucuronide (PdG), along with human chorionic gonadotropin (hCG) hormone.	Pregnant people. Adults (18+). United States; North Carolina. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). 137 healthy women without known fertility problems in the North Carolina Early Pregnancy Study, 1982-1986. Women enrolled from the time they discontinued birth control and followed for up to 6 months for the occurrence of a clinical pregnancy.. North Carolina Early Pregnancy Study (EPS). 1982-1986.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Short-term (between 24 hours and less than 28 days) Exposure measured during the conception cycle.	Logistic Regression. Confounders adjusted for: None (considered but excluded age, smoking status, BMI).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. OR (95% CI) per unit increase in ln-transformed MiBP and time from ovulation to implantation (ref = 9 days): -Early implantation (6-8 days) = 2.09 (1.18, 3.69)-Late implantation (10-12 days) = 0.79 (0.35, 1.82). -MiBP was associated increased odds of a significantly earlier time from ovulation to implantation. -There was no significant associations between MiBP and either hCG rise or type of corpus luteum rescue..	Chin et. al 2019 5043528 Medium
TT3/TT4 Ratio	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in plasma	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, season of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta coefficient (95% CI) for change in TT3/TT4 per IQR increase in MiBP: 0.15 (-0.18, 0.48). Non-significant association between MiBP and the absolute difference in TT3/TT4 levels. The authors also reported similar results from BKMR analyses..	Choi et. al 2021 7978495 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
TT3 (ng/dL)	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in plasma	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, season of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta coefficient (95% CI) for change in TT3 per IQR increase in MiBP: 1.63 (-2.16, 5.43). Non-significant association between MiBP and the absolute difference in TT3 levels. The authors also reported similar results from BKMR analyses..	Choi et. al 2021 7978495 Medium
Absolute difference in TT4 (ug/dL)	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in plasma	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, season of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta coefficient (95% CI) for change in TT4 per IQR increase in MiBP: 0.02 (-0.18, 0.23). Non-significant association between MiBP and the absolute difference in TT4 levels. The authors also reported similar results from BKMR analyses..	Choi et. al 2021 7978495 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Absolute difference in TSH (mU/L)	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in blood	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, season of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. TSH for MiBPGLM: 0.04 (-0.08, 0.16). Non-significant association between MiBP and the absolute difference in TSH levels. The authors also report results from BKMR (exact) and BKMR (approx) analyses..	Choi et. al 2021 7978495 Medium
Absolute difference in TT3/TT4 Ratio	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in plasma	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, deason of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta coefficient (95% CI) for change in TT3/TT4 per IQR increase in MBzP: -0.08 (-0.40, 0.25). Non-significant association between MBzP and the absolute difference in TT3/TT4 levels. The authors also reported similar results from BKMR analyses..	Choi et. al 2021 7978495 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Absolute difference in TT3 (ng/dL)	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in plasma	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, season of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta coefficient (95% CI) for change in TT3 per IQR increase in MBzP: 2.43 (-1.28, 6.14). Non-significant association between MBzP and the absolute difference in TT3 levels. The authors also reported similar results from BKMR analyses..	Choi et. al 2021 7978495 Medium
Absolute difference in TT4 (ug/dL)	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in plasma	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, season of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta coefficient (95% CI) for change in TT4 per IQR increase in MBzP: 0.18 (-0.01, 0.38). Non-significant association between MBzP and the absolute difference in TT4 levels. The authors also reported similar results from BKMR analyses..	Choi et. al 2021 7978495 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Absolute difference in TSH (mU/L)	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in plasma	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, deason of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta coefficient (95% CI) for change in TSH per IQR increase in MBzP: -0.02 (-0.14, 0.10). Non-significant association between MBzP and the absolute difference in TSH levels. The authors also reported similar results from BKMR analyses..	Choi et. al 2021 7978495 Medium
Absolute difference in TT3/TT4 Ratio	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in plasma	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, season of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta coefficient (95% CI) for change in TT3/TT4 per IQR increase in MnBP: 0.15 (-0.14, 0.44). Non-significant association between MnBP and the absolute difference in TT3/TT4 levels. The authors also reported similar results from BKMR analyses..	Choi et. al 2021 7978495 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Absolute difference in TT3 (ng/dL)	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in plasma	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, season of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta coefficient (95% CI) for change in TT3 per IQR increase in MnBP: 0.96 (-2.38, 4.29). Non-significant association between MnBP and the absolute difference in TT3 levels. The authors also reported similar results from BKMR analyses..	Choi et. al 2021 7978495 Medium
Absolute difference in TT4 (ug/dL)	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in plasma	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, season of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta coefficient (95% CI) for change in TT4 per IQR increase in MnBP: -0.03 (-0.21, 0.15). Non-significant association between MnBP and the absolute difference in TT4 levels. The authors also reported similar results from BKMR analyses..	Choi et. al 2021 7978495 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Absolute difference in TSH (mU/L)	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in plasma	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, season of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta coefficient (95% CI) for change in TSH per IQR increase in MnBP: -0.02 (-0.12, 0.09). Non-significant association between MnBP and the absolute difference in TSH levels. The authors also reported similar results from BKMR analyses..	Choi et. al 2021 7978495 Medium
Absolute difference in TT3/TT4 Ratio	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in plasma	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, season of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. TT3/TT4 for sum of DEHP metabolitesGLM: 0.04 (-0.17, 0.26). Non-significant association between the sum of DEHP metabolites and the absolute difference in TT3/TT4 levels. The authors also reported similar results from BKMR analyses..	Choi et. al 2021 7978495 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Absolute difference in TT3 (ng/dL)	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in plasma	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, season of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. TT3 for sum of DEHP metabolitesGLM: -0.47 (-2.94, 2.01). Non-significant association between sum of DEHP metabolites and the absolute difference in TT3 levels. The authors also reported similar results from BKMR analyses..	Choi et. al 2021 7978495 Medium
Absolute difference in TT4 (ug/dL)	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in plasma	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, season of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta coefficient (95% CI) for change in TT4 per IQR increase in the sum of DEHP metabolites: -0.07 (-0.20, 0.06). Non-significant association between the sum of DEHP metabolites and the absolute difference in TT4 levels. The authors also reported similar results from BKMR analyses..	Choi et. al 2021 7978495 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Absolute difference in TSH (mU/L)	Health Effect: Thyroid-Thyroid function: total triiodothyronine (TT3), total thyroxine (TT4), TT3:TT4 ratio, thyroid stimulating hormone (TSH), thyroid peroxidase autoantibodies (TPOAb)-Non-cancer. Outcome measure: Thyroid function markers measured in plasma	Patients in clinics, Pregnant people. Adults (18+). Norway. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Women who had a singleton birth and lived close to Oslo (Enrolled n=33050; Used in analysis n=473). Norwegian Mother, Father, and Child Cohort (MoBa). 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during a routine prenatal ultrasound visit.	Generalized linear mixed model. Confounders adjusted for: year, dietary selenium, dietary iodine, parity, depression, season of urine collection, education, age, smoking during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta coefficient (95% CI) for change in TSH per IQR increase in the sum of DEHP metabolites: 0.02 (-0.06, 0.10). Non-significant association between the sum of DEHP metabolites and the absolute difference in TSH levels. The authors also reported similar results from BKMR analyses..	Choi et. al 2021 7978495 Medium

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Executive Function, Behavior and Cognition	Health Effect: Neurological/Behavioral-Executive function symptoms-Non-cancer. Outcome measure: Parent and teacher ratings and a one-day clinical exam (standardized assessment tools used included BRIEF-P, Stanford-Binet IV short version, NEPSY, CDT)	General public, Pregnant people. Preschool (3-5). Norway. Female, Male. Cohort (Prospective). PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Children aged 3-5 years in a sub-study of a prospective birth cohort, selected to include a group with high and another with low ratings for ADHD-like symptoms on standardized quesestionnaires. MoBa (Norwegian Mother, Father, and Child Cohort) birth cohort. Children born after April 1, 2004; Follow-up at age 3-4 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Linear Regression. Confounders adjusted for: maternal ADHD, BMI, age at delivery, parity, childbirth year, and child sex, specific gravity, and analytic batch effect.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI) for change in scores per IQR increase in MBzP. 1. Behavior Rating Inventory of Executive Function-Preschool (BRIEF-P): -Emotional control, teacher rating: 1.23 (0.31, 2.15). -Working memory, teacher rating: 1.13 (0.14, 2.13). -Emotional control, parent rating: 1.67 (0.89, 2.45); boys = 2.51 (1.47, 3.55), girls = 0.67 (- 0.46, 1.81) sex int. p=0.02. -Inhibition, parent rating: 1.00 (0.03, 1.98); boys = 1.50 (0.20,2.81), girls = 0.41 (-1.02, 1.83), sex int. p=0.26. -Working memory, parent rating: overall ns; boys = 1.52 (0.14,2.90), girls = 0.88 (-0.62, 2.39), sex int. p=0.53. 2. Clinic assessments (Stanford-Binet [SB5}, Cookie Delay Task [CDT] or NEPSY statue task: -Non-verbal working memory, SB5: 0.19 (0.09, 0.28); boys = 0.14 (0.01, 0.27), girls = 0.24 (0.09, 0.38), sex int. p=0.32. -Verbal working memory, SB5: 0.13 (0.01, 0.25); boys =0.17 (0.03, 0.31), girls = 0.03 (-0.18, 0.25), sex int. p=0.28. -Inhibition, NEPSY: 0.18 (0.08, 0.28); boys = 0.09 (-0.04,0.23), girls = 0.27 (0.13, 0.42), sex int. p=0.07.. Prenatal MBzP was significantly associated with higher parent and teacher ratings of preschool executive function and cognition, including poorer emotional control, working memory, and inhibition. Associations were stronger among boys for parent-reported emotional control. Higher MBzP was also associated with poorer ratings for clinical assessments of executive function and cognition, including working memory (verbal and non-verbal) and inhibition..	Choi et. al 2021 8010273 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Executive Function, Behavior and Cognition	Health Effect: Neurological/Behavioral-Executive function symptoms-Non-cancer. Outcome measure: Parent and teacher ratings and a one-day clinical exam (standardized assessment tools used included BRIEF-P, Stanford-Binet IV short version, NEPSY, CDT)	General public, Pregnant people. Preschool (3-5). Norway. Female, Male. Cohort (Prospective). PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Children aged 3-5 years in a sub-study of a prospective birth cohort, selected to include a group with high and another with low ratings for ADHD-like symptoms on standardized quesestionnaires. MoBa (Norwegian Mother, Father, and Child Cohort) birth cohort. Children born after April 1, 2004; Follow-up at age 3-4 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Linear Regression. Confounders adjusted for: maternal ADHD, BMI, age at delivery, parity, childbirth year, and child sex, specific gravity, and analytic batch effect.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI) for change in scores per IQR increase in MnBP. Behavior Rating Inventory of Executive Function-Preschool (BRIEF-P): -Emotional control, parent rating: 1.56 (0.88, 2.23); boys = 2.04 (1.23, 2.84), girls = 0.48 (- 0.72, 1.67), sex int. p=0.03. -Inhibition, parent rating: 1.70 (0.88, 2.53); boys = 2.74 (1.77,3.72), girls = 0.63 (-2.08, 0.83). sex int. p=<0.01. -Working memory, parent rating: 1.49 (0.60, 2.37); boys =2.91 (1.89, 3.94), girls = -1.72 (-3.25, - 0.19) sex int. p=<0.01. Clinic assessments (Stanford-Binet [SB5}, Cookie Delay Task [CDT] or NEPSY statue task: -Self-control, CDT: 0.20 (0.12, 0.28); boys = 0.29 (0.19, 0.39) girls = -0.003 (-0.15, 0.15), sex int. p=<0.01. -Inhibition, NEPSY: 0.13 (0.05, 0.22); boys = 0.14 (0.04, 0.24), girls = 0.11 (- 0.06, 0.27), sex int. p=0.71. -Verbal working memory, SB5: overall ns; boys = 0.16 (0.06,0.27), girls =0.16 (-0.31, - 0.01), sex int. p=<0.01.. Prenatal MBnP was associated with significantly higher parent ratings of preschool executive function and cognition, including poorer emotional control, working memory, and inhibition. Associations were significantly stronger among boys for emotional control, inhibition and working memory. Higher MBnP was also associated with poorer ratings for clinical assessments of executive function and cognition, including self-control and inhibition; associations with self-control were limited to boys. MBnP was also associated with clinically assessed working memory problems in boys..	Choi et. al 2021 8010273 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Executive Function, Behavior and Cognition	Health Effect: Neurological/Behavioral-Executive function symptoms-Non-cancer. Outcome measure: Parent and teacher ratings and a one-day clinical exam (standardized assessment tools used included BRIEF-P, Stanford-Binet IV short version, NEPSY, CDT)	General public, Pregnant people. Preschool (3-5). Norway. Female, Male. Cohort (Prospective). PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Children aged 3-5 years in a sub-study of a prospective birth cohort, selected to include a group with high and another with low ratings for ADHD-like symptoms on standardized quesestionnaires. MoBa (Norwegian Mother, Father, and Child Cohort) birth cohort. Children born after April 1, 2004; Follow-up at age 3-4 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Linear Regression. Confounders adjusted for: maternal ADHD, BMI, age at delivery, parity, childbirth year, and child sex, specific gravity, and analytic batch effect.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI) for change in scores per IQR increase in MiBP. Behavior Rating Inventory of Executive Function-Preschool (BRIEF-P): -Emotional control, parent rating: 0.89 (0.34, 1.44); boys =2.16 (1.32, 2.99), girls = -0.03 (-0.74, 0.68), sex int. p=<0.01. -Inhibition, parent rating: 0.71 (0.03, 1.39); boys = 1.88 (0.84, 2.92), girls = -0.15 (-1.04, 0.74), sex int. p=<0.01. -Working memory, teacher rating: overall ns; boys = 1.33 (2.40, 0.26), girls = 0.69 (-0.22, 1.59), sex int p<0.01. Clinic assessments (Stanford-Binet [SB5}, Cookie Delay Task [CDT] or NEPSY statue task: -Inhibition, NEPSY: overall ns; boys = -0.18 (0.29, 0.08), girls = 0.12 (0.01, 0.24), sex int. p=<0.01. -Non-verbal working memory, SB5: overall ns; boys = 0.17 (0.06,0.28), girls = -0.05(-0.15, 0.04), sex int. p=<0.01.. Prenatal MiBP was associated with significantly higher parent ratings of preschool executive function and cognition. This included ratings for poor emotional control and inhibition. Associations were stronger among boys vs. girls for parent-reported emotional control and inhibition. MiBP was also associated with significantly higher teacher ratings for working memory symptoms in boys. Higher MiBP was also associated with significantly poorer ratings for clinical assessments of inhibition in girls, and non-verbal working memory in boys..	Choi et. al 2021 8010273 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
fasting glucose, fasting insulin, HbA1c, HOMA-IR, HOMA-beta	Health Effect: Nutritional/Metabolic- Measures of glucose and insulin metabolism among individuals without diagnosed diabetes: fasting glucose, fasting insulin, glycated hemoglobin (HbA1c), homeostasis model assessment for insulin resistance (HOMA-IR), homeostasis model assessment for beta cell function (HOMA-β)- Non-cancer. Outcome measure: Fasting serum samples	General public. Teens (12-17), Adults (18+), Older Adults (65+). Canada. Female, Male. Cross-Sectional. PESS: . 2,119 participants between 12 and 79 years old without self-reported diagnosed diabetes. Canadian Health Measures Survey (CHMS), cycle 2 (2009–2011). 2009–2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure and outcome measured concurrently.	Linear Regression. Confounders adjusted for: age, sex, ethnicity, urinary creatinine, cigarette smoking, alcohol use, and physical exercise.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI) per 1 IQR increase:-MEHHP: HbA1c % = 0.03 (0.00, 0.06); glucose (mmol/L) 0.04 (0.01, 0.08); HOMA-IR =0.15 (0.05, 0.26); HOMA-beta % = 7.30 (1.23, 13.36). -MEHPP: HbA1c % = 0.04 (0.01, 0.08); HOMA-beta % = 10.55 (3.72, 17.38).- MEOHP: HOMA-IR = 0.15 (0.05, 0.26); HOMA-beta % =10.87 (4.92, 16.82) -Sum DEHP: HbA1c % =0.04 (0.01, 0.07); glucose (mmol/L) 0.04 (0.00, 0.08); HOMA-IR =0.15 (0.04, 0.26); HOMA-beta % = 10.24 (3.71, 16.77); insulin (pmol/L) = 0.63 (0.21, 1.05).. The sum of DEHP metabolites was associated with significant increases in fasting glucose, HbA1c (an indicator of long-term glucose control), and HOMA-IR (an indicator of insulin resistance), as well as a higher level of fasting insulin, and higher HOMA-beta (an indicator of beta-cell function)..	Dales et. al 2018 4728651 Medium
fasting glucose, fasting insulin, HbA1c, HOMA-IR, HOMA-beta	Health Effect: Nutritional/Metabolic- Measures of glucose and insulin metabolism among individuals without diagnosed diabetes: fasting glucose, fasting insulin, glycated hemoglobin (HbA1c), homeostasis model assessment for insulin resistance (HOMA-IR), homeostasis model assessment for beta cell function (HOMA-β)- Non-cancer. Outcome measure: Fasting serum samples	General public. Teens (12-17), Adults (18+), Older Adults (65+). Canada. Female, Male. Cross-Sectional. PESS: . 2,119 participants between 12 and 79 years old without self-reported diagnosed diabetes. Canadian Health Measures Survey (CHMS), cycle 2 (2009–2011). 2009–2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure and outcome measured concurrently.	Linear Regression. Confounders adjusted for: age, sex, ethnicity, urinary creatinine, cigarette smoking, alcohol use, and physical exercise.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI) per 1 IQR increase MnBP for HOMA-beta % = 7.30 (1.23, 13.36).. Urinary MnBP was associated with a significant increase HOMA-beta % (an indicator of beta-cell function)..	Dales et. al 2018 4728651 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
fasting glucose, fasting insulin, HbA1c, HOMA-IR, HOMA-beta	Health Effect: Nutritional/Metabolic- Measures of glucose and insulin metabolism among individuals without diagnosed diabetes: fasting glucose, fasting insulin, glycated hemoglobin (HbA1c), homeostasis model assessment for insulin resistance (HOMA-IR), homeostasis model assessment for beta cell function (HOMA-β)- Non-cancer. Outcome measure: Fasting serum samples	General public. Teens (12-17), Adults (18+), Older Adults (65+). Canada. Female, Male. Cross-Sectional. PESS: . 2,119 participants between 12 and 79 years old without self-reported diagnosed diabetes. Canadian Health Measures Survey (CHMS), cycle 2 (2009–2011). 2009–2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure and outcome measured concurrently.	Linear Regression. Confounders adjusted for: age, sex, ethnicity, urinary creatinine, cigarette smoking, alcohol use, and physical exercise.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI) per 1 IQR increase MBzP for fasting glucose = 0.03(0.02, 0.05).. Urinary MBzP was associated with a significant increase fasting glucose..	Dales et. al 2018 4728651 Medium
fasting glucose, fasting insulin, HbA1c, HOMA-IR, HOMA-beta	Health Effect: Nutritional/Metabolic- Measures of glucose and insulin metabolism among individuals without diagnosed diabetes: fasting glucose, fasting insulin, glycated hemoglobin (HbA1c), homeostasis model assessment for insulin resistance (HOMA-IR), homeostasis model assessment for beta cell function (HOMA-β)- Non-cancer. Outcome measure: Fasting serum samples	General public. Teens (12-17), Adults (18+), Older Adults (65+). Canada. Female, Male. Cross-Sectional. PESS: . 2,119 participants between 12 and 79 years old without self-reported diagnosed diabetes. Canadian Health Measures Survey (CHMS), cycle 2 (2009–2011). 2009–2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure and outcome measured concurrently.	Linear Regression. Confounders adjusted for: age, sex, ethnicity, urinary creatinine, cigarette smoking, alcohol use, and physical exercise.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI) per 1 IQR increase MiBP for fasting glucose = 0.04 (0.02, 0.06). Urinary MiBP was associated with a significant increase fasting glucose..	Dales et. al 2018 4728651 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Conners' Parent Rating Scale (CPRS) scores: 7 factors oppositional, cognitive problems/inattention, hyperactivity, anxious/shy, perfectionism, social problems, and psychosomatic.	Health Effect: Reproductive/Developmental-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer-Neurological/Behavioral-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer. Outcome measure: Parent assessment using comprehensive standardized checklist resulting in score	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Adults (18+). United States; New York City (Northern Manhattan and South Bronx). Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). African American or Dominican women from the Columbia Center for Children's Environmental Health recruited during pregnancy (analysis sample included 322 mother-child pairs). Columbia Center for Children's Environmental Health (CCEH). Recruitment: 1998-2006; Follow-up: NR (child at age 3, child at age 5).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester of pregnancy; child exposure measured at 3 years and 5 years.	Poisson Regression. Confounders adjusted for: maternal race/ethnicity, maternal demoralization at child age 7 years, child age at time of CPRS or CBCL assessment, prenatal specific gravity, CAARS inattention/memory.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Mean Ratio (95% CI) per 1 log10 unit increase for following CPRS subscales at age 7 years among girls. MEHP, hyperactivity-impulsiveness = 0.86 (0.76-0.97); MEOHP, hyperactivity-impulsiveness = 0.87 (0.76-1.01) p=0.06; MEHHP, hyperactivity-impulsiveness = 0.90 (0.78-1.03) p=0.12Mean Ratio (95% CI) per 1 log10 unit increase for following internalizing behaviors in CPRS at age 7 years among boys. MEHP, social problems = 1.35 (1.07-1.7)Mean Ratio (95% CI) for 1 log10 unit increase for following externalizing and attention related behaviors at age 7 years among girls. MEOHP, hyperactivity (lower scores) = 0.83 (0.71-0.98); MEHHP, hyperactivity (lower scores) = 0.85 (0.72-0.99); MECPP, hyperactivity (lower scores) = 0.84 (0.73-0.95); MEHP, ADHD index = 0.9 (0.8-1.03)Mean Ratio (95% CI) for 1 log10 unit increase for following internalizing behaviors at age 5 years among girls. MEOHP, social problems = 1.45 (1.14-1.84); MEHHP, social problems = 1.39 (1.1-1.75); MECPP, social problems = 1.39 (1.07-1.79); MEHP, social problems = 1.28 (1.06 - 1.56). MEOHP, emotional liability = 1.31 (1.09 - 1.58); MEHHP, emotional liability = 1.28 (1.07 - 1.53); MECPP, emotional liability = 1.36 (1.11 - 1.66); MEHP, emotional liability = 1.18 (1.01 - 1.39). MEHP, MEOHP, and MEHHP were associated with lower scores of hyperactivity and impulsivity among girls. MEHP was associated with social problems among boys.MEOHP, MEHHP, MECPP, and MEHP were associated with lower scores of hyperactivity among girls. Increased concentrations of MEHP were associated with lower scores on the ADHD index. MEOHP, MEHHP, MECPP, and MEHP were associated with greater social problems and emotional lability among 5-year-old girls..	Daniel et. al 2020 8204339 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Conners' Parent Rating Scale (CPRS) scores: 7 factors oppositional, cognitive problems/inattention, hyperactivity, anxious/shy, perfectionism, social problems, and psychosomatic.	Health Effect: Reproductive/Developmental-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer-Neurological/Behavioral-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer. Outcome measure: Parent assessment using comprehensive standardized checklist resulting in score	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Adults (18+). United States; New York City (Northern Manhattan and South Bronx). Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). African American or Dominican women from the Columbia Center for Children's Environmental Health recruited during pregnancy (analysis sample included 322 mother-child pairs). Columbia Center for Children's Environmental Health (CCEH). Recruitment: 1998-2006; Follow-up: NR (child at age 3, child at age 5).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester of pregnancy; child exposure measured at 3 years and 5 years.	Poisson Regression. Confounders adjusted for: maternal race/ethnicity, maternal demoralization at child age 7 years, child age at time of CPRS or CBCL assessment, prenatal specific gravity, CAARS inattention/memory.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Mean Ratio (95% CI) per 1 log10 unit increase for following internalizing behaviors in CPRS at age 7 years among boys. MBzP, anxious-shy behavior = 1.20 (1.05-1.36).Mean Ratio (95% CI) per 1 log10 unit increase for following internalizing behaviors in CPRS at age 7 years among girls. MBzP, perfectionism = 1.15 (1.01-1.30).Mean Ratio (95% CI) per 1 log10 unit increase for following externalizing behaviors in CPRS at age 3 years among girls. MBzP, oppositional problems = 1.12 (1-1.24); MBzP, cognitive = 1.15 (1.02-1.28); MBzP, impulsivity = 1.11 (1-1.23); MBzP, ADHD index = 1.16 (1.04-1.3).Mean Ratio (95% CI) per 1 log10 unit increase for following internalizing behaviors in CPRS at age 3 years among girls. MBzP, social problems = 1.24 (1.03-1.48). MBzP was associated with anxious-shy behavior in boys and higher scores of perfectionism among girls.MBzP was associated with increased oppositional, cognitive, impulsivity, ADHD index problems and greater social problem scores..	Daniel et. al 2020 8204339 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Conners' Parent Rating Scale (CPRS) scores: 7 factors oppositional, cognitive problems/inattention, hyperactivity, anxious/shy, perfectionism, social problems, and psychosomatic.	Health Effect: Reproductive/Developmental-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer-Neurological/Behavioral-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer. Outcome measure: Parent assessment using comprehensive standardized checklist resulting in score	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Adults (18+). United States; New York City (Northern Manhattan and South Bronx). Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). African American or Dominican women from the Columbia Center for Children's Environmental Health recruited during pregnancy (analysis sample included 322 mother-child pairs). Columbia Center for Children's Environmental Health (CCEH). Recruitment: 1998-2006; Follow-up: NR (child at age 3, child at age 5).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester of pregnancy; child exposure measured at 3 years and 5 years.	Poisson Regression. Confounders adjusted for: maternal race/ethnicity, maternal demoralization at child age 7 years, child age at time of CPRS or CBCL assessment, prenatal specific gravity, CAARS inattention/memory.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Mean Ratio (95% CI) per 1 log10 unit increase for following internalizing behaviors in CPRS at age 7 years among boys. MiBP, anxious-shy behavior = 1.22 (1.02-1.47); MiBP, psychosomatic problems = 1.28 (1.02 -1.60)Mean Ratio (95% CI) per 1 log10 unit increase for following externalizing behaviors in CPRS at age 5 years among boys. MiBP, impulsiveness = 0.85 (0.73-0.99); MiBP, global index = 0.87 (0.75-1)Mean Ratio (95% CI) per 1 log10 unit increase for following internalizing behaviors in CPRS at age 5 years among girls. MiBP, social problems = 1.31 (1.03-1.66); MiBP, emotional lability = 1.27 (1.06 - 1.52). MiBP was associated with anxious-shy behavior and psychosomatic problems in boys.MiBP was associated with impulsiveness and lower Conners' Global Index score in 5-year-old boys.MiBP was associated with greater social problems and emotional lability among 5-year-old girls.Prenatal exposure to MiBP was associated with greater anxiety and depression, somatic problems, thought problems, total internalizing behavior score, and total CBCL score among boys..	Daniel et. al 2020 8204339 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Conners' Parent Rating Scale (CPRS) scores: 7 factors oppositional, cognitive problems/inattention, hyperactivity, anxious/shy, perfectionism, social problems, and psychosomatic.	Health Effect: Reproductive/Developmental-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer-Neurological/Behavioral-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer. Outcome measure: Parent assessment using comprehensive standardized checklist resulting in score	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Adults (18+). United States; New York City (Northern Manhattan and South Bronx). Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). African American or Dominican women from the Columbia Center for Children's Environmental Health recruited during pregnancy (analysis sample included 322 mother-child pairs). Columbia Center for Children's Environmental Health (CCEH). Recruitment: 1998-2006; Follow-up: NR (child at age 3, child at age 5).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester of pregnancy; child exposure measured at 3 years and 5 years.	Poisson Regression. Confounders adjusted for: maternal race/ethnicity, maternal demoralization at child age 7 years, child age at time of CPRS or CBCL assessment, prenatal specific gravity, CAARS inattention/memory.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Mean Ratio (95% CI) per 1 log10 unit increase for following internalizing behaviors in CPRS at age 7 years among girls. MnBP, psychosomatic problems = 1.28 (1.02-1.59).Mean Ratio (95% CI) per 1 log10 unit increase for following internalizing behaviors in CPRS at age 7 years among boys. MnBP, social problems = 1.34 (0.99-1.82).. MnBP was associated with social problems in boys..	Daniel et. al 2020 8204339 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Conners' Parent Rating Scale (CPRS) scores: 7 factors oppositional, cognitive problems/inattention, hyperactivity, anxious/shy, perfectionism, social problems, and psychosomatic.	Health Effect: Reproductive/Developmental-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer-Neurological/Behavioral-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer. Outcome measure: Parent assessment using comprehensive standardized checklist resulting in score	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Adults (18+). United States; New York City (Northern Manhattan and South Bronx). Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). African American or Dominican women from the Columbia Center for Children's Environmental Health recruited during pregnancy (analysis sample included 322 mother-child pairs). Columbia Center for Children's Environmental Health (CCEH). Recruitment: 1998-2006; Follow-up: NR (child at age 3, child at age 5).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester of pregnancy; child exposure measured at 3 years and 5 years.	Weighted quantile sum regression. Confounders adjusted for: maternal race/ethnicity, maternal demoralization at child age 7 years, child age at time of CPRS or CBCL assessment, prenatal specific gravity, CAARS inattention/memory.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Odds ratio (95% CI) per 1 log10 unit increase for following behavioral outcomes for CPRS scores in boys. Sum DEHP, social problems = 2.15 (1.13-4.06) p=0.02Odds ratio (95% CI) per 1 log10 unit increase for following behavioral outcomes for CPRS scores in girls. Sum DEHP, anxious shy problems = 2.19 (1.15-4.16) p=0.02 Odds ratio (95% CI) per 1 log10 unit increase for following behavioral outcomes for CPRS scores in all children. Sum DEHP, emotional lability problems = 0.61 (0.38-0.97) p=0.04Odds ratio per 1 log10 unit increase for following externalizing behaviors in CPRS in females age 3-years-old. Sum DEHP, cognitive problems = 2.58 p=0.01Odds ratio per 1 log10 unit increase for following internalizing behaviors in CPRS in all children age 5-years-old. Sum DEHP, emotional lability = 1.7 p=0.01. The sum of DEHP metabolites are significantly associated with social problems in boys, anxious shy problems in girls, and reduced odds of emotional lability problems in all children.The WQS of DEHP phthalates were associated with cognitive problems among females at age 3. The WQS of DEHP phthalates were significantly associated with increased odds of higher scores on the emotional lability score in all children age 5-years-old..	Daniel et. al 2020 8204339 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL)	Health Effect: Reproductive/Developmental-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer-Neurological/Behavioral-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer. Outcome measure: Score obtained using 118 Likert-point items with 9 subscales: anxious/depressed, withdrawn/depressed, somatic problems, thought problems, attention problems, rule-breaking behavior, aggressive behavior and other problems	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Adults (18+). United States; New York City (Northern Manhattan and South Bronx). Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). African American or Dominican women from the Columbia Center for Children's Environmental Health recruited during pregnancy (analysis sample included 322 mother-child pairs). Columbia Center for Children's Environmental Health (CCEH). Recruitment: 1998-2006; Follow-up: NR (child at age 3, child at age 5).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester of pregnancy; child exposure measured at 3 years and 5 years.	Poisson Regression. Confounders adjusted for: maternal race/ethnicity, maternal demoralization at child age 7 years, child age at time of CPRS or CBCL assessment, prenatal specific gravity, CAARS inattention/memory.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Mean Ratio (95% CI) per 1 log10 unit increase for following internalizing behaviors in CBCL among boys. MiBP, anxiety and depression = 1.26 (1.03-1.53); MiBP, somatic problems = 1.29 (1.01 - 1.66); MiBP, thought problems = 1.35 (1.07 - 1.71); MiBP, total internalizing behavior score = 1.24 (1.04 - 1.49) Mean Ratio (95% CI) per 1 log10 unit increase for following externalizing behaviors in CBCL among boys. MiBP, total CBCL score = 1.17 (1.01-1.34). Prenatal exposure to MiBP was associated with greater anxiety and depression, somatic problems, thought problems, total internalizing behavior score, and total CBCL score among boys..	Daniel et. al 2020 8204339 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL)	Health Effect: Reproductive/Developmental-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer-Neurological/Behavioral-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer. Outcome measure: Score obtained using 118 Likert-point items with 9 subscales: anxious/depressed, withdrawn/depressed, somatic problems, thought problems, attention problems, rule-breaking behavior, aggressive behavior and other problems	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Adults (18+). United States; New York City (Northern Manhattan and South Bronx). Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). African American or Dominican women from the Columbia Center for Children's Environmental Health recruited during pregnancy (analysis sample included 322 mother-child pairs). Columbia Center for Children's Environmental Health (CCEH). Recruitment: 1998-2006; Follow-up: NR (child at age 3, child at age 5).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester of pregnancy; child exposure measured at 3 years and 5 years.	Poisson Regression. Confounders adjusted for: maternal race/ethnicity, maternal demoralization at child age 7 years, child age at time of CPRS or CBCL assessment, prenatal specific gravity, CAARS inattention/memory.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Authors note that prenatal exposure to MnBP was associated with somatic and withdrawn personalities among girls (MEAN RATIOS FOR MnBP ARE NOT SIGNIFICANT IN APPENDICES). Authors note that prenatal exposure to MnBP was associated with somatic and withdrawn personalities among girls (MEAN RATIOS FOR MnBP ARE NOT SIGNIFICANT IN APPENDICES).	Daniel et. al 2020 8204339 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL)	Health Effect: Reproductive/Developmental-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer-Neurological/Behavioral-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer. Outcome measure: Score obtained using 118 Likert-point items with 9 subscales: anxious/depressed, withdrawn/depressed, somatic problems, thought problems, attention problems, rule-breaking behavior, aggressive behavior and other problems	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Adults (18+). United States; New York City (Northern Manhattan and South Bronx). Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). African American or Dominican women from the Columbia Center for Children's Environmental Health recruited during pregnancy (analysis sample included 322 mother-child pairs). Columbia Center for Children's Environmental Health (CCEH). Recruitment: 1998-2006; Follow-up: NR (child at age 3, child at age 5).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester of pregnancy; child exposure measured at 3 years and 5 years.	Poisson Regression. Confounders adjusted for: maternal race/ethnicity, maternal demoralization at child age 7 years, child age at time of CPRS or CBCL assessment, prenatal specific gravity, CAARS inattention/memory.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Mean Ratio (95% CI) per 1 log10 unit increase for following internalizing behaviors in CBCL among girls age 5-years-old. MECPP, withdrawn = 1.26 (1.04-1.51); MEHHP, withdrawn = 1.23 (1.04 - 1.45); MEOHP, withdrawn = 1.26 (1.06 - 1.5); MEHP, withdrawn = 1.29 (1.12 - 1.5); MEOHP, thought problems = 1.06 (0.93 - 1.22); MEHP, thought problems = 1.28 (1.09 - 1.49); MEOHP, total internalizing behavior score = 1.14 (1.01 - 1.27); MEHP, total internalizing behavior score = 1.14 (1.03 - 1.25) Mean Ratio (95% CI) per 1 log10 unit increase for following externalizing behaviors in CBCL among girls age 5-years-old. MEHP, rule breaking = 1.18 (1.04-1.35); MECPP, aggressive behavior = 1.23 (1.06 - 1.42); MEHHP, aggressive behavior = 1.19 (1.05 - 1.36); MEOHP, aggressive behavior = 1.21 (1.05 - 1.38); MEHP, aggressive behavior = 1.18 (1.06 - 1.33); MECPP, total externalizing behavior score = 1.21 (1.05 - 1.39); MEHHP, total externalizing behavior score = 1.18 (1.04 - 1.33); MEOHP, total externalizing behavior score = 1.19 (1.05 - 1.35); MEHP, total externalizing behavior score = 1.18 (1.06 - 1.32); MECPP, total CBCL score = 1.14 (1.02 - 1.27); MEHHP, total CBCL score = 1.14 (1.02 - 1.27); MEOHP, total CBCL score = 1.13 (1.02 - 1.25); MEHP, total CBCL score = 1.14 (1.06 - 1.24). MECPP was associated with a greater likelihood of being withdrawn and with more aggressive behavior, a greater total externalizing behavior score, and a greater total CBCL score among girls age 5 years old.MEHHP was associated with a greater likelihood of being withdrawn and with more aggressive behavior, a greater total externalizing behavior score, and a greater total CBCL score among girls age 5 years old.MEOHP was associated with a greater likelihood of being withdrawn, having thought problems, and a greater total internalizing score in addition to having more aggressive behavior, a greater total externalizing behavior score, and a greater total CBCL score among girls age 5 years old.MEHP was associated with a greater likelihood of being withdrawn, having thought problems, and a greater total internalizing score in addition to greater rule breaking, having more aggressive behavior, a greater total externalizing behavior score, and a greater total CBCL score among girls age 5 years old..	Daniel et. al 2020 8204339 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL)	Health Effect: Reproductive/Developmental-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer-Neurological/Behavioral-Child behavior at 7 years of age (assessed using the Conners' Parent Rating Scale-Revised: Long Form (CPRS) and Child Behavior Checklist (CBCL))-Non-cancer. Outcome measure: Score obtained using 118 Likert-point items with 9 subscales: anxious/depressed, withdrawn/depressed, somatic problems, thought problems, attention problems, rule-breaking behavior, aggressive behavior and other problems	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Adults (18+). United States; New York City (Northern Manhattan and South Bronx). Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). African American or Dominican women from the Columbia Center for Children's Environmental Health recruited during pregnancy (analysis sample included 322 mother-child pairs). Columbia Center for Children's Environmental Health (CCEH). Recruitment: 1998-2006; Follow-up: NR (child at age 3, child at age 5).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester of pregnancy; child exposure measured at 3 years and 5 years.	Poisson Regression. Confounders adjusted for: maternal race/ethnicity, maternal demoralization at child age 7 years, child age at time of CPRS or CBCL assessment, prenatal specific gravity, CAARS inattention/memory.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Authors note that prenatal exposure to MBzP was associated with somatic and withdrawn personalities among girls (MEAN RATIOS FOR MBzP ARE NOT SIGNIFICANT IN APPENDICES). Authors note that prenatal exposure to MBzP was associated with somatic and withdrawn personalities among girls (MEAN RATIOS FOR MBzP ARE NOT SIGNIFICANT IN APPENDICES).	Daniel et. al 2020 8204339 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Fine motor skills	Health Effect: Neurological/Behavioral-fine and gross motor function at age 11-Non-cancer-Reproductive/Developmental-fine and gross motor function at age 11-Non-cancer. Outcome measure: Bruininks-Oseretsky Test of Motor Proficiency-2 (BOT-2, short version)	General public, Pregnant people. Middle childhood (6-11), Adults (18+). United States; Northern Manhattan and South of the Bronx. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 209 mother-child pairs from the CCCEH study (female children n = 116; male children n = 93). Columbia Center for Children's Environmental Health (Mother and Child Study) (CCCEH). 1999-2006.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Weighted quartile sum regression. Confounders adjusted for: child age, child BMI z-score at time of BOT-2 performance, maternal race, prenatal alcohol consumption, maternal demoralization score, HOME score, urine specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI): -2.57 (-4.16, -0.97). Among females, significant negative association for non-DEHP metabolites (MBP, MIBP, MBzP) in WQS regression. Weight of MBzP appears to be just over 0.2 in WQS model..	Daniel et. al 2020 6957610 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Fine motor skills	Health Effect: Neurological/Behavioral-fine and gross motor function at age 11-Non-cancer-Reproductive/Developmental-fine and gross motor function at age 11-Non-cancer. Outcome measure: Bruininks-Oseretsky Test of Motor Proficiency-2 (BOT-2, short version)	General public, Pregnant people. Middle childhood (6-11), Adults (18+). United States; Northern Manhattan and South of the Bronx. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 209 mother-child pairs from the CCCEH study (female children n = 116; male children n = 93). Columbia Center for Children's Environmental Health (Mother and Child Study) (CCCEH). 1999-2006.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Weighted quartile sum regression. Confounders adjusted for: child age, child BMI z-score at time of BOT-2 performance, maternal race, prenatal alcohol consumption, maternal demoralization score, HOME score, urine specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI): -2.57 (-4.16, -0.97). Among females, significant negative association for non-DEHP metabolites (MBP, MIBP, MBzP) in WQS regression. Weight of MBP appears to be just over 0.05 in WQS model..	Daniel et. al 2020 6957610 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Gross motor skills	Health Effect: Neurological/Behavioral-fine and gross motor function at age 11-Non-cancer-Reproductive/Developmental-fine and gross motor function at age 11-Non-cancer. Outcome measure: Bruininks-Oseretsky Test of Motor Proficiency-2 (BOT-2, short version)	General public, Pregnant people. Middle childhood (6-11), Adults (18+). United States; Northern Manhattan and South of the Bronx. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 209 mother-child pairs from the CCCEH study (female children n = 116; male children n = 93). Columbia Center for Children's Environmental Health (Mother and Child Study) (CCCEH). 1999-2006.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Linear Regression. Confounders adjusted for: child age, child BMI z-score at time of BOT-2 performance, maternal race, prenatal alcohol consumption, maternal demoralization score, HOME score, urine specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI): -0.85 (-1.49, -0.20). Among females, significant negative association for non-DEHP metabolites (MBP, MIBP, MBzP) in linear regression. No significant findings for fine motor functions or among males..	Daniel et. al 2020 6957610 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Gross motor skills	Health Effect: Neurological/Behavioral-fine and gross motor function at age 11-Non-cancer-Reproductive/Developmental-fine and gross motor function at age 11-Non-cancer. Outcome measure: Bruininks-Oseretsky Test of Motor Proficiency-2 (BOT-2, short version)	General public, Pregnant people. Middle childhood (6-11), Adults (18+). United States; Northern Manhattan and South of the Bronx. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 209 mother-child pairs from the CCCEH study (female children n = 116; male children n = 93). Columbia Center for Children's Environmental Health (Mother and Child Study) (CCCEH). 1999-2006.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Linear Regression. Confounders adjusted for: child age, child BMI z-score at time of BOT-2 performance, maternal race, prenatal alcohol consumption, maternal demoralization score, HOME score, urine specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI): -0.85 (-1.49, -0.20). Among females, significant negative association for non-DEHP metabolites (MBP, MIBP, MBzP) in linear regression. No significant findings for fine motor functions or among males..	Daniel et. al 2020 6957610 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.	Health Effect: Reproductive/Developmental-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer-Neurological/Behavioral-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer. Outcome measure: Ages and Stages Questionnaire Edition 3 (ASQ-3)	General public. Infant (0-1), Adults (18+). China; Shanghai. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Infants (birth through < 12 months). Mother-infant pairs from three districts in Shanghai, China (enrolled n=154 pairs; used in analysis n=138). March-May 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at baseline (infant age ranged from 1 to 9 months) and at follow-up (infant age 9 months).	Logistic Regression. Confounders adjusted for: age, sex, BMI, feeding pattern.	Lowest exposure concentration for a significant adverse health outcome response: continuous. MnBP (OR (95% CI))Communication: 2.84 (1.44, 5.60)Gross motor: 4.64 (2.18, 9.90)Fine motor: 1.82 (1.11, 2.98)Problem solving: 2.32 (1.28, 4.18)Personal-social: 2.64 (1.43, 4.86)Combined (below expectations in at least one of the above domains): 4.59 (2.52, 8.37). Significant positive associations between DBP metabolite, MnBP, and ASQ-3 scores below expectations were reported for all developmental domains (communication, gross motor, fine motor, problem solving, personal-social).	Dong et. al 2019 5559180 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Falling below developmental expectations based on the Ages and Stages Questionnaires Edition 3 domains (communication, gross motor, fine motor, problem solving, and personal-social)	Health Effect: Reproductive/Developmental-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer-Neurological/Behavioral-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer. Outcome measure: Ages and Stages Questionnaire Edition 3	General public. Infant (0-1), Adults (18+). China; Shanghai. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Infants (birth through < 12 months). Mother-infant pairs from three districts in Shanghai, China (enrolled n=154 pairs; used in analysis n=138). March-May 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at baseline (infant age ranged from 1 to 9 months) and at follow-up (infant age 9 months).	Logistic Regression. Confounders adjusted for: age, sex, BMI, feeding pattern.	Lowest exposure concentration for a significant adverse health outcome response: continuous. MBzP (OR (95% CI))Gross motor: 1.89 (1.17, 3.05)Combined (below expectations in at least one of the above domains): 1.77 (1.16, 2.71). Significant positive associations between MBzP and ASQ-3 scores below expectations were reported for the gross motor developmental domain..	Dong et. al 2019 5559180 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Falling below developmental expectations based on the Ages and Stages Questionnaires Edition 3 domains (communication, gross motor, fine motor, problem solving, and personal-social)	Health Effect: Reproductive/Developmental-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer-Neurological/Behavioral-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer. Outcome measure: Ages and Stages Questionnaire Edition 3	General public. Infant (0-1), Adults (18+). China; Shanghai. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Infants (birth through < 12 months). Mother-infant pairs from three districts in Shanghai, China (enrolled n=154 pairs; used in analysis n=138). March-May 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at baseline (infant age ranged from 1 to 9 months) and at follow-up (infant age 9 months).	Logistic Regression. Confounders adjusted for: age, sex, BMI, feeding pattern.	Lowest exposure concentration for a significant adverse health outcome response: continuous. MEOHP (OR (95% CI))Gross motor: 1.76 (1.06, 2.93)Combined (below expectations in at least one of the above domains): 1.70 (1.10, 2.62)MECPP (OR (95% CI))Gross motor: 1.71 (1.05, 2.76)MEHHP (OR (95% CI))Gross motor: 1.69 (1.07, 2.67)Personal-social: 1.85 (1.09, 3.12)Combined: 1.62 (1.10, 2.39)MCMHP (OR (95% CI))Gross motor: 1.75 (1.11, 2.77)Combined: 1.52 (1.03, 2.24). Significant positive associations between 4 of 5 DEHP metabolites and ASQ-3 scores below expectations were reported for the gross motor domain (except MEHP), with MEHHP also being associated with the personal-social domain.	Dong et. al 2019 5559180 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.	Health Effect: Reproductive/Developmental-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer-Neurological/Behavioral-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer. Outcome measure: Ages and Stages Questionnaire Edition 3 (ASQ-3)	General public. Infant (0-1), Adults (18+). China; Shanghai. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Infants (birth through < 12 months). Mother-infant pairs from three districts in Shanghai, China (enrolled n=154 pairs; used in analysis n=138). March-May 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at baseline (infant age ranged from 1 to 9 months) and at follow-up (infant age 9 months).	Logistic Regression. Confounders adjusted for: age, sex, BMI, feeding pattern.	Lowest exposure concentration for a significant adverse health outcome response: continuous. MiBP (OR (95% CI))Communication: 2.73 (1.40, 5.30)Gross motor: 3.75 (1.93, 7.30)Fine motor: 2.23 (1.26, 3.96)Problem solving: 2.63 (1.38, 5.03)Personal-social: 3.17 (1.58, 6.36)Combined: 3.91 (2.27, 6.75). Significant positive associations between DIBP metabolite, MiBP, and ASQ-3 scores below expectations were reported for all developmental domains (communication, gross motor, fine motor, problem solving, personal-social).	Dong et. al 2019 5559180 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.	Health Effect: Reproductive/Developmental-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer-Neurological/Behavioral-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer. Outcome measure: Ages and Stages Questionnaire Edition 3 (ASQ-3)	General public. Infant (0-1), Adults (18+). China; Shanghai. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Infants (birth through < 12 months). Mother-infant pairs from three districts in Shanghai, China (enrolled n=154 pairs; used in analysis n=138). March-May 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at baseline (infant age ranged from 1 to 9 months) and at follow-up (infant age 9 months).	Logistic Regression. Confounders adjusted for: age, sex, BMI, feeding pattern.	Lowest exposure concentration for a significant adverse health outcome response: continuous. MiBP (OR (95% CI))Communication: 2.73 (1.40, 5.30)Gross motor: 3.75 (1.93, 7.30)Fine motor: 2.23 (1.26, 3.96)Problem solving: 2.63 (1.38, 5.03)Personal-social: 3.17 (1.58, 6.36)Combined: 3.91 (2.27, 6.75). Significant positive associations between DIBP metabolite, MiBP, and ASQ-3 scores below expectations were reported for all developmental domains (communication, gross motor, fine motor, problem solving, personal-social).	Dong et. al 2019 5559180 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.	Health Effect: Reproductive/Developmental-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer-Neurological/Behavioral-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer. Outcome measure: Ages and Stages Questionnaire Edition 3 (ASQ-3)	General public. Infant (0-1), Adults (18+). China; Shanghai. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Infants (birth through < 12 months). Mother-infant pairs from three districts in Shanghai, China (enrolled n=154 pairs; used in analysis n=138). March-May 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at baseline (infant age ranged from 1 to 9 months) and at follow-up (infant age 9 months).	Logistic Regression. Confounders adjusted for: age, sex, BMI, feeding pattern.	Lowest exposure concentration for a significant adverse health outcome response: continuous. MnBP (OR (95% CI))Communication: 2.84 (1.44, 5.60)Gross motor: 4.64 (2.18, 9.90)Fine motor: 1.82 (1.11, 2.98)Problem solving: 2.32 (1.28, 4.18)Personal-social: 2.64 (1.43, 4.86)Combined (below expectations in at least one of the above domains): 4.59 (2.52, 8.37). Significant positive associations between DBP metabolite, MnBP, and ASQ-3 scores below expectations were reported for all developmental domains (communication, gross motor, fine motor, problem solving, personal-social).	Dong et. al 2019 5559180 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Falling below developmental expectations based on the Ages and Stages Questionnaires Edition 3 domains (communication, gross motor, fine motor, problem solving, and personal-social)	Health Effect: Reproductive/Developmental-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer-Neurological/Behavioral-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer. Outcome measure: Ages and Stages Questionnaire Edition 3	General public. Infant (0-1), Adults (18+). China; Shanghai. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Infants (birth through < 12 months). Mother-infant pairs from three districts in Shanghai, China (enrolled n=154 pairs; used in analysis n=138). March-May 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at baseline (infant age ranged from 1 to 9 months) and at follow-up (infant age 9 months).	Logistic Regression. Confounders adjusted for: age, sex, BMI, feeding pattern.	Lowest exposure concentration for a significant adverse health outcome response: continuous. MBzP (OR (95% CI))Gross motor: 1.89 (1.17, 3.05)Combined (below expectations in at least one of the above domains): 1.77 (1.16, 2.71). Significant positive associations between MBzP and ASQ-3 scores below expectations were reported for the gross motor developmental domain..	Dong et. al 2019 5559180 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Falling below developmental expectations based on the Ages and Stages Questionnaires Edition 3 domains (communication, gross motor, fine motor, problem solving, and personal-social)	Health Effect: Reproductive/Developmental-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer-Neurological/Behavioral-Delayed development based on the Ages and Stages Questionnaires-3 (ASQ-3), scores that fell into Gray (infant developing in the borderline of expectations) or Black (infant performance below expectations) areas in at least one of the following domains - communication, gross motor, fine motor, problem solving, personal-social.-Non-cancer. Outcome measure: Ages and Stages Questionnaire Edition 3	General public. Infant (0-1), Adults (18+). China; Shanghai. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Infants (birth through < 12 months). Mother-infant pairs from three districts in Shanghai, China (enrolled n=154 pairs; used in analysis n=138). March-May 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at baseline (infant age ranged from 1 to 9 months) and at follow-up (infant age 9 months).	Logistic Regression. Confounders adjusted for: age, sex, BMI, feeding pattern.	Lowest exposure concentration for a significant adverse health outcome response: continuous. MEOHP (OR (95% CI))Gross motor: 1.76 (1.06, 2.93)Combined (below expectations in at least one of the above domains): 1.70 (1.10, 2.62)MECPP (OR (95% CI))Gross motor: 1.71 (1.05, 2.76)MEHHP (OR (95% CI))Gross motor: 1.69 (1.07, 2.67)Personal-social: 1.85 (1.09, 3.12)Combined: 1.62 (1.10, 2.39)MCMHP (OR (95% CI))Gross motor: 1.75 (1.11, 2.77)Combined: 1.52 (1.03, 2.24). Significant positive associations between 4 of 5 DEHP metabolites and ASQ-3 scores below expectations were reported for the gross motor domain (except MEHP), with MEHHP also being associated with the personal-social domain.	Dong et. al 2019 5559180 High

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child non-verbal IQ	Health Effect: Reproductive/Developmental-Child nonverbal IQ-Non-cancer-Neurological/Behavioral-Child nonverbal IQ-Non-cancer. Outcome measure: Child nonverbal IQ determined by administering Mosaics and Categories subtests from Snijders-Oomen Nonverbal Intelligence Test Revised (SON-R)	General public, Pregnant people. Middle childhood (6-11). Netherlands; Rotterdam. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Pregnant women living in Rotterdam who are enrolled in Generation R cohort (analysis sample included 1,282 mother child pairs). Generation R. Enrollment: 2002-2006; Follow-up: Year NR (child 6 years of age).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during early pregnancy (<18 weeks), mid pregnancy (18-25 weeks), and late pregnancy (>25 weeks).	Linear Regression. Confounders adjusted for: Maternal age, ethnicity, education, income, marital status, alcohol consumption during pregnancy, maternal nonverbal IQ, preppregnancy BMI, parity, smoking during pregnancy, child sex, child age at assessment.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) per 1 log10 unit increase in creatinine-adjusted total low molecular weight phthalate metabolites concentration (ug/g Cr) at <18 weeks of gestation for child nonverbal IQ: -1.75 (-3.21, -0.29). There were significant associations between creatinine adjusted LMWP metabolite concentrations at <18 weeks of gestation and child nonverbal score..	Dries et. al 2020 9387317 Medium

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child non-verbal IQ	Health Effect: Reproductive/Developmental-Child nonverbal IQ-Non-cancer-Neurological/Behavioral-Child nonverbal IQ-Non-cancer. Outcome measure: Child nonverbal IQ determined by administering Mosaics and Categories subtests from Snijders-Oomen Nonverbal Intelligence Test Revised (SON-R)	General public, Pregnant people. Middle childhood (6-11). Netherlands; Rotterdam. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Pregnant women living in Rotterdam who are enrolled in Generation R cohort (analysis sample included 1,282 mother child pairs). Generation R. Enrollment: 2002-2006; Follow-up: Year NR (child 6 years of age).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during early pregnancy (<18 weeks), mid pregnancy (18-25 weeks), and late pregnancy (>25 weeks).	Linear Regression. Confounders adjusted for: Maternal age, ethnicity, education, income, marital status, alcohol consumption during pregnancy, maternal nonverbal IQ, preppregnancy BMI, parity, smoking during pregnancy, child sex, child age at assessment.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) per 1 log10 unit increase in creatinine-adjusted total low molecular weight phthalate metabolites concentration (ug/g Cr) at <18 weeks of gestation for child nonverbal IQ: -1.75 (-3.21, -0.29). There were significant associations between creatinine adjusted LMWP metabolite concentrations at <18 weeks of gestation and child nonverbal score..	Dries et. al 2020 9387317 Medium

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child non-verbal IQ	Health Effect: Reproductive/Developmental-Child nonverbal IQ-Non-cancer-Neurological/Behavioral-Child nonverbal IQ-Non-cancer. Outcome measure: Child nonverbal IQ determined by administering Mosaics and Categories subtests from Snijders-Oomen Nonverbal Intelligence Test Revised (SON-R)	General public, Pregnant people. Middle childhood (6-11). Netherlands; Rotterdam. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Pregnant women living in Rotterdam who are enrolled in Generation R cohort (analysis sample included 1,282 mother child pairs). Generation R. Enrollment: 2002-2006; Follow-up: Year NR (child 6 years of age).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during early pregnancy (<18 weeks), mid pregnancy (18-25 weeks), and late pregnancy (>25 weeks).	Linear Regression. Confounders adjusted for: Maternal age, ethnicity, education, income, marital status, alcohol consumption during pregnancy, maternal nonverbal IQ, preppregnancy BMI, parity, smoking during pregnancy, child sex, child age at assessment.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) per 1 log10 unit increase in creatinine-adjusted total high molecular weight phthalate metabolites concentration (ug/g Cr) at <18 weeks of gestation for child nonverbal IQ: -1.98 (-3.82,-0.13). There were significant associations between creatinine adjusted HMWP metabolite concentrations at <18 weeks of gestation and child nonverbal score..	Dries et. al 2020 9387317 Medium

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child non-verbal IQ	Health Effect: Reproductive/Developmental-Child nonverbal IQ-Non-cancer-Neurological/Behavioral-Child nonverbal IQ-Non-cancer. Outcome measure: Child nonverbal IQ determined by administering Mosaics and Categories subtests from Snijders-Oomen Nonverbal Intelligence Test Revised (SON-R)	General public, Pregnant people. Middle childhood (6-11). Netherlands; Rotterdam. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Pregnant women living in Rotterdam who are enrolled in Generation R cohort (analysis sample included 1,282 mother child pairs). Generation R. Enrollment: 2002-2006; Follow-up: Year NR (child 6 years of age).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during early pregnancy (<18 weeks), mid pregnancy (18-25 weeks), and late pregnancy (>25 weeks).	Linear Regression. Confounders adjusted for: Maternal age, ethnicity, education, income, marital status, alcohol consumption during pregnancy, maternal nonverbal IQ, preppregnancy BMI, parity, smoking during pregnancy, child sex, child age at assessment.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) per 1 log10 unit increase in creatinine-adjusted total high molecular weight phthalate metabolites concentration (ug/g Cr) at <18 weeks of gestation for child nonverbal IQ: -1.98 (-3.82,-0.13). There were significant associations between creatinine adjusted HMWP metabolite concentrations at <18 weeks of gestation and child nonverbal score..	Dries et. al 2020 9387317 Medium

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child non-verbal IQ	Health Effect: Reproductive/Developmental-Child nonverbal IQ-Non-cancer-Neurological/Behavioral-Child nonverbal IQ-Non-cancer. Outcome measure: Child nonverbal IQ determined by administering Mosaics and Categories subtests from Snijders-Oomen Nonverbal Intelligence Test Revised (SON-R)	General public, Pregnant people. Middle childhood (6-11). Netherlands; Rotterdam. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Pregnant women living in Rotterdam who are enrolled in Generation R cohort (analysis sample included 1,282 mother child pairs). Generation R. Enrollment: 2002-2006; Follow-up: Year NR (child 6 years of age).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during early pregnancy (<18 weeks), mid pregnancy (18-25 weeks), and late pregnancy (>25 weeks).	Linear Regression. Confounders adjusted for: Maternal age, ethnicity, education, income, marital status, alcohol consumption during pregnancy, maternal nonverbal IQ, preppregnancy BMI, parity, smoking during pregnancy, child sex, child age at assessment.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) per 1 log10 unit increase in creatinine-adjusted total high molecular weight phthalate metabolites concentration (ug/g Cr) at <18 weeks of gestation for child nonverbal IQ: -1.98 (-3.82,-0.13). There were significant associations between creatinine adjusted HMWP metabolite concentrations at <18 weeks of gestation and child nonverbal score..	Dries et. al 2020 9387317 Medium

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child non-verbal IQ	Health Effect: Reproductive/Developmental-Child nonverbal IQ-Non-cancer-Neurological/Behavioral-Child nonverbal IQ-Non-cancer. Outcome measure: Child nonverbal IQ determined by administering Mosaics and Categories subtests from Snijders-Oomen Nonverbal Intelligence Test Revised (SON-R)	General public, Pregnant people. Middle childhood (6-11). Netherlands; Rotterdam. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Pregnant women living in Rotterdam who are enrolled in Generation R cohort (analysis sample included 1,282 mother child pairs). Generation R. Enrollment: 2002-2006; Follow-up: Year NR (child 6 years of age).	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during early pregnancy (<18 weeks), mid pregnancy (18-25 weeks), and late pregnancy (>25 weeks).	Linear Regression. Confounders adjusted for: Maternal age, ethnicity, education, income, marital status, alcohol consumption during pregnancy, maternal nonverbal IQ, preppregnancy BMI, parity, smoking during pregnancy, child sex, child age at assessment.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) per 1 log10 unit increase in creatinine-adjusted total DEHP metabolites concentration (ug/g Cr) at <18 weeks of gestation for child nonverbal IQ: -1.89 (-3.69,-0.09). There were significant associations between creatinine adjusted DEHP metabolite concentrations at <18 weeks of gestation and child nonverbal score..	Dries et. al 2020 9387317 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Weight, BMI	Health Effect: Nutritional/Metabolic-Body weight, BMI-Non-cancer. Outcome measure: Assessment by clinical pediatrician	General public. Preschool (3-5), Middle childhood (6-11). Turkey; Antalya. Female. Case-Control. PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years). Cases – Turkey, Antalya City, 29 girls (4-8 years old) with premature thelarche. Controls – Turkey, Antalya City, 25 healthy girls (4-8 years old). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Not specified but likely concurrent with or after development of outcome due to case-control design.	nan.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Spearman correlation coefficient (p-value)MnBP and weight: 0.550 (p<0.01)MnBP and BMI: 0.611 (p<0.01). Significant positive correlations between MnBP and both weight and BMI..	Durmaz et. al 2018 5512126 Low
Weight, BMI	Health Effect: Nutritional/Metabolic-Body weight, BMI-Non-cancer. Outcome measure: Assessment by clinical pediatrician	General public. Preschool (3-5), Middle childhood (6-11). Turkey; Antalya. Female. Case-Control. PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years). Cases – Turkey, Antalya City, 29 girls (4-8 years old) with premature thelarche. Controls – Turkey, Antalya City, 25 healthy girls (4-8 years old). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Not specified but likely concurrent with or after development of outcome due to case-control design.	nan.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Spearman correlation coefficient (p-value)MBzP and BMI: 0.375 (p=0.041). Significant positive correlation between MBzP and BMI. Correlation between MBzP and weight positive but not significant..	Durmaz et. al 2018 5512126 Low

Continued on next page ...

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Sex hormones (luteinizing hormone (LH), follicle stimulating hormone (FSH), estradiol)	Health Effect: Reproductive/Developmental-Sex hormones: serum luteinizing hormone (LH), plasma follicle stimulating hormone (FSH), serum estradiol.-Non-cancer. Outcome measure: Enzyme linked immunosorbent assay (LH, FSH), electrochemiluminescence immunoassay (estradiol)	General public. Preschool (3-5), Middle childhood (6-11). Turkey; Antalya. Female. Case-Control. PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years). Cases – Turkey, Antalya City, 29 girls (4-8 years old) with premature thelarche. Controls – Turkey, Antalya City, 25 healthy girls (4-8 years old). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Not specified but likely concurrent with or after development of outcome due to case-control design.	nan.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Spearman correlation coefficient (p-value)MiBP and FSH: 0.323 (p=0.045). Significant positive correlation between MiBP and FSH. Correlations with LH and estradiol not significant..	Durmaz et. al 2018 5512126 Low
Thyroid stimulating hormone (TSH), free T4 (fT4)	Health Effect: Thyroid-Serum thyroid stimulating hormone (TSH) and serum free T4 (fT4)-Non-cancer. Outcome measure: Chemiluminescence microparticle immunoassay	General public. Preschool (3-5), Middle childhood (6-11). Turkey; Antalya. Female. Case-Control. PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years). Cases – Turkey, Antalya City, 29 girls (4-8 years old) with premature thelarche. Controls – Turkey, Antalya City, 25 healthy girls (4-8 years old). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Not specified but likely concurrent with or after development of outcome due to case-control design.	nan.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Spearman correlation coefficient (p-value)MiBP and fT4: -0.385 (p=0.002). Significant inverse correlation between MiBP and fT4. Correlation between MiBP and TSH inverse but not significant..	Durmaz et. al 2018 5512126 Medium

Continued on next page ...

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Weight, BMI	Health Effect: Nutritional/Metabolic-Body weight, BMI-Non-cancer. Outcome measure: Assessment by clinical pediatrician	General public. Preschool (3-5), Middle childhood (6-11). Turkey; Antalya. Female. Case-Control. PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years). Cases – Turkey, Antalya City, 29 girls (4-8 years old) with premature thelarche. Controls – Turkey, Antalya City, 25 healthy girls (4-8 years old). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Not specified but likely concurrent with or after development of outcome due to case-control design.	nan.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Spearman correlation coefficient (p-value)MiBP and weight: 0.742 (p< 0.01)MiBP and BMI: 0.574 (0.002). Significant positive correlations between MiBP and both weight and BMI..	Durmaz et. al 2018 5512126 Low
Sex hormones (luteinizing hormone (LH), follicle stimulating hormone (FSH), estradiol)	Health Effect: Reproductive/Developmental-Sex hormones: serum luteinizing hormone (LH), plasma follicle stimulating hormone (FSH), serum estradiol.-Non-cancer. Outcome measure: Enzyme linked immunosorbent assay (LH, FSH), electrochemiluminescence immunoassay (estradiol)	General public. Preschool (3-5), Middle childhood (6-11). Turkey; Antalya. Female. Case-Control. PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years). Cases – Turkey, Antalya City, 29 girls (4-8 years old) with premature thelarche. Controls – Turkey, Antalya City, 25 healthy girls (4-8 years old). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Not specified but likely concurrent with or after development of outcome due to case-control design.	nan.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Spearman correlation coefficient (p-value)MEHP and FSH: 0.315 (p=0.049)MEHP and LH: 0.475 (p=0.041). Significant positive correlation between MEHP and both FSH and LH. Correlation between MEHP and estradiol not significant. Correlations between FSH, LH, estradiol and other DEHP metabolites not significant..	Durmaz et. al 2018 5512126 Low

Continued on next page ...

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Ovary volume, uterus volume, pubic hair growth	Health Effect: Reproductive/Developmental-Ovary and uterus volumes; pubic hair growth-Non-cancer. Outcome measure: Not specified	General public. Preschool (3-5), Middle childhood (6-11). Turkey; Antalya. Female. Case-Control. PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years). Cases – Turkey, Antalya City, 29 girls (4-8 years old) with premature thelarche. Controls – Turkey, Antalya City, 25 healthy girls (4-8 years old). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Not specified but likely concurrent with or after development of outcome due to case-control design.	nan.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Spearman correlation coefficient (p-value)MEHP and uterus volume: -0.339 (p=0.041)MEHHP and pubic hair growth: -0.373 (p=0.041)MEOHP and pubic hair growth: -0.378 (p=0.002)MECPP and pubic hair growth: -0.407 (p=0.037). Significant inverse correlations between MEHP and uterus volume, and between MEHHP, MEOHP, MECPP and pubic hair growth. No other significant correlations between DEHP metabolites and outcomes of ovary volume, uterus volume, or pubic hair growth..	Durmaz et. al 2018 5512126 Low
Thyroid stimulating hormone (TSH), free T4 (fT4)	Health Effect: Thyroid-Serum thyroid stimulating hormone (TSH) and serum free T4 (fT4)-Non-cancer. Outcome measure: Chemiluminescence microparticle immunoassay	General public. Preschool (3-5), Middle childhood (6-11). Turkey; Antalya. Female. Case-Control. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Cases – Turkey, Antalya City, 29 girls (4-8 years old) with premature thelarche. Controls – Turkey, Antalya City, 25 healthy girls (4-8 years old). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Not specified but likely concurrent with or after development of outcome due to case-control design.	nan.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Spearman correlation coefficient (p-value)Sum DEHP metabolites and fT4: -0.356 (p=0.039). Significant inverse correlation between sum of DEHP metabolites and ft4. Correlation between sum of DEHP metabolites and TSH inverse but not significant. No significant correlations between individual DEHP metabolites and thyroid hormones..	Durmaz et. al 2018 5512126 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Weight, BMI	Health Effect: Nutritional/Metabolic-Body weight, BMI-Non-cancer. Outcome measure: Assessment by clinical pediatrician	General public. Preschool (3-5), Middle childhood (6-11). Turkey; Antalya. Female. Case-Control. PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years). Cases – Turkey, Antalya City, 29 girls (4-8 years old) with premature thelarche. Controls – Turkey, Antalya City, 25 healthy girls (4-8 years old). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Not specified but likely concurrent with or after development of outcome due to case-control design.	nan.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Spearman correlation coefficient (p-value)MEHHP and weight: 0.450 (p=0.014)MEOHP and weight: 0.468 (p=0.013)MECPP and weight: 0.389 (p=0.031)Sum DEHP metabolites and weight: 0.707 (p<0.01)MEHHP and BMI: 0.532 (p<0.01)MEOHP and BMI: 0.551 (p<0.01)MECPP and BMI: 0.466 (p=0.001)Sum DEHP metabolites and BMI: 0.615 (p<0.01). Significant positive correlations between MEHHP, MEOHP, MECPP, and sum of DEHP metabolites and both weight and BMI. Correlations between MEHP and weight and BMI not significant..	Durmaz et. al 2018 5512126 Low
Premature thelarche	Health Effect: Reproductive/Developmental-Premature thelarche (isolated breast development in girls aged 4-8 years)-Non-cancer. Outcome measure: Physician diagnosis	General public. Preschool (3-5), Middle childhood (6-11). Turkey; Antalya. Female. Case-Control. PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Children (age 1 year through < 11 years). Cases – Turkey, Antalya City, 29 girls (4-8 years old) with premature thelarche. Controls – Turkey, Antalya City, 25 healthy girls (4-8 years old). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Not specified but likely concurrent with or after development of outcome due to case-control design.	nan.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Median (min, max) MEHP among controls: 10.38 (1.68, 30.04) ug/g creatinineMedian (min, max) MEHP among cases: 19.51 (1.68, 176.66) ug/g creatinineMean (+- SEM) among controls: 11.54 +- 1.39 ug/g creatinineMean (+- SEM) among cases: 33.96 +- 6.88 ug/g creatininep-value = 0.002. MEHP concentrations were higher among cases with premature thelarche than among healthy controls. No significant differences between cases and controls for other DEHP metabolites..	Durmaz et. al 2018 5512126 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Run duration (average time spent looking at stimuli before looking away), novelty preference (proportion of time spent looking at the novel stimulus), time to famliarization	Health Effect: Neurological/Behavioral-Cognition at 7-8 months as assessed by information processing speed (average run duration during familiarization trial), visual attention (time to reach familiarization criterion during familiarization trial), and visual recognition memory (novelty preference in test trial) using eye tracking within a paired comparison visual recognition memory (VRM) test.-Non-cancer. Outcome measure: Visual recognition memory test	General public, Pregnant people. Infant (0-1), Adults (18+). United States; Champaign-Urbana, Illinois. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Infants (birth through < 12 months). Mothers and children from the IKIDS cohort (Champaign-Urbana, IL area), children aged 7-8 months. Illinois Kids Development Study (IKIDS). Recruitment: December 2013-August 2018; Follow-up: Up to 8 months after birth.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy, outcomes measured in children 7-8 months after birth.	Linear Regression. Confounders adjusted for: maternal race and ethnicity, education, parity, household income, age, and verbal IQ, infant sex, gestational age at birth, postnatal age at assessment, stimulus set.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Run duration Set 2 β estimate (95% Confidence Interval): 0.08 (0, 0.16) $p < 0.05$, Set 1 β estimate (95% Confidence Interval): -0.14 (-0.34, 0.06); Set 1-2 interaction p-value: $p<0.05$.. Higher ΣDEHP metabolite concentrations were associated with significantly longer run durations (suggesting slower information processing with higher prenatal phthalate exposure), but only among specific set strata (set 2)..	Dzwilewski et. al 2021 7978460 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Clinically diagnosed ADHD	Health Effect: Neurological/Behavioral-Attention-deficit hyperactivity disorder (ADHD)-Non-cancer. Outcome measure: Medical records (patient registry)	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11). Norway. Female, Male. Nested Case-Control. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). MoBA participants born in 2003-2008 meeting eligibility criteria (n=24,035) including completed 36-month questionnaires, maternal urine and blood samples, singleton births, and geographic location (born at major hospital, direct flight to Oslo). 297 ADHD cases were randomly selected from the Norwegian Patient Registry based on ICD-10 codes; 554 controls were randomly selected from the eligible population.. Norwegian Mother and Child Cohort (MoBa). Recruitment: 2003-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy (~17 weeks gestation).	Logistic Regression. Confounders adjusted for: Final models were adjusted for child sex, mother's age at delivery, mother's education level, mother's marital status, mother's prenatal smoking in the first or second trimester of pregnancy, parity, maternal depression during pregnancy, and year of birth..	Lowest exposure concentration for a significant adverse health outcome response: Continuous. OR (95% CI) for odds of ADHD per log-unit increase in sum DEHP: OR=1.47 (1.09,1.94) overall, 1.41(1.00,1.95) in boys and 1.62 (0.95,2.58) in girls.. The sum of DEHP metabolites was associated with a significant increase in odds of ADHD overall, and in both boys and girls..	Engel et. al 2018 4728558 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Anxious/Depressed in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MEHP concentrationsOR (95% CI): 3.28 (1.09, 9.88). Significant positive association in anxious/depressed per 1-unit increase in MEHP. Significant at the q < 0.10 level.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Internalizing problems in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through $<$ 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MEOHP concentrationsOR (95% CI): 1.50 (1.01, 2.23). Significant positive association in internalizing problems per 1-unit increase in MEOHP. Significant at the q $<$ 0.05 level.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Anxiety in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MEOHP concentrationsOR (95% CI): 1.50 (1.08, 2.08). Significant positive association in anxiety per 1-unit increase in MEOHP. Significant at the $q < 0.10$ level.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Anxiety in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MECPP concentrationsOR (95% CI): 1.39 (1.00, 1.93). Significant positive association in anxiety per 1-unit increase in MECPP. Significant at the $q < 0.10$ level.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Anxious/depressed in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MECPP concentrationsOR (95% CI): 3.21 (1.11, 9.25). Significant positive association in anxiety per 1-unit increase in MECPP. Significant at the $q < 0.10$ level.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Externalizing problems in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through $<$ 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MBzP concentrationsOR (95% CI): 2.07 (1.27, 3.38). Significant positive association in anxiety per 1-unit increase in MBzP. Significant at the $q < 0.05$ level.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
BSI in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MBzP concentrationsOR (95% CI): 2.02 (1.31, 3.13). Significant positive association in anxiety per 1-unit increase in MBzP. Significant at the $q < 0.05$ level.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Hyperactivity in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through $<$ 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MBzP concentrationsOR (95% CI): 1.60 (1.09, 2.35). Significant positive association in anxiety per 1-unit increase in MBzP. Significant at the q $<$ 0.10 level.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Aggression in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through $<$ 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MBzP concentrationsOR (95% CI): 1.61 (1.05, 2.47). Significant positive association in anxiety per 1-unit increase in MBzP. Significant at the q $<$ 0.05 level.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Anxiety in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through $<$ 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MBzP concentrationsOR (95% CI): 1.66 (1.22, 2.24). Significant positive association in anxiety per 1-unit increase in MBzP. Significant at the q $<$ 0.10 level.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Withdrawal in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through $<$ 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MBzP concentrationsOR (95% CI): 1.67 (1.13, 2.45). Significant positive association in anxiety per 1-unit increase in MBzP. Significant at the q $<$ 0.10 level.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Externalizing problems in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through $<$ 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MBzP concentrationsOR (95% CI): 1.80 (1.19, 2.72). Significant positive association in anxiety per 1-unit increase in MBzP. Significant at the q $<$ 0.05 level.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Anxiety in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through $<$ 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MBP concentrationsOR (95% CI): 1.37 (1.00, 1.88). Significant positive association in anxiety per 1-unit increase in MBP. Significant at the q $<$ 0.05 level.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Internalizing problems in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through $<$ 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MiBP concentrationsOR (95% CI): 1.93 (1.25, 3.00. Significant positive association in anxiety per 1-unit increase in MiBP. Significant at the q $<$ 0.05 level.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Aggression in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through $<$ 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MiBP concentrationsOR (95% CI): 1.78 (1.10, 2.88). Significant positive association in anxiety per 1-unit increase in MiBP. Significant at the q $<$ 0.10 level..	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Anxiety in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through $<$ 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MiBP concentrationsOR (95% CI): 1.47 (1.03, 2.11). Significant positive association in anxiety per 1-unit increase in MiBP. Significant at the q $<$ 0.05 level..	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Depression in the borderline or clinical range	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through $<$ 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Logistic Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted OR per 1-unit increase in unadjusted MiBP concentrationsOR (95% CI): 1.78 (1.14, 2.79). Significant positive association in anxiety per 1-unit increase in MiBP. Significant at the q $<$ 0.10 level..	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Externalizing problems scores in the 3-4 year old children	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Linear Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Regression coefficients (95% CI) for:Overall cohort: 0.16 (0.04, 0.28) **Females: 0.08 (-0.09, 0.25)Males: 0.26 (0.08, 0.44) ***. Significant associations noted for the overall cohort and males for externalizing problems associated with prenatal MBzP phthalate quartiles.** q < 0.10*** q < 0.05.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Internalizing problem scores in the 3-4 year old children	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight ”clinical” scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four ”adaptive” scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight ”clinical” scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Linear Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Regression coefficients (95% CI) for:Overall cohort: 0.16 (0.04, 0.29)**Females: 0.09 (-0.09, 0.28)Males: 0.24 (0.06, 0.42) ***. Significant associations noted for the overall cohort and males for internalizing problems associated with prenatal phthalate MBzP quartiles.** q < 0.10*** q < 0.05.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Behavioral symptoms index scores in the 3-4 year old children	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Linear Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Regression coefficients (95% CI) for:Overall cohort: 0.18 (0.05, 0.30) ***Females: 0.10 (-0.08, 0.28)Males: 0.26 (0.09, 0.43) ***. Significant associations noted for the overall cohort and males for behavioral symptoms index scores associated with prenatal MBzP phthalate quartiles.** $q < 0.10$*** $q < 0.05$.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Behavioral symptoms index scores for 3-4 year old children	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through $<$ 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Linear Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Regression coefficients (95% CI) for:Overall: 0.12 (-0.02, 0.25)Females: 0.04 (-0.16, 0.24)Males: 0.19 (0.01, 0.37) **. Significant association between prenatal phthalate concentrations and behavioral symptoms index in males for MBP. ** q $<$ 0.10.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Externalizing problem scores for 3-4 year old children	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Linear Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Regression coefficients (95% CI) for:Overall: 0.16 (0.01, 0.31) *Females: 0.22 (-0.01, 0.45)Males: 0.12 (-0.09, 0.32). Significant association between MiBP and externalizing problems score for the overall cohort. No significant associations for males or females. * $p < 0.05$.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Internalizing problem scores for 3-4 year old children	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Linear Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Regression coefficients (95% CI) for:Overall: 0.20 (0.05, 0.36) *Females: 0.20 (-0.05, 0.44)Males: 0.21 (0.01, 0.41) **. Significant association between MiBP and internalizing problems score for the overall cohort and males. No significant associations for females. * $p < 0.05$** $q < 0.10$.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Behavioral symptoms index scores for 3-4 year old children	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Linear Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Regression coefficients (95% CI) for:Overall: 0.21 (0.06, 0.36) ***Females: 0.20 (-0.05, 0.44)Males: 0.22 (0.03, 0.42) **. Significant association between MiBP and behavioral symptoms index scores for the overall cohort and males. No significant associations for females. ** q < 0.10*** q < 0.05.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Externalizing problem scores in the 3-4 year old children	Health Effect: Neurological/Behavioral-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite scales (Internalizing problems, externalizing problems, and behavioral symptoms index), (BASC-2 four "adaptive" scales and adaptive skills composites scale not included). Also includes parent version of the Child Behavior Checklist (CBCL) T scores–two broad syndrome groupings (Internalizing problems, externalizing problems), Total problems, Attention-Deficit Hyperactivity (ADH) problems, aggressive behavior, anxious/depressed, anxiety problems, affective problems, somatic complaints, pervasive developmental (PD) problems, withdrawn, attention problems.-Non-cancer-Reproductive/Developmental-Mother-completed preschool version of the Behavior Assessment System for Children-Second Edition Parent Rating Scales-Preschool (BASC-2) T scores- eight "clinical" scales (Hyperactivity, aggression, anxiety, depression, somatization, atypicality, withdrawal, and attention problems), and three of four composite	Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through $<$ 11 years). Mother-child pairs from the Alberta Pregnancy Outcomes and Nutrition (APrON) study (enrolled n=351, used in analysis n=351). Alberta Pregnancy Outcomes and Nutrition (APrON). 2009-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during the second trimester of pregnancy.	Linear Regression. Confounders adjusted for: urinary creatinine, family income, child sex, Full-Scale Intelligence Quotient (FSIQ).	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Regression coefficients (95% CI) for:Overall cohort: 0.10 (-0.03, 0.22)Females: 0.01 (-0.16, 0.19)Males: 0.19 (0.01, 0.37)*. Significant associations between MBzP and externalizing problems on the CBCL in males. No significant associations for the overall cohort or females. * $p < 0.05$.	England-Mason et. al 2020 6717805 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Masculine scores	Health Effect: Neurological/Behavioral-Preschool Activities Inventory (PSAI) scores for masculine, feminine, and composite-Non-cancer. Outcome measure: Preschool Activities Inventory Modified (PSAI-M)	Pregnant people. Preschool (3-5), Adults (18+). United States; California, New York, Washington, Minnesota. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the TIDES cohort study (enrolled n=969, used in study n=498, used in analysis n=243 boys). The Infant Development and the Environment Study (TIDES). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during first and third trimesters.	Linear Regression. Confounders adjusted for: child age, maternal education, race, same sex older sibling, parental attitudes.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted regression coefficient (95% CI)MnBP: -2.2 (-4.2, -0.2). Significant negative association between phthalate concentrations and masculine scores in boys.	Evans et. al 2021 9354255 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Masculine scores	Health Effect: Neurological/Behavioral-Preschool Activities Inventory (PSAI) scores for masculine, feminine, and composite-Non-cancer. Outcome measure: Preschool Activities Inventory Modified (PSAI-M)	Pregnant people. Preschool (3-5), Adults (18+). United States; California, New York, Washington, Minnesota. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the TIDES cohort study (enrolled n=969, used in study n=498, used in analysis n=243 boys). The Infant Development and the Environment Study (TIDES). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during first and third trimesters.	Linear Regression. Confounders adjusted for: child age, maternal education, race, same sex older sibling, parental attitudes.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted regression coefficient (95% CI)MBzP: -2.4 (-4.1, -0.7). Significant negative association between MBzP phthalate concentrations and masculine scores in boys.	Evans et. al 2021 9354255 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Masculine scores	Health Effect: Neurological/Behavioral-Preschool Activities Inventory (PSAI) scores for masculine, feminine, and composite-Non-cancer. Outcome measure: Preschool Activities Inventory Modified (PSAI-M)	Pregnant people. Preschool (3-5), Adults (18+). United States; California, New York, Washington, Minnesota. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the TIDES cohort study (enrolled n=969, used in study n=498, used in analysis n=255 girls). The Infant Development and the Environment Study (TIDES). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during first and third trimesters.	Linear Regression. Confounders adjusted for: child age, maternal education, race, same sex older sibling, parental attitudes.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted regression coefficient (95% CI)MBzP: -2.1 (-4.0, -0.3). Significant negative association between phthalate concentrations and masculine scores in girls.	Evans et. al 2021 9354255 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Masculine scores	Health Effect: Neurological/Behavioral-Preschool Activities Inventory (PSAI) scores for masculine, feminine, and composite-Non-cancer. Outcome measure: Preschool Activities Inventory Modified (PSAI-M)	Pregnant people. Preschool (3-5), Adults (18+). United States; California, New York, Washington, Minnesota. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the TIDES cohort study (enrolled n=969, used in study n=498, used in analysis n=243 boys). The Infant Development and the Environment Study (TIDES). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during first trimester.	Linear Regression. Confounders adjusted for: child age, maternal education, race, same sex older sibling, parental attitudes.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted regression coefficient (95% CI)MBzP:-2.5 (-4.6, -0.4). Significant negative association between MnBP phthalate concentrations and masculine scores in boys.	Evans et. al 2021 9354255 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Masculine scores	Health Effect: Neurological/Behavioral- Preschool Activities Inventory (PSAI) scores for masculine, feminine, and composite-Non-cancer. Outcome measure: Preschool Activities Inventory Modified (PSAI-M)	Pregnant people. Preschool (3-5), Adults (18+). United States; California, New York, Washington, Minnesota. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the TIDES cohort study (enrolled n=969, used in study n=498, used in analysis n=243 boys). The Infant Development and the Environment Study (TIDES). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during first trimester.	Linear Regression. Confounders adjusted for: child age, maternal education, race, same sex older sibling, parental attitudes.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted regression coefficient (95% CI)MiBP: -2.4 (-4.7, -0.1). Significant negative association between MiBP phthalate concentrations and masculine scores in boys.	Evans et. al 2021 9354255 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Masculine scores	Health Effect: Neurological/Behavioral-Preschool Activities Inventory (PSAI) scores for masculine, feminine, and composite-Non-cancer. Outcome measure: Preschool Activities Inventory Modified (PSAI-M)	Pregnant people. Preschool (3-5), Adults (18+). United States; California, New York, Washington, Minnesota. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the TIDES cohort study (enrolled n=969, used in study n=498, used in analysis n=243 boys). The Infant Development and the Environment Study (TIDES). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during first trimester.	Linear Regression. Confounders adjusted for: child age, maternal education, race, same sex older sibling, parental attitudes.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted regression coefficient (95% CI)MBzP: -2.7 (-4.5, -0.9). Significant negative association between MBzP phthalate concentrations and masculine scores in boys.	Evans et. al 2021 9354255 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Masculine scores	Health Effect: Neurological/Behavioral-Preschool Activities Inventory (PSAI) scores for masculine, feminine, and composite-Non-cancer. Outcome measure: Preschool Activities Inventory Modified (PSAI-M)	Pregnant people. Preschool (3-5), Adults (18+). United States; California, New York, Washington, Minnesota. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the TIDES cohort study (enrolled n=969, used in study n=498, used in analysis n=255 girls). The Infant Development and the Environment Study (TIDES). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during first trimester.	Linear Regression. Confounders adjusted for: child age, maternal education, race, same sex older sibling, parental attitudes.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted regression coefficient (95% CI)MBzP: -2.3 (-4.3, -0.4). Significant negative association between phthalate concentrations and masculine scores in girls.	Evans et. al 2021 9354255 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Masculine scores	Health Effect: Neurological/Behavioral-Preschool Activities Inventory (PSAI) scores for masculine, feminine, and composite-Non-cancer. Outcome measure: Preschool Activities Inventory Modified (PSAI-M)	Pregnant people. Preschool (3-5), Adults (18+). United States; California, New York, Washington, Minnesota. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs from the TIDES cohort study (enrolled n=969, used in study n=498, used in analysis n=255 girls). The Infant Development and the Environment Study (TIDES). 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester.	Linear Regression. Confounders adjusted for: child age, maternal education, race, same sex older sibling, parental attitudes.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted regression coefficient (95% CI)MiBP: 2.7 (0.7, 4.7). Significant negative association between MiBP phthalate concentrations and masculine scores in girls.	Evans et. al 2021 9354255 Medium
Metabolic syndrome (MetS)	Health Effect: Nutritional/Metabolic-Metabolic syndrome, number of metabolic syndrome components, fasting blood glucose (FBG), waist circumference-Non-cancer. Outcome measure: NHANES MEC physical examinations and laboratory analyses	General public. Teens (12-17), Adults (18+). United States. Female, Male. Cross-Sectional. PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Adolescents (age 11 years through < 21 years). 918 adolescents (501 males, 417 females), 45 MetS cases, 873 non-MetS. NHANES. 2003-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring concurrent with outcome.	Logistic Regression. Confounders adjusted for: urinary creatinine, race/ethnicity, total caloric intake, fat intake, economic adversity, age, and sex.	Lowest exposure concentration for a significant adverse health outcome response: T2 (levels reported in STable 1). MnBP: OR (95% CI) for T2 vs. T1: 2.66 (0.98–7.24); T3 vs T1: 2.11 (0.71–6.27); in no economic adversity group: T2 vs T1: 4.22 (1.25–14.25); T3 vs T1: 4.21 (0.97–18.31). MnBP: Positive and significant (at p<0.10) associations with MetS in T2 vs T1 overall, in men, and in individuals in the no economic adversity group. MCPP: No significant associations for MCPP and MetS..	Gaston et. al 2019 5433529 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Triglycerides	Health Effect: Cardiovascular-Blood pressure, serum lipids (triglycerides (TG), high-density lipoprotein cholesterol (HDL))-Non-cancer. Outcome measure: NHANES MEC physical examinations and laboratory analyses	General public. Teens (12-17), Adults (18+). United States. Female, Male. Cross-Sectional. PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Adolescents (age 11 years through < 21 years). 918 adolescents (501 males, 417 females), 45 MetS cases, 873 non-MetS. NHANES. 2003-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring concurrent with outcome.	Logistic Regression. Confounders adjusted for: urinary creatinine, race/ethnicity, total caloric intake, fat intake, economic adversity, age, and sex.	Lowest exposure concentration for a significant adverse health outcome response: T3 (levels reported in STable 1). MnBP: OR (95% CI) for T2 vs. T1: 1.34 (0.83–2.14); T3 vs T1: 1.86 (1.16–2.99). MnBP: Positive and significant (at p<0.05) associations with elevated TG in T3 vs T1, elevated but not significant forT2 vs T1. p-value for interaction between MnBP and sex <0.01.MCPP: No significant associations with TG..	Gaston et. al 2019 5433529 Medium
Fasting blood glucose	Health Effect: Nutritional/Metabolic-Metabolic syndrome, number of metabolic syndrome components, fasting blood glucose (FBG), waist circumference-Non-cancer. Outcome measure: NHANES MEC physical examinations and laboratory analyses	General public. Teens (12-17), Adults (18+). United States. Female, Male. Cross-Sectional. PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Adolescents (age 11 years through < 21 years). 918 adolescents (501 males, 417 females), 45 MetS cases, 873 non-MetS. NHANES. 2003-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring concurrent with outcome.	Logistic Regression. Confounders adjusted for: urinary creatinine, race/ethnicity, total caloric intake, fat intake, economic adversity, age, and sex.	Lowest exposure concentration for a significant adverse health outcome response: T3 (levels reported in STable 1). MnBP: OR (95% CI) for T2 vs. T1: 0.27 (0.07–0.99); T3 vs. T1: 0.64 (0.12–3.25)MCPP: OR (95% CI) for T2 vs. T2: 3.25 (0.86–12.25); T3 vs. T1: 3.22 (0.95–10.93). MnBP: Inverse and significant (at p<0.05) association with high FBG in T2 vs T1, inverse but not significant for T3 vs T1. MCPP: Positive and significant (at p<0.10) association with high FBG in T2 vs. T1 and T3 vs. T1..	Gaston et. al 2019 5433529 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Waist circumference	Health Effect: Nutritional/Metabolic-Metabolic syndrome, number of metabolic syndrome components, fasting blood glucose (FBG), waist circumference-Non-cancer-Reproductive/Developmental-Waist circumference-Non-cancer. Outcome measure: NHANES MEC physical examinations and laboratory analyses	General public. Teens (12-17), Adults (18+). United States. Female, Male. Cross-Sectional. PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Adolescents (age 11 years through < 21 years). 918 adolescents (501 males, 417 females), 45 MetS cases, 873 non-MetS. NHANES. 2003-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring concurrent with outcome.	Logistic Regression. Confounders adjusted for: urinary creatinine, race/ethnicity, total caloric intake, fat intake, economic adversity, age, and sex.	Lowest exposure concentration for a significant adverse health outcome response: T3 (levels reported in STable 1). MnBP: OR (95% CI) for T2 vs. T1: 2.17 (1.10–4.32); T3 vs. T1: 1.72 (0.81–3.65). MnBP: Inverse and significant (at $p<0.05$) association with high waist circumference in T2 vs T1, inverse but not significant for T3 vs T1. MCPP: No significant associations with high waist circumference.	Gaston et. al 2019 5433529 Medium
Blood pressure	Health Effect: Cardiovascular-Blood pressure, serum lipids (triglycerides (TG), high-density lipoprotein cholesterol (HDL))-Non-cancer. Outcome measure: NHANES MEC physical examinations and laboratory analyses	General public. Teens (12-17), Adults (18+). United States. Female, Male. Cross-Sectional. PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Adolescents (age 11 years through < 21 years). 918 adolescents (501 males, 417 females), 45 MetS cases, 873 non-MetS. NHANES. 2003-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring concurrent with outcome.	Logistic Regression. Confounders adjusted for: urinary creatinine, race/ethnicity, total caloric intake, fat intake, economic adversity, age, and sex.	Lowest exposure concentration for a significant adverse health outcome response: T3 (levels reported in STable 1). MnBP: OR (95% CI) for T2 vs. T1: 0.36 (0.17–0.77); T3 vs. T1: 0.32 (0.12–0.87)MCPP: OR (95% CI) for T2 vs. T1: 0.86 (0.40–1.82); T3 vs. T1: 0.33 (0.13–0.83). MnBP: Inverse and significant (at $p<0.05$) association with elevated BP in T2 vs. T1 and T3 vs. T1. Interaction term with sex significant at $p<0.1$.MCPP: Inverse and significant (at $p<0.05$) association with elevated BP in T3 vs. T1, inverse but not significant for T2 vs. T1. Interaction term with sex significant at $p<0.1$..	Gaston et. al 2019 5433529 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
HDL cholesterol	Health Effect: Cardiovascular-Blood pressure, serum lipids (triglycerides (TG), high-density lipoprotein cholesterol (HDL))-Non-cancer. Outcome measure: NHANES MEC physical examinations and laboratory analyses	General public. Teens (12-17), Adults (18+). United States. Female, Male. Cross-Sectional. PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Adolescents (age 11 years through < 21 years). 918 adolescents (501 males, 417 females), 45 MetS cases, 873 non-MetS. NHANES. 2003-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring concurrent with outcome.	Logistic Regression. Confounders adjusted for: urinary creatinine, race/ethnicity, total caloric intake, fat intake, economic adversity, age, and sex.	Lowest exposure concentration for a significant adverse health outcome response: T3 (levels reported in STable 1). MnBP: OR (95% CI) for T2 vs. T1: 1.81 (0.92–3.50); T3 vs. T1: 1.63 (0.80–3.33)MCPP: OR (95% CI) for T2 vs. T1: 0.99 (0.55–1.78); T3 vs. T1: 1.74 (0.92–3.30). MnBP: Positive and significant (at p<0.1) association with low HDL cholesterol in T2 vs. T1, positive but non-significant association for T3 vs. T1. Interaction term with sex significant at p<0.1.MCPP: Positive but non-significant association with low HDL cholesterol in T2 vs. T1, positive and significant (at p<0.1) association in T3 vs. T1..	Gaston et. al 2019 5433529 Medium
Blood pressure	Health Effect: Cardiovascular-Blood pressure, serum lipids (triglycerides (TG), high-density lipoprotein cholesterol (HDL))-Non-cancer. Outcome measure: NHANES MEC physical examinations and laboratory analyses	General public. Teens (12-17), Adults (18+). United States. Female, Male. Cross-Sectional. PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Adolescents (age 11 years through < 21 years). 918 adolescents (501 males, 417 females), 45 MetS cases, 873 non-MetS. NHANES. 2003-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring concurrent with outcome.	Logistic Regression. Confounders adjusted for: urinary creatinine, race/ethnicity, total caloric intake, fat intake, economic adversity, age, and sex.	Lowest exposure concentration for a significant adverse health outcome response: T3 (levels reported in STable 1). OR (95% CI) for T2 vs. T1: 0.57 (0.25, 1.30); T3 vs. T1: 0.46 (0.20, 1.05). Inverse and significant (at p<0.1) association with elevated BP in T3 vs. T1, inverse but not significant association for T2 vs. T1..	Gaston et. al 2019 5433529 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
HDL cholesterol	Health Effect: Cardiovascular-Blood pressure, serum lipids (triglycerides (TG), high-density lipoprotein cholesterol (HDL))-Non-cancer. Outcome measure: NHANES MEC physical examinations and laboratory analyses	General public. Teens (12-17), Adults (18+). United States. Female, Male. Cross-Sectional. PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Adolescents (age 11 years through < 21 years). 918 adolescents (501 males, 417 females), 45 MetS cases, 873 non-MetS. NHANES. 2003-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring concurrent with outcome.	Logistic Regression. Confounders adjusted for: urinary creatinine, race/ethnicity, total caloric intake, fat intake, economic adversity, age, and sex.	Lowest exposure concentration for a significant adverse health outcome response: T3 (levels reported in STable 1). OR (95% CI) for T2 vs. T1: 1.64 (0.91–2.89); T3 vs. T1: 1.20 (0.66–2.17). Positive and significant at ($p<0.1$) association with low HDL cholesterol in T2 vs. T1; positive but not significant association in T3 vs. T1..	Gaston et. al 2019 5433529 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Body mass index	Health Effect: Reproductive/Developmental-Body mass index (BMI)-Non-cancer-Nutritional/Metabolic-Body mass index (BMI)-Non-cancer. Outcome measure: Directly measured via standardized equipment	General public, Pregnant people. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). United States; California, Salinas Valley. Female, Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Low-income US born Latino children (n=162 male and n=173 female children). Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS). Enrollment: 1999-2000; Follow-up: Up to 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Growth Mixture Models. Confounders adjusted for: maternal pre-pregnancy BMI, gestational weight gain, diet quality index during pregnancy, smoking during pregnancy, education, marital status, age, number of years in the US.	Lowest exposure concentration for a significant adverse health outcome response: continuous. No effect estimates presented.. ”Higher MECPP exposure associated with moderatelyincreasing BMI trajectory for boys. DEHP metabolitesassociated with initial high increase in BMI that levels ofat puberty in girls.”.	Heggeseth et. al 2019 5514974 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Body mass index	Health Effect: Reproductive/Developmental-Body mass index (BMI)-Non-cancer-Nutritional/Metabolic-Body mass index (BMI)-Non-cancer. Outcome measure: Directly measured via standardized equipment	General public, Pregnant people. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). United States; California, Salinas Valley. Female, Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Low-income US born Latino children (n=162 male and n=173 female children). Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS). Enrollment: 1999-2000; Follow-up: Up to 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Regression trees. Confounders adjusted for: maternal pre-pregnancy BMI, gestational weight gain, diet quality index during pregnancy, smoking during pregnancy, education, marital status, age, number of years in the US.	Lowest exposure concentration for a significant adverse health outcome response: continuous. No effect estimates presented.. ”MnBP can explain variation in BMI trajectories among boys.”.	Heggeseth et. al 2019 5514974 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Body mass index	Health Effect: Reproductive/Developmental-Body mass index (BMI)-Non-cancer-Nutritional/Metabolic-Body mass index (BMI)-Non-cancer. Outcome measure: Directly measured via standardized equipment	General public, Pregnant people. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). United States; California, Salinas Valley. Female, Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Low-income US born Latino children (n=162 male and n=173 female children). Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS). Enrollment: 1999-2000; Follow-up: Up to 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Regression trees. Confounders adjusted for: maternal pre-pregnancy BMI, gestational weight gain, diet quality index during pregnancy, smoking during pregnancy, education, marital status, age, number of years in the US.	Lowest exposure concentration for a significant adverse health outcome response: continuous. No effect estimates presented.. ”MiBP can explain variation in BMI trajectories among boys.”.	Heggeseth et. al 2019 5514974 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: anxious/depressed	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Beta (95% CI) per 1-unit increase in ln-maternal MEHP : 0.029 (0.004, 0.054). Significant positive association for maternal MEHP and children's anxious/depressed T scores measured at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: social problems	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Beta (95% CI) per 1-unit increase in ln-maternal MEHP: 0.033 (0.003, 0.063). Significant positive association for maternal MEHP and children's social problems T scores measured at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: thought problems	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Beta (95% CI) per 1-unit increase in ln-maternal MEHP: 0.038 (0.006, 0.070). Significant positive association for maternal MEHP and children's thought problems T scores measured at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: attention problems	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Beta (95% CI) per 1-unit increase in ln-maternal MEHP: 0.040 (0.008, 0.072). Significant positive association for maternal MEHP and attention problems T scores measured at age 8 to 14 years, adjusted for children's urinary phthalate metabolites..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: delinquent behaviour	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Beta (95% CI) per 1-unit increase in ln-maternal MEHP: 0.044 (0.019, 0.069). Significant positive association for maternal MEHP and child delinquent behavior T scores measured at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: aggressive behaviors	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Beta (95% CI) per 1-unit increase in ln-maternal MEHP: 0.034 (0.008, 0.061). Significant positive associations for maternal MEHP and child aggressive behavior T scores at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: internalizing problems	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Beta (95% CI) per 1-unit increase in ln-maternal MEHP: 0.028 (0.0004, 0.055). Significant positive associations for maternal MEHP and child internalizing problems scores measured at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: externalizing problems	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Beta (95% CI) per 1-unit increase in ln-maternal MEHP: 0.040 (0.013, 0.066). Significant positive associations for maternal MEHP and child externalizing problems scores measured at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: delinquent behaviour	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Beta (95% CI) per 1-unit increase in ln-maternal sum of DEHP metabolites: 0.035 (0.013, 0.058). Significant positive association for maternal sum of DEHP metabolites and delinquent behavior T scores measured at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: externalizing problems	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Beta (95% CI) per 1-unit increase in ln-maternal sum of DEHP metabolites: 0.026 (0.002, 0.051). Significant positive associations for maternal sum of DEHP metabolites and child externalizing problems measured at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: social problems	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Beta (95% CI) per 1-unit increase in ln-child MBzP: 0.018 (0.001, 0.035). Significant positive associations for child MBzP and social problems T scores measured at ages 8-14 years, adjusted for maternal MBzP..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: internalizing problems (borderline vs normal range)	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Generalized linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for odds of borderline problematic vs. normal range internalizing behavior scores per 1-unit increase in ln-maternal MEHP: 2.33 (1.20, 4.55). Significant positive associations for maternal MEHP and odds of borderline problematic internalizing behavior scores at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: internalizing problems (borderline/clinical vs normal range)	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Generalized linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for odds of borderline/clinical compared to normal range internalizing behavior scores per 1-unit increase in ln-maternal MEHP: 1.69 (1.12, 2.56). Significant positive associations for maternal MEHP and odds of borderline/clinical vs. normal range internalizing behavior scores measured at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: internalizing problems (borderline/clinical vs normal range)	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Generalized linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for odds of borderline/clinical compared to normal range internalizing behavior scores per 1-unit increase in ln-maternal sum of DEHP metabolites: 1.52 (1.02, 2.28). Significant positive associations for maternal sum of DEHP metabolites and odds of borderline/clinical vs. normal range internalizing behavior scores at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: externalizing problems (borderline vs normal range)	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Generalized linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for odds of borderline compared to normal range externalizing behavior scores per 1-unit increase in ln-maternal MEHP: 2.24 (1.29, 3.89). Significant positive associations for maternal MEHP and odds of borderline vs. normal range externalizing behavior scores at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: externalizing problems (borderline/clinical vs normal range)	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Generalized linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for odds of borderline/clinical compared to normal range externalizing behavior scores per 1-unit increase in ln-maternal MEHP: 2.39 (1.44, 3.97). Significant positive associations for maternal MEHP and odds of borderline/clinical vs normal range externalizing behavior scores at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: externalizing problems (clinical vs normal range)	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Generalized linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for odds of clinical compared to normal range externalizing behavior scores per 1-unit increase in ln-maternal MEHP: 2.41 (1.34, 4.34). Significant positive associations for maternal MEHP and odds of clinical vs. normal range externalizing behavior scores at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: externalizing problems (borderline vs normal range)	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Generalized linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for odds of borderline compared to normal range externalizing behavior scores per 1-unit increase in ln-maternal sum of DEHP metabolites: 2.20 (1.25, 3.89). Significant positive associations for maternal sum of DEHP metabolites and odds of borderline vs. normal externalizing behavior scores at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: externalizing problems (clinical vs normal range)	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Generalized linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for odds of clinical compared to normal range externalizing behavior scores per 1-unit increase in ln-maternal sum of DEHP metabolites: 2.12 (1.17, 3.84). Significant positive associations for maternal sum of DEHP metabolites and odds of clinical vs. normal range externalizing behavior scores (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: externalizing problems (borderline/clinical vs normal range)	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Generalized linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for odds of borderline/clinical compared to normal range externalizing behavior scores per 1-unit increase in ln-maternal sum of DEHP metabolites: 2.19 (1.34, 3.57). Significant positive associations for maternal sum of DEHP metabolites and odds of borderline/clinical vs. normal range externalizing behavior scores at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: externalizing problems (borderline vs normal range)	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Generalized linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for odds of borderline compared to normal range externalizing behavior scores per 1-unit increase in ln-maternal MBP: 1.90 (1.03, 3.51). Significant positive associations for maternal MBP and odds of borderline vs. normal range externalizing behavior scores at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Behavior Checklist (CBCL) scores: externalizing problems (borderline/clinical vs. normal range)	Health Effect: Neurological/Behavioral-Child Behavior Checklist Scores for internalizing problems (somatic complains, anxious or depressed, withdrawn) and externalizing problems (delinquent behavior, aggressive behavior)-Non-cancer. Outcome measure: Questionnaire (maternal report)	General public. Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). 153 mother-child pairs. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Maternal exposure measured during 3-rd trimester of pregnancy; child exposure measured at 2-3 yrs, 5-6 yrs and 8-9 yrs.	Generalized linear mixed model. Confounders adjusted for: children's sex, IQ, family income, and study visit.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for odds of borderline/clinical compared to normal range externalizing behavior scores per 1-unit increase in ln-maternal MBP: 1.72 (1.03, 2.89). Significant positive associations for maternal MBP and odds of borderline/clinical vs. normal range externalizing behavior scores at ages 8 to 14 years (adjusted for children's urinary phthalate metabolites)..	Huang et. al 2019 5750709 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Birth outcomes (birth length, birth weight, gestational age)	Health Effect: Reproductive/Developmental-birth length, birth weight, gestational age-Non-cancer. Outcome measure: Not specified	General public, Pregnant people. Infant (0-1), Adults (18+). China; Wuhan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Mother-infant pairs in Wuhan, China (n=997 eligible, n=799 with urine sample, n=115 with DNA methylation measured in cord blood, n=106 with sufficient urine volume and used in analysis). Recruitment during late pregnancy: 2011-2012; Follow-up: through delivery.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured when women presented to the clinic for delivery.	Generalized Additive Model (GAM). Confounders adjusted for: age, pre-pregnancy BMI, marital status, passive smoking, infant sex, creatinine, gestational age (birth length and birth weight models only).	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficients (95% CI) for MBzP:Gestational age, all participants: 0.16 (0.03, 0.29)Gestational age, boys: 0.22 (0.04, 0.41)Birth length, boys: 0.15 (0.01, 0.28). Significant positive associations between MBzP and gestational age among all participants and among boys only. Significant positive association between MBzP and birth length in boys only. No significant associations in girls or with birth weight outcome..	Huang et. al 2018 4728501 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Birth outcomes (birth length, birth weight, gestational age)	Health Effect: Reproductive/Developmental-birth length, birth weight, gestational age-Non-cancer. Outcome measure: Not specified	General public, Pregnant people. Infant (0-1), Adults (18+). China; Wuhan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Mother-infant pairs in Wuhan, China (n=997 eligible, n=799 with urine sample, n=115 with DNA methylation measured in cord blood, n=106 with sufficient urine volume and used in analysis). Recruitment during late pregnancy: 2011-2012; Follow-up: through delivery.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured when women presented to the clinic for delivery.	Generalized Additive Model (GAM). Confounders adjusted for: age, pre-pregnancy BMI, marital status, passive smoking, infant sex, creatinine, gestational age (birth length and birth weight models only).	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficients (95% CI) for MEHP:Gestational age, all participants: 0.12 (0.03, 0.22)Regression coefficients (95% CI) for MEHHP:Birth length, all participants: -0.16 (-0.28, -0.04)Birth length, boys: -0.17 (-0.31, -0.03)Birth length, girls: -0.21 (-0.40, -0.01)Regression coefficients (95% CI) for MEOHP:Gestational age, all participants: 0.18 (0.006, 0.35)Birth length, all participants: -0.17 (-0.30, -0.04)Birth length, boys: -0.17 (-0.33, -0.02)Birth length, girls: -0.26 (-0.47, -0.06)Regression coefficients (95% CI) for sum DEHP metabolites:Gestational age, all participants: 0.19 (0.03, 0.35)Gestational age, girls: 0.26 (0.01, 0.51)Birth length, all participants: -0.14 (-0.26, -0.02)Birth length, boys: -0.16 (-0.31, -0.01)Birth length, girls: -0.20 (-0.40, -0.01)Birth weight, boys: -72.81 (-143.35, -2.27). Significant positive associations between MEHP, MEHHP, MEOHP, and sum DEHP metabolites and gestational age among all participants. Significant inverse associations between MEHHP, MEOHP, and sum DEHP metabolites and birth length among all participants and in analyses stratified by sex..	Huang et. al 2018 4728501 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Neurodevelopmental outcomes: executive function; cognition; social cognition; and attention and behavior	Health Effect: Neurological/Behavioral-Executive Function, Social Cognition, Cognition/Intelligence, Attention and Behavior.-Non-cancer. Outcome measure: Standardized assessments administered by study staff or completed by parents and/or teachers. Includes BRIEF, NEPSY tower, Wisconsin Card Sort, Wechsler Intelligence Scale, Social Responsiveness Scale, BASC, Connors ADHD/DSM-IV scale, CPT II	General public, Pregnant people. Middle childhood (6-11), Teens (12-17), Adults (18+). United States; Salinas Valley, California. Female, Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Adolescents (age 11 years through < 21 years). Low-income US born Mexican-American children (n=334) followed prenatally through age 16 years. CHAMACOS (Center for the Health Assessment of Mothers and Children of Salinas) birth cohort. Recruitment: 1999-2000; Follow-up: 2015-2016.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Generalized linear mixed model. Confounders adjusted for: maternal age, education, country of birth, and depression at time of assessment; child sex, age at assessment, and language; HOME score, household income at assessment.	Lowest exposure concentration for a significant adverse health outcome response: Continuous; Geometric mean (GSD) ∑DEHP metabolites = 0.2 (2.2) nmol/mL. Beta (95% CI) per log2 increase in ∑DEHP metabolites:Cognitive outcomes: *Full scale IQ at ages 7y and 10.5y: -boys = -1.7 (-3.8, 0.3) -girls = 1.6 (0.0, 3.2) -(interaction p=0.01). *Working memory IQ at ages 7y and 10.5y: -boys = -1.9 (-3.9, 0.1) -girls = 1.6 (0.1, 3.2) -(interaction p<0.01).*Perceptual reasoning IQ at ages 7y and 10.5y: - boys = -1.4 (-3.3, 0.4) -girls = 1.4 (-0.6, 3.5) -(interaction p=0.04).*Processing speed IQ at ages 7y and 10.5y: -boys = -0.8 (-2.7, 1.1) -girls = 1.5 (0.1, 2.8) -(interaction p=0.05).Social cognitive outcomes:-Social cognition at age 9y (ENI-Evaluación Neuropsicológica del Niño scores): all children = 0.1 (0.0,0.2); boys = 0.0 (-0.2, 0.2);girls = 0.2 (0.0, 0.4);(interaction p = 0.10).Beta (95% CI) per tertile increase in ∑DEHP metabolites:Behavior:-Anxiety scale, teacher report age 7y: all T2 = -3.6 (-7.3, 0.1), T3 = -4.5 (-8.1, -0.9);boys T2 = -2.6 (-7.4, 2.2), T3 = -2.9 (-8.5, 2.8); girls T2 = -4.4 (-9.9, 1.2), T3 = -6.7 (-12.2, -1.1). Higher concentrations of ∑DEHP metabolites during pregnancy were associated with near-significantly higher mean standardized IQ scores (overall and several sub-domains) in girls, but with marginally non-significant lower scores in boys (sex interaction p-values significant). Associations with the verbal comprehension IQ sub-domain were weaker and ns. Higher ∑DEHP was also associated with higher social cognition in girls, and with lower teacher-reported anxiety at age 7y, particularly in girls..	Hyland et. al 2019 6815846 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Neurodevelopmental outcomes: executive function; cognition; social cognition; and attention and behavior	Health Effect: Neurological/Behavioral-Executive Function, Social Cognition, Cognition/Intelligence, Attention and Behavior.-Non-cancer. Outcome measure: Standardized assessments administered by study staff or completed by parents and/or teachers. Includes BRIEF, NEPSY tower, Wisconsin Card Sort, Wechsler Intelligence Scale, Social Responsiveness Scale, BASC, Connors ADHD/DSM-IV scale, CPT II	General public, Pregnant people. Middle childhood (6-11), Teens (12-17), Adults (18+). United States; Salinas Valley, California. Female, Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Adolescents (age 11 years through < 21 years). Low-income US born Mexican-American children (n=334) followed prenatally through age 16 years. CHAMACOS (Center for the Health Assessment of Mothers and Children of Salinas) birth cohort. Recruitment: 1999-2000; Follow-up: 2015-2016.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Generalized linear mixed model. Confounders adjusted for: maternal age, education, country of birth, and depression at time of assessment; child sex, age at assessment, and language; HOME score, household income at assessment.	Lowest exposure concentration for a significant adverse health outcome response: Continuous; Geometric mean (GSD) for: MEHP = 4.5 (2.6) ng/mL; MEHHP = 18.9 (2.4) ng/mL; MECPP = 32.4 (2.2) ng/mL; MEOHP = 13.8 (2.4) ng/mL. Beta (95% CI) per log2 increase in individual DEHP metabolites:ENI-Evaluación Neuropsicológica del Niño scores at age 14y: MEHHP = 0.1 (0.0, 0.2);MECPP = 0.1 (0.0, 0.2);MEOHP = 0.1 (0.0, 0.2). Higher concentrations of MEHHP, MECPP and MEOPH during pregnancy were associated with near-significantly higher mean parental social responsiveness scale ratings..	Hyland et. al 2019 6815846 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Neurodevelopmental outcomes: executive function; cognition; social cognition; and attention and behavior	Health Effect: Neurological/Behavioral-Executive Function, Social Cognition, Cognition/Intelligence, Attention and Behavior.-Non-cancer. Outcome measure: Standardized assessments administered by study staff or completed by parents and/or teachers. Includes BRIEF, NEPSY tower, Wisconsin Card Sort, Wechsler Intelligence Scale, Social Responsiveness Scale, BASC, Connors ADHD/DSM-IV scale, CPT II	General public, Pregnant people. Middle childhood (6-11), Teens (12-17), Adults (18+). United States; Salinas Valley, California. Female, Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Adolescents (age 11 years through < 21 years). Low-income US born Mexican-American children (n=334) followed prenatally through age 16 years. CHAMACOS (Center for the Health Assessment of Mothers and Children of Salinas) birth cohort. Recruitment: 1999-2000; Follow-up: 2015-2016.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Generalized linear mixed model. Confounders adjusted for: maternal age, education, country of birth, and depression at time of assessment; child sex, age at assessment, and language; HOME score, household income at assessment.	Lowest exposure concentration for a significant adverse health outcome response: Continuous; Geometric mean (GSD) for MiBP= 3.4 (2.7) ng/mL. Beta (95% CI) per log2 increase in MiBP:- Processing Speed IQ = 0.9 (0.0, 1.8). Higher concentrations of MiBP during pregnancy were associated with near-significantly higher mean Processing Speed IQ at ages 7 and 10.5 years..	Hyland et. al 2019 6815846 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Neurodevelopmental outcomes: executive function; cognition; social cognition; and attention and behavior	Health Effect: Neurological/Behavioral-Executive Function, Social Cognition, Cognition/Intelligence, Attention and Behavior.-Non-cancer. Outcome measure: Standardized assessments administered by study staff or completed by parents and/or teachers. Includes BRIEF, NEPSY tower, Wisconsin Card Sort, Wechsler Intelligence Scale, Social Responsiveness Scale, BASC, Connors ADHD/DSM-IV scale, CPT II	General public, Pregnant people. Middle childhood (6-11), Teens (12-17), Adults (18+). United States; Salinas Valley, California. Female, Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Adolescents (age 11 years through < 21 years). Low-income US born Mexican-American children (n=334) followed prenatally through age 16 years. CHAMACOS (Center for the Health Assessment of Mothers and Children of Salinas) birth cohort. Recruitment: 1999-2000; Follow-up: 2015-2016.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Generalized linear mixed model. Confounders adjusted for: maternal age, education, country of birth, and depression at time of assessment; child sex, age at assessment, and language; HOME score, household income at assessment.	Lowest exposure concentration for a significant adverse health outcome response: Continuous; Geometric mean (GSD) for MBzP = 8.9 (2.6) ng/mL. Beta (95% CI) per log2 increase in MBzP:-Internalizing Problems at age 16y, parent report = 0.7 (0.0, 1.4)-Depression scale at age 16y, parent report = 0.8 (0.0, 1.5). Higher concentrations of MBzP during pregnancy were associated with near-significantly higher parent ratings for internalizing problems and depression at age 16y..	Hyland et. al 2019 6815846 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
blood glucose levels	Health Effect: Nutritional/Metabolic-pregnancy glucose levels-Non-cancer. Outcome measure: Medical records	Patients in clinics, Pregnant people. Adults (18+). USA; Massachusetts. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Sub-analysis of the EARTH study (2005-2015), pregnant women aged 18-46 years (n=245). Environment and Reproductive Health (EARTH). 2005-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during the 1st and/or 2nd trimester prior to outcome ascertainment for all but 8 participants, whose exposure was measured simultaneously with outcome.	Linear Regression. Confounders adjusted for: maternal age (years), overweight/obese (yes/no) total physical activity (hr/week), race (white, non-white), family history of diabetes (yes, no), infertility diagnosis (male factor, female factor, unexplained), number of fetus (1, 2).	Lowest exposure concentration for a significant adverse health outcome response: 2nd trimester MIBP, 4th quartile: 10.9-163 ug/L. Population means of 2nd trimester blood glucose (mg/dL) (95% CI) per quartile MiBP:Q1: 119 (113, 126)Q2: 115 (109, 122)Q3: 115 (109, 122)Q4: 105 (99, 111)p-trend = 0.003. For MiBP measured during the 2nd trimester, a significant reduction in population means of blood glucose levels was reported when comparing quartile 4 to quartile 1; no other significant associations were reported..	James-Todd et. al 2018 4728454 High
Child cognition and psychomotor development (domains: fluid intelligence, crystallized intelligence, cognition, mathematical skills, psychomotor skills, language skills).	Health Effect: Neurological/Behavioral-Child behavior (domains: conduct problems, emotional symptoms, hyperactivity-inattention problems, peer relationship problems, total difficulties, prosocial behavior)-Non-cancer. Outcome measure: Intelligence and Development Scales	Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Adults (18+). Poland; Lodz district. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). A subset of mother-child pairs from the Polish Mother and Child Cohort (recruitment beginning 2007), Poland, Lodz district, n=134 mother child pairs. Polish Mother and Child Cohort. Recruitment: 2007; Follow-up through age 7.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during third trimester of pregnancy and when child was age 2.	Linear Regression. Confounders adjusted for: child's sex, child's age at the neurodevelopmental assessment, prenatal tobacco smoke exposure (based on the cotinine level in maternal saliva),postnatal tobacco smoke exposure (based on cotinine level in child urine), maternal educational levels at child examination, place of residence, birth weight (g), psychologist who have performed child neurodevelopmental examination.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI):MnBP in child urine samples and fluid intelligence: -4.91 (-9.32, 0.50)MNBP in child urine samples and cognition: -3.95 (-7.53, 0.38). Significant inverse associations between MnBP measured postnatally in child urine samples and both fluid intelligence and cognition. No significant associations between MnBP and other measures of child cognition and psychomotor development, or between OH-MnBP and any measures..	Jankowska et. al 2019 5933662 Medium

Continued on next page ...

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child cognition and psychomotor development (domains: fluid intelligence, crystallized intelligence, cognition, mathematical skills, psychomotor skills, language skills).	Health Effect: Neurological/Behavioral-Child cognition and psychomotor development (domains: fluid intelligence, crystallized intelligence, cognition, mathematical skills, psychomotor skills, language skills)-Non-cancer. Outcome measure: Intelligence and Development Scales	Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Adults (18+). Poland; Lodz district. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). A subset of mother-child pairs from the Polish Mother and Child Cohort (recruitment beginning 2007), Poland, Lodz district, n=134 mother child pairs. Polish Mother and Child Cohort. Recruitment: 2007; Follow-up through age 7.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during third trimester of pregnancy and when child was age 2.	Linear Regression. Confounders adjusted for: child's sex, child's age at the neurodevelopmental assessment, prenatal tobacco smoke exposure (based on the cotinine level in maternal saliva),postnatal tobacco smoke exposure (based on cotinine level in child urine), maternal educational levels at child examination, place of residence, birth weight (g), psychologist who have performed child neurodevelopmental examination.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI):oxo-MEHP in maternal urine samples and fluid intelligence: 3.59 (0.30, 6.87)oxo-MEHP in maternal urine samples and cognition: 2.87 (0.21, 5.54). Significant positive associations between oxo-MEHP measured prenatally in maternal third trimester urine samples and both fluid intelligence and cognition. No significant associations between oxo-MEHP and other measures of child cognition and psychomotor development, or between OH-MEHP and any measures..	Jankowska et. al 2019 5933662 Medium
Strengths and Difficulties Questionnaire (SDQ), total difficulties score	Health Effect: Neurological/Behavioral-Child behavioral and emotional problems at age 7 years, child cognitive and psychomotor development-Non-cancer. Outcome measure: Questionnaire	General public. Middle childhood (6-11). Poland. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). 250 mother-child pairs. Polish Mother and Child Cohort (REPRO_PL). Recruitment: 2007; Follow-up: age of 7 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at age of 7 years.	Linear Regression. Confounders adjusted for: Child's sex and age at examination, age at school attendance, household status, SES, parental educational level, maternal age at birth, traumatic events, children's BMI, place of residence, number of siblings, exposure to tobacco during pregnancy and in children's at 7 years of age.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI): 1.5 (0.25, 2.8). Significant positive association between sum of DnBP and total difficulties scores..	Jankowska et. al 2019 5932896 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Strengths and Difficulties Questionnaire (SDQ), hyperactivity/inattention problems	Health Effect: Neurological/Behavioral-Child behavioral and emotional problems at age 7 years, child cognitive and psychomotor development-Non-cancer. Outcome measure: Questionnaire	General public. Middle childhood (6-11). Poland. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). 250 mother-child pairs. Polish Mother and Child Cohort (REPRO_PL). Recruitment: 2007; Follow-up: age of 7 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at age of 7 years.	Linear Regression. Confounders adjusted for: Child's sex and age at examination, age at school attendance, household status, SES, parental educational level, maternal age at birth, traumatic events, children's BMI, place of residence, number of siblings, exposure to tobacco during pregnancy and in children's at 7 years of age.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI): 0.72 (0.065, 1.4). Significant positive association between sum of DnBP and hyperactivity/inattention problems..	Jankowska et. al 2019 5932896 Medium
Intelligence and Development Scales (IDS), fluid IQ	Health Effect: Neurological/Behavioral-Child behavioral and emotional problems at age 7 years, child cognitive and psychomotor development-Non-cancer. Outcome measure: Questionnaire	General public. Middle childhood (6-11). Poland. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). 250 mother-child pairs. Polish Mother and Child Cohort (REPRO_PL). Recruitment: 2007; Follow-up: age of 7 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at age of 7 years.	Linear Regression. Confounders adjusted for: Child's sex and age at examination, age at school attendance, household status, SES, parental educational level, maternal age at birth, traumatic events, children's BMI, place of residence, number of siblings, exposure to tobacco during pregnancy and in children's at 7 years of age.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI): -0.14 (-0.29, 0.0041). Significant negative association between sum of DnBP and fluid IQ at p<0.1 level..	Jankowska et. al 2019 5932896 Medium
Intelligence and Development Scales (IDS), fluid IQ	Health Effect: Neurological/Behavioral-Child behavioral and emotional problems at age 7 years, child cognitive and psychomotor development-Non-cancer. Outcome measure: Questionnaire	General public. Middle childhood (6-11). Poland. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). 250 mother-child pairs. Polish Mother and Child Cohort (REPRO_PL). Recruitment: 2007; Follow-up: age of 7 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at age of 7 years.	Linear Regression. Confounders adjusted for: Child's sex and age at examination, age at school attendance, household status, SES, parental educational level, maternal age at birth, traumatic events, children's BMI, place of residence, number of siblings, exposure to tobacco during pregnancy and in children's at 7 years of age.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI): -0.14 (-0.28, 0.0012). Significant negative association between sum of DnBP and mathematical skills at p<0.1 level..	Jankowska et. al 2019 5932896 Medium

Continued on next page ...

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Strengths and Difficulties Questionnaire (SDQ), emotional symptoms	Health Effect: Neurological/Behavioral-Child behavioral and emotional problems at age 7 years, child cognitive and psychomotor development-Non-cancer. Outcome measure: Questionnaire	General public. Middle childhood (6-11). Poland. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). 250 mother-child pairs. Polish Mother and Child Cohort (REPRO_PL). Recruitment: 2007; Follow-up: age of 7 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at age of 7 years.	Linear Regression. Confounders adjusted for: Child's sex and age at examination, age at school attendance, household status, SES, parental educational level, maternal age at birth, traumatic events, children's BMI, place of residence, number of siblings, exposure to tobacco during pregnancy and in children's at 7 years of age.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI): 0.50 (-0.024, 0.94). Significant positive association between sum of DnBP and emotional symptoms..	Jankowska et. al 2019 5932896 Medium
Activated partial thromboplastin time (APTT)	Health Effect: Immune/Hematological-Maternal coagulation parameters in pregnancy: Activated partial thromboplastin time (APTT), prothrombin time (PT), thrombin time (TT), fibrinogen (Fg)-Non-cancer-Immune/Hematological-Maternal hematologic parameters in pregnancy: total white blood cell counts (WBC), red blood cell counts (RBC), hemoglobin (Hb), and platelet counts (PLT)-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Wuhan. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). 1482 pregnant women in Wuhan China (Enrolled n = 1642; Used in analysis n = 1482). 2013-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy (prior to delivery).	Linear Regression. Confounders adjusted for: gestational age at sample collection, prepregnancy BMI, parity, gestational diabetes mellitus, gestational hypertension disorder, education status, passive smoking, iron and folate supplementation during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: continuous. APTT (seconds) beta (95% CI) =0.211 (0.085, 0.338); p-FDR=0.0088. Significant positive associations were reported for ln-transformed MBP with APTT, including after FDR adjustment and after excluding several pregnancy complications..	Jiang et. al 2018 4728517 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
hemoglobin (Hb)	Health Effect: Immune/Hematological-Maternal coagulation parameters in pregnancy: Activated partial thromboplastin time (APTT), prothrombin time (PT), thrombin time (TT), fibrinogen (Fg)-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Wuhan. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). 1482 pregnant women in Wuhan China (Enrolled n = 1642; Used in analysis n = 1482). 2013-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy (prior to delivery).	Linear Regression. Confounders adjusted for: gestational age at sample collection, prepregnancy BMI, parity, gestational diabetes mellitus, gestational hypertension disorder, education status, passive smoking, iron supplementation during pregnancy, infant sex.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Hb (g/L) beta (95% CI) = -0.530 (-0.922, -0.138), p-FDR =0.0216. Ln-MEHP was negatively associated with Hb, including after FDR adjustment and after excluding several pregnancy complications..	Jiang et. al 2018 4728517 Medium
hemoglobin (Hb)	Health Effect: Immune/Hematological-Maternal coagulation parameters in pregnancy: Activated partial thromboplastin time (APTT), prothrombin time (PT), thrombin time (TT), fibrinogen (Fg)-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Wuhan. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). 1482 pregnant women in Wuhan China (Enrolled n = 1642; Used in analysis n = 1482). 2013-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy (prior to delivery).	Linear Regression. Confounders adjusted for: gestational age at sample collection, prepregnancy BMI, parity, gestational diabetes mellitus, gestational hypertension disorder, education status, passive smoking, iron supplementation during pregnancy, infant sex.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Hb (g/L) beta (95% CI) = -0.947 (-1.611, -0.282), p-FDR =0. 0053. Ln-MEOHP was negatively associated with Hb, including after FDR adjustment and after excluding several pregnancy complications..	Jiang et. al 2018 4728517 Medium
hemoglobin (Hb)	Health Effect: Immune/Hematological-Maternal coagulation parameters in pregnancy: Activated partial thromboplastin time (APTT), prothrombin time (PT), thrombin time (TT), fibrinogen (Fg)-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Wuhan. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). 1482 pregnant women in Wuhan China (Enrolled n = 1642; Used in analysis n = 1482). 2013-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy (prior to delivery).	Linear Regression. Confounders adjusted for: gestational age at sample collection, prepregnancy BMI, parity, gestational diabetes mellitus, gestational hypertension disorder, education status, passive smoking, iron supplementation during pregnancy, infant sex.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Hb (g/L) beta (95% CI) = -1.048 (-1.737, -0.360), p-FDR =0. 0029. Ln-MECPP was negatively associated with Hb, including after FDR adjustment and after excluding several pregnancy complications..	Jiang et. al 2018 4728517 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Anemia	Health Effect: Immune/Hematological-Maternal coagulation parameters in pregnancy: Activated partial thromboplastin time (APTT), prothrombin time (PT), thrombin time (TT), fibrinogen (Fg)-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Wuhan. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). 1482 pregnant women in Wuhan China (Enrolled n = 1642; Used in analysis n = 1482). 2013-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy (prior to delivery).	Logistic Regression. Confounders adjusted for: gestational age at samples collection, prepregnancy BMI, parity, gestational diabetes mellitus, gestational hypertension disorder, education status, passive smoking, iron and folate supplementation during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for ln-MEHP and odds of anemia = 1.25 (1.12, 1.39), p-FDR < 0.0001. MEHP was positively and significantly associated with anemia in the third trimester..	Jiang et. al 2018 4728517 Medium
Anemia	Health Effect: Immune/Hematological-Maternal coagulation parameters in pregnancy: Activated partial thromboplastin time (APTT), prothrombin time (PT), thrombin time (TT), fibrinogen (Fg)-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Wuhan. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). 1482 pregnant women in Wuhan China (Enrolled n = 1642; Used in analysis n = 1482). 2013-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy (prior to delivery).	Logistic Regression. Confounders adjusted for: gestational age at samples collection, prepregnancy BMI, parity, gestational diabetes mellitus, gestational hypertension disorder, education status, passive smoking, iron and folate supplementation during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for ln-MEOHP and odds of anemia = 1.22 (1.03, 1.46, p-FDR=1.45. MEOHP was positively and significantly associated with anemia in the third trimester..	Jiang et. al 2018 4728517 Medium
Anemia	Health Effect: Immune/Hematological-Maternal coagulation parameters in pregnancy: Activated partial thromboplastin time (APTT), prothrombin time (PT), thrombin time (TT), fibrinogen (Fg)-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Wuhan. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). 1482 pregnant women in Wuhan China (Enrolled n = 1642; Used in analysis n = 1482). 2013-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy (prior to delivery).	Logistic Regression. Confounders adjusted for: gestational age at samples collection, prepregnancy BMI, parity, gestational diabetes mellitus, gestational hypertension disorder, education status, passive smoking, iron and folate supplementation during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for ln-MECPP and odds of anemia = 1.22 (1.03, 1.46), p-FDR=0.033. MECPP was positively and significantly associated with anemia in the third trimester..	Jiang et. al 2018 4728517 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Attention-Deficit/Hyperactive Disorder	Health Effect: Neurological/Behavioral-Attention Deficit Hyperactivity Disorder (ADHD)-Non-cancer. Outcome measure: Clinical exam	General public. Preschool (3-5). Norway. Female, Male. Case-Cohort. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Case-cohort of ADHD (260 cases, 115 girls; 549 non-cases, 275 girl) nested in the MoBa cohort. Participants were born in 2004-2008 and followed through age 3.8 years.. The Norwegian Mother, Father, and Child Cohort (MoBa). Recruitment: 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Logistic Regression. Confounders adjusted for: Adjusted for specific gravity, analytic batch, child sex, maternal age, maternal education, parity, depression during pregnancy, maternal ADHD-like symptoms. Model 2 additionally adjusted for correlated metabolites (a) MiBP, MnBP, and MBzP co-adjusted for one another; (b) sumDEHP and sumDiNP coadjusted for each other..	Lowest exposure concentration for a significant adverse health outcome response: continuous. Adjusted OR (95% CI) for odds of ADHD per ln-unit increase in DEHP: -Model 1 (multivariate): overall = 1.22 (0.99 to 1.52); boys =1.32 (1.00 to 1.74); girls = 1.10 (0.78 to 1.55). p=0.42 for sex differences. -Model 2 (additionally adjusted for phthalates co-exposure): overall = 1.18 (0.93 to 1.49); boys = 1.28 (0.95 to 1.73); girls =1.03 (0.70 to 1.51). p=0.37 for sex differences. Quintile analysis, model 2: OR (95% CI) for odds of ADHD vs. Q1 (<0.15 umol/L): Q2 (0.16–0.21 μmol/L) = 1.28 (0.76 to 2.15) Q3 (0.21–0.27 μmol/L) = 1.15 (0.68 to 1.97) Q4 (0.27–0.38 μmol/L) = 1.19 (0.70 to 2.03) Q5 (>0.38 μmol/L) = 1.51 (0.89 to 2.56). Significant positive association in odds of preschool ADHD per ln-unit increase in the sum of DEHP metabolites among boys; this association was marginally non-significant after additional adjustment for phthalates co-exposure. Associations with DEHP were weaker and not significant among girls..	Kamai et. al 2021 9559555 Medium
Attention-Deficit/Hyperactive Disorder	Health Effect: Neurological/Behavioral-Attention Deficit Hyperactivity Disorder (ADHD)-Non-cancer. Outcome measure: Clinical exam	General public. Preschool (3-5). Norway. Female, Male. Case-Cohort. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Case-cohort of ADHD (260 cases, 115 girls; 549 non-cases, 275 girl) nested in the MoBa cohort. Participants were born in 2004-2008 and followed through age 3.8 years.. The Norwegian Mother, Father, and Child Cohort (MoBa). Recruitment: 2004-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Linear Regression. Confounders adjusted for: Adjusted for specific gravity, analytic batch, child sex, maternal age, maternal education, parity, depression during pregnancy, maternal ADHD-like symptoms. Model 2 additionally adjusted for correlated metabolites (a) MiBP, MnBP, and MBzP co-adjusted for one another; (b) sumDEHP and sumDiNP coadjusted for each other..	Lowest exposure concentration for a significant adverse health outcome response: continuous. Adjusted OR (95% CI) for odds of ADHD per ln-unit increase in MBP: -Model 1 (multivariate): overall = 1.18 (0.95 to 1.45); boys = 1.42 (1.07 to 1.88); girls = 0.93 (0.68 to 1.28). p=0.05 for sex differences. -Model 2 (additionally adjusted for phthalates co-exposure): overall = 1.13 (0.84 to 1.52)); boys = 1.43 (0.97 to 2.10); girls = 0.82 (0.51 to 1.31). p=0.07 for sex differences.. Statistically significant positive association between MBP and odds of preschool ADHD only among boys. No evidence of an association with MBP in girls was found..	Kamai et. al 2021 9559555 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Autistic traits	Health Effect: Neurological/Behavioral-Autistic traits-Non-cancer. Outcome measure: Social Communication Questionnaire (SCQ)	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Adults (18+). South Korea; Seoul and Gyeonggi provinces. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs in Seoul and Gyeonggi provinces, South Korea (n=527). This study was part of the Environment and Development of Children (EDC) study, which is a prospective birth cohort study in South Korea that enrolled participants from the Congenital Anomaly Study (CAS).. Recruitment: 2008-2010; Follow-up: through child age 8.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure was measured during pregnancy (2nd trimester) and at child ages 4, 6, and 8.	Poisson Regression. Confounders adjusted for: Poisson models for phthalates measured during pregnancy: child's age, sex, twin, birth order, phthalate levels at age of outcome assessment; Poisson models for phthalates measured during childhood: child's age, sex, twin, birth order, maternal education level, current environmental tobacco smoke, phthalate levels at time of SCQ assessment (or phthalate measured at pregnancy); GEE models: age, sex, twin, birth order, maternal education level, current environmental tobacco smoke, phthalate levels during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: continuous. % change in SCQ score (95% CI): Age 8 MnBP level and age 8 SCQ score, all participants: 8.9 (1.2, 17.1); Age 4 MnBP level and age 8 SCQ score, boys: 14.8 (2.9, 28.0); Prenatal MnBP level and age 8 SCQ score, girls: -13.2 (-22.6, -2.6); Age 8 MnBP level and age 8 SCQ score, girls: 11.9 (0.4, 24.8). Statistically significant positive associations were reported for the association between age 8 MnBP and age 8 SCQ score among all participants and among girls. The association between age 8 MnBP level and age 8 SCQ score was positive but not statistically significant among boys. A statistically significant positive association between age 4 MnBP level and age 8 SCQ score was found only among boys. A statistically significant inverse association between prenatal MnBP level and age 8 SCQ was found only among girls. No other statistically significant associations between pairs of exposure and outcome timepoints were found for MnBP. A positive but not statistically significant association was observed in the repeated measures GEE model across timepoints for all participants, boys, and girls..	Kim et. al 2021 9415898 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Autistic traits	Health Effect: Neurological/Behavioral-Autistic traits-Non-cancer. Outcome measure: Social Communication Questionnaire (SCQ)	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Adults (18+). South Korea; Seoul and Gyeonggi provinces. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs in Seoul and Gyeonggi provinces, South Korea (n=527). This study was part of the Environment and Development of Children (EDC) study, which is a prospective birth cohort study in South Korea that enrolled participants from the Congenital Anomaly Study (CAS).. Recruitment: 2008-2010; Follow-up: through child age 8.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy (between 14 and 27 weeks gestation) and at child ages 4, 6, and 8.	Poisson Regression. Confounders adjusted for: Poisson models for phthalates measured during pregnancy: child's age, sex, twin, birth order, phthalate levels at age of outcome assessment; Poisson models for phthalates measured during childhood: child's age, sex, twin, birth order, maternal education level, current environmental tobacco smoke, phthalate levels at time of SCQ assessment (or phthalate measured at pregnancy); GEE models: age, sex, twin, birth order, maternal education level, current environmental tobacco smoke, phthalate levels during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: continuous. % change in SCQ score (95% CI):MEHHP: Prenatal MEHHP level and age 4 SCQ score, all participants: 8.5 (1.9, 15.5); Age 4 MEHHP level and age 8 SCQ score, all participants: 9.9 (1.8, 18.6); Age 8 MEHHP level and age 8 SCQ score, all, participants: 9.6 (1.3, 18.6); Prenatal MEHHP level and age 4 SCQ score, boys: 8.9 (0.8, 17.7); Prenatal MEHHP level and age 6 SCQ score, boys: 8.1 (0.7, 16.1); Age 4 MEHP level and age 8 SCQ score, boys: 17.1 (5.2, 30.4); MEOHP: Prenatal MEOHP level and age 4 SCQ score, all participants: 7.4 (0.3, 15.0); Age 4 MEOHP level and age 8 SCQ score, all participants: 12.9 (3.6, 23.1); Age 8 MEOHP level and age 8 SCQ score, all participants: 12.3 (3.8, 21.5); Age 4 MEOHP level and age 8 SCQ score, boys: 19.6 (6.2, 34.6); MECPP: Age 4 MECPP level and age 8 SCQ score, all participants: 11.7 (1.8, 22.5); Age 4 MECPP level and age 8 SCQ score, boys: 15.7 (1.3, 32.1). Statistically significant positive associations were observed between prenatal MEHHP levels and age 4 SCQ scores among all participants and among boys. Statistically significant positive associations between age 4 MEHHP levels and age 8 SCQ scores were found among all participants and among boys. Statistically significant positive association were found between age 8 MEHHP levels and age 8 SCQ scores among all participants. Statistically significant positive associations were found between prenatal MEHHP levels and age 6 SCQ scores among boys only. No statistically significant associations were found for MEHHP at other time points or in analyses limited to girls only. Associations in the repeated measures GEE model across timepoints were not statistically significant for all participants, boys, or girls. Statistically significant positive associations were found between prenatal MEOHP levels and age 4 SCQ scores, age 4 MEOHP levels and age 8 SCQ scores, and age 8 MEOHP levels and age 8 SCQ scores among all participants. Statistically significant positive associations were found between age 4 MEOHP levels and age 8 SCQ scores among boys only. No statistically significant associations were found for MEOHP at other time points or in analyses limited to girls only. The association in repeated measures GEE model across timepoints was not statistically significant for all participants, boys, or girls. Statistically significant positive associations were found between age 4 MECPP levels and age 8 SCQ scores among all participants and	Kim et. al 2021 9415898 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Autistic traits	Health Effect: Neurological/Behavioral-Autistic traits-Non-cancer. Outcome measure: Social Communication Questionnaire (SCQ)	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Adults (18+). South Korea; Seoul and Gyeonggi provinces. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Mother-child pairs in Seoul and Gyeonggi provinces, South Korea (n=527). This study was part of the Environment and Development of Children (EDC) study, which is a prospective birth cohort study in South Korea that enrolled participants from the Congenital Anomaly Study (CAS).. Recruitment: 2008-2010; Follow-up: through child age 8.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy (between 14 and 27 weeks gestation) and at child ages 4, 6, and 8.	Poisson Regression. Confounders adjusted for: Poisson models for phthalates measured during pregnancy: child's age, sex, twin, birth order, phthalate levels at age of outcome assessment; Poisson models for phthalates measured during childhood: child's age, sex, twin, birth order, maternal education level, current environmental tobacco smoke, phthalate levels at time of SCQ assessment (or phthalate measured at pregnancy); GEE models: age, sex, twin, birth order, maternal education level, current environmental tobacco smoke, phthalate levels during pregnancy.	Lowest exposure concentration for a significant adverse health outcome response: continuous. % change in SCQ score (95% CI): Age 4 MBzP level and age 4 SCQ score, all participants: 11.3 (3.7, 19.4); Age 6 MBzP level and age 8 SCQ score, all participants: -10.0 (-15.8, -3.8); Age 8 MBzP level and age 8 SCQ score, all participants: 6.0 (1.4, 10.9); Age 4 MBzP level and age 4 SCQ score, boys: 18.7 (8.2, 30.2); Age 4 MBzP level and age 6 SCQ score, boys: 11.7 (2.1, 22.3); Age 6 MBzP level and age 8 SCQ score, boys: -11.3 (-18.5, -3.5); Age 4 MBzP level and age 8 SCQ score, girls: -14.7 (-24.4, -3.7). For the analyses of all participants, statistically significant positive associations were found between age 4 MBzP level and age 4 SCQ score and between age 8 MBzP level and age 8 SCQ score; and a statistically significant inverse association was found between age 6 MBzP level and age 8 SCQ score.; For the analyses among boys, statistically significant positive associations were found between age 4 MBzP level and age 4 SQC score and between age 4 MBzP level and age 6 SCQ score; and a statistically significant inverse association was found between age 6 MBzP level and age 8 SCQ score.; For the analyses among girls, a statistically significant inverse association was found between age 4 MBzP level and age 8 SCQ score among girls.; No statistically significant associations were found for MBzP at other time points or in other analyses limited to girls only. A positive but not statistically significant association was found in the repeated measures GEE model across timepoints for all participants, boys, and girls..	Kim et. al 2021 9415898 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
abdominal obesity	Health Effect: Nutritional/Metabolic-Metabolic syndrome (MetS), insulin resistance (IR), abdominal obesity, high fasting blood glucose-Non-cancer-Cardiovascular-High blood pressure, high triglyceride, low HDL-Non-cancer. Outcome measure: Abdominal circumference measured at clinical exam defined as high for men if at least 90cm and for women if at least 80cm	Occupational workers. Adults (18+). Taiwan; Taoyuan. Female, Male. Cross-Sectional. PESS: Occupational. Voluntary military service members in Northern Taiwan (enrolled n=503, used in analysis=435). 2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at time of study enrollment.	Logistic Regression. Confounders adjusted for: sex and smoking habit.	Lowest exposure concentration for a significant adverse health outcome response: >0.01 ug/kg/day. OR (95% CI) for above vs. at or below the median: 1.816 (1.180, 2.797). A significant positive association was reported for the daily intake (DI) of BBP with abdominal obesity for participants with BBP DI greater than the median versus those at or below the median..	Ko et. al 2019 5433079 High
abdominal obesity	Health Effect: Nutritional/Metabolic-Metabolic syndrome (MetS), insulin resistance (IR), abdominal obesity, high fasting blood glucose-Non-cancer-Cardiovascular-High blood pressure, high triglyceride, low HDL-Non-cancer. Outcome measure: Abdominal circumference measured at clinical exam defined as high for men if at least 90cm and for women if at least 80cm	Occupational workers. Adults (18+). Taiwan; Taoyuan. Female, Male. Cross-Sectional. PESS: Occupational. Voluntary military service members in Northern Taiwan (enrolled n=503, used in analysis=435). 2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at time of study enrollment.	Logistic Regression. Confounders adjusted for: sex and smoking habit.	Lowest exposure concentration for a significant adverse health outcome response: >0.01 ug/kg/day. OR (95% CI) for above vs. at or below the median: 1.816 (1.180, 2.797). A significant positive association was reported for the daily intake (DI) of BBP with abdominal obesity for participants with BBP DI greater than the median versus those at or below the median..	Ko et. al 2019 5433079 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Temperament Questionnaire scores: 9 dimensions activity level, rhythmicity, withdrawal approach, adaptability, reaction intensity, mood quality, attention span/persistence, distractibility, and responsiveness threshold.	Health Effect: Neurological/Behavioral-Child temperament traits and behaviors (activity level, rhythmicity, withdrawal, adaptability, intensity of reaction, positive mood, persistence, distractibility, threshold of responsiveness)-Non-cancer-Reproductive/Developmental-Child temperament traits and behaviors (activity level, rhythmicity, withdrawal, adaptability, intensity of reaction, positive mood, persistence, distractibility, threshold of responsiveness)-Non-cancer. Outcome measure: Parent assessment using three age-specific questionnaires: Chinese Toddler Temperament Scale (CTTS) at age 2 years,, the Behavior Style Questionnaire-Chinese version (BSQ-C) at age 5 years, and the the Middle Childhood Temperament Questionnaire-Chinese version at age 11 years	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Taiwanese women from a pilot study for the Taiwan Maternal and Infant Cohort Study recruited during pregnancy (analysis sample included 208 mother-child pairs).. Pilot for the Taiwan Maternal and Infant Cohort Study (TMICS). Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester of pregnancy; child exposure measured at 2 years, 5 years, and 11 years.	Linear Regression. Confounders adjusted for: gender, parental education, parity, parenting styles, prenatal levels and urinary phthalate metabolite concentrations of children concurrent with outcome measures included jointly.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (SE) per 1 log10 unit increase for the following temperament domains. Maternal MBP, temperament at age 2 years: -withdrawal = 0.32 (0.14), p<0.05; -distractibility = 0.23 (0.012), p<0.05; -threshold of responsiveness = -0.23 (0.11), p<0.05; -by sex: intensity of reaction in boys = -0.29 (0.14), p<0.05. Maternal MBP, temperament at age 11 years: -positive mood = -0.27 (0.12), p<0.05. Child MBP, temperament at age 11 years: -adaptability = 0.32 (0.15), p<0.05.. Maternal MBP (ug/g creatinine) was significantly associated with greater withdrawal and distractibility as well as lower intensity of reaction at age 2 years, and less positive mood at age 11 years. Child MBP was significantly associated with greater adaptability at age 11 years..	Ku et. al 2020 5933569 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Temperament Questionnaire scores: 9 dimensions activity level, rhythmicity, withdrawal approach, adaptability, reaction intensity, mood quality, attention span/persistence, distractibility, and responsiveness threshold.	Health Effect: Neurological/Behavioral-Child temperament traits and behaviors (activity level, rhythmicity, withdrawal, adaptability, intensity of reaction, positive mood, persistence, distractibility, threshold of responsiveness)-Non-cancer-Reproductive/Developmental-Child temperament traits and behaviors (activity level, rhythmicity, withdrawal, adaptability, intensity of reaction, positive mood, persistence, distractibility, threshold of responsiveness)-Non-cancer. Outcome measure: Parent assessment using three age-specific questionnaires: Chinese Toddler Temperament Scale (CTTS) at age 2 years,, the Behavior Style Questionnaire-Chinese version (BSQ-C) at age 5 years, and the the Middle Childhood Temperament Questionnaire-Chinese version at age 11 years	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Taiwanese women from a pilot study for the Taiwan Maternal and Infant Cohort Study recruited during pregnancy (analysis sample included 208 mother-child pairs).. Pilot for the Taiwan Maternal and Infant Cohort Study (TMICS). Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester of pregnancy; child exposure measured at 2 years, 5 years, and 11 years.	Linear Regression. Confounders adjusted for: gender, parental education, parity, parenting styles, prenatal levels and urinary phthalate metabolite concentrations of children concurrent with outcome measures included jointly.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (SE) per 1 log10 unit increase for the following temperament domains. Maternal MBzP, temperament at age 2 years: -intensity of reaction = -0.27 (0.13), p<0.05; -intensity of reaction, boys = -0.35 (0.14), p<0.05; girls = -0.24 (0.29) ns. Maternal MBzP, temperament at age 5 years: -threshold of responsiveness = -0.46 (0.18), p<0.05; Maternal MBzP, temperament at age 11 years: -withdrawal = 0.39 (0.18), p<0.05.. Significant negative associations for maternal MBzP (ug/g creatinine) and intensity of reaction (age 2y), threshold of responsiveness (age 5y) and withdrawal (age 11 y)..	Ku et. al 2020 5933569 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Temperament Questionnaire scores: 9 dimensions activity level, rhythmicity, withdrawal approach, adaptability, reaction intensity, mood quality, attention span/persistence, distractibility, and responsiveness threshold.	Health Effect: Neurological/Behavioral-Child temperament traits and behaviors (activity level, rhythmicity, withdrawal, adaptability, intensity of reaction, positive mood, persistence, distractibility, threshold of responsiveness)-Non-cancer-Reproductive/Developmental-Child temperament traits and behaviors (activity level, rhythmicity, withdrawal, adaptability, intensity of reaction, positive mood, persistence, distractibility, threshold of responsiveness)-Non-cancer. Outcome measure: Parent assessment using three age-specific questionnaires: Chinese Toddler Temperament Scale (CTTS) at age 2 years,, the Behavior Style Questionnaire-Chinese version (BSQ-C) at age 5 years, and the the Middle Childhood Temperament Questionnaire-Chinese version at age 11 years	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Taiwanese women from a subsample of the Taiwan Maternal and Infant Cohort Study recruited during pregnancy (391 mother-child pairs).. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester of pregnancy; child exposure measured at 2 years, 5 years, and 11 years.	Linear Regression. Confounders adjusted for: gender, parental education, parity, parenting styles, prenatal levels and urinary phthalate metabolite concentrations of children concurrent with outcome measures included jointly.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (SE) per 1 log10 unit increase for the following temperament domains. Maternal MEHP, temperament at age 2 years: -intensity of reaction = -0.25 (0.11), p<0.05; -distractibility = 0.26 (0.12), p<0.05; -distractibility, boys = 0.40 (0.18), p<0.05; girls = 0.15 (1.22) ns. Child MEHP, temperament at age 11 years: -intensity of reaction = -0.29 (0.14), p<0.05.. Significant associations for maternal MEHP (ug/g creatinine) and lower intensity of reaction and lower distractibility at age 2y. Significant association for child MEHP and lower intensity of reaction at age 11 years. No.	Ku et. al 2020 5933569 Medium

. . . Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Temperament Questionnaire scores: 9 dimensions activity level, rhythmicity, withdrawal approach, adaptability, reaction intensity, mood quality, attention span/persistence, distractibility, and responsiveness threshold.	Health Effect: Neurological/Behavioral-Child temperament traits and behaviors (activity level, rhythmicity, withdrawal, adaptability, intensity of reaction, positive mood, persistence, distractibility, threshold of responsiveness)-Non-cancer-Reproductive/Developmental-Child temperament traits and behaviors (activity level, rhythmicity, withdrawal, adaptability, intensity of reaction, positive mood, persistence, distractibility, threshold of responsiveness)-Non-cancer. Outcome measure: Parent assessment using three age-specific questionnaires: Chinese Toddler Temperament Scale (CTTS) at age 2 years,, the Behavior Style Questionnaire-Chinese version (BSQ-C) at age 5 years, and the the Middle Childhood Temperament Questionnaire-Chinese version at age 11 years	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Taiwanese women from a subsample of the Taiwan Maternal and Infant Cohort Study recruited during pregnancy (391 mother-child pairs).. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester of pregnancy; child exposure measured at 2 years, 5 years, and 11 years.	Linear Regression. Confounders adjusted for: gender, parental education, parity, parenting styles, prenatal levels and urinary phthalate metabolite concentrations of children concurrent with outcome measures included jointly.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (SE) per 1 log10 unit increase for the following temperament domains. Maternal MEHHP, temperament at age 2 years: -withdrawal = +0.20 (0.09), p<0.05; [note: positive sign on coefficient may be an error given negative sex-stratified results]-withdrawal in boys = -0.29 (0.13), p<0.05, and in girls = -0.03 (0.17) ns. Maternal MEHHP, temperament at age 5 years: -withdrawal = -0.21 (0.09), p<0.05; Child MEHHP, temperament at age 11 years: -intensity of reaction = -0.43 (0.22), p<0.05.. Significant associations between maternal MEHHP and withdrawal at ages 2 and 5 years. Significant association between child MEHHP and lower intensity of reaction at age 11 years..	Ku et. al 2020 5933569 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Temperament Questionnaire scores: 9 dimensions activity level, rhythmicity, withdrawal approach, adaptability, reaction intensity, mood quality, attention span/persistence, distractibility, and responsiveness threshold.	Health Effect: Neurological/Behavioral-Child temperament traits and behaviors (activity level, rhythmicity, withdrawal, adaptability, intensity of reaction, positive mood, persistence, distractibility, threshold of responsiveness)-Non-cancer-Reproductive/Developmental-Child temperament traits and behaviors (activity level, rhythmicity, withdrawal, adaptability, intensity of reaction, positive mood, persistence, distractibility, threshold of responsiveness)-Non-cancer. Outcome measure: Parent assessment using three age-specific questionnaires: Chinese Toddler Temperament Scale (CTTS) at age 2 years,, the Behavior Style Questionnaire-Chinese version (BSQ-C) at age 5 years, and the the Middle Childhood Temperament Questionnaire-Chinese version at age 11 years	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Taiwanese women from a subsample of the Taiwan Maternal and Infant Cohort Study recruited during pregnancy (391 mother-child pairs).. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester of pregnancy; child exposure measured at 2 years, 5 years, and 11 years.	Linear Regression. Confounders adjusted for: gender, parental education, parity, parenting styles, prenatal levels and urinary phthalate metabolite concentrations of children concurrent with outcome measures included jointly.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (SE) per 1 log10 unit increase for the following temperament domains. Maternal MEOHP, temperament at age 2 years: -withdrawal in boys = -0.29 (0.13), p<0.05; in girls = -0.08 (0.19) ns. Maternal MEOHP, temperament at age 5 years: -threshold of responsiveness = -0.21 (0.08), p<0.01Child MEOHP, temperament at age 11 years: -adaptability = 0.19 (0.09), p<0.05.. Significant associations for maternal MEOHP (ug/g creatinine) and lower withdrawal in boys at age 2 years, and lower threshold of responsiveness at age 5 years. Significant association for child MEOPH and greater adaptability at age 11 years..	Ku et. al 2020 5933569 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Child Temperament Questionnaire scores: 9 dimensions activity level, rhythmicity, withdrawal approach, adaptability, reaction intensity, mood quality, attention span/persistence, distractibility, and responsiveness threshold.	Health Effect: Neurological/Behavioral-Child temperament traits and behaviors (activity level, rhythmicity, withdrawal, adaptability, intensity of reaction, positive mood, persistence, distractibility, threshold of responsiveness)-Non-cancer-Reproductive/Developmental-Child temperament traits and behaviors (activity level, rhythmicity, withdrawal, adaptability, intensity of reaction, positive mood, persistence, distractibility, threshold of responsiveness)-Non-cancer. Outcome measure: Parent assessment using three age-specific questionnaires: Chinese Toddler Temperament Scale (CTTS) at age 2 years,, the Behavior Style Questionnaire-Chinese version (BSQ-C) at age 5 years, and the the Middle Childhood Temperament Questionnaire-Chinese version at age 11 years	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Adults (18+). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Taiwanese women from a subsample of the Taiwan Maternal and Infant Cohort Study recruited during pregnancy (391 mother-child pairs).. Taiwan Maternal and Infant Cohort Study. Recruitment: December 1, 2000-November 30, 2001; Follow-up: through 2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during third trimester of pregnancy; child exposure measured at 2 years, 5 years, and 11 years.	Linear Regression. Confounders adjusted for: gender, parental education, parity, parenting styles, prenatal levels and urinary phthalate metabolite concentrations of children concurrent with outcome measures included jointly.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (SE) per 1 log10 unit increase ∑MEHP for the following temperament domains. Maternal ∑MEHP, temperament at age 2 years: -threshold of responsiveness = -0.29 (0.13), p<0.05; -withdrawal in boys = -0.47 (0.22), p<0.05; in girls = 0.46 (0.28) ns; -intensity of reaction in boys =-0.31 (0.15), p<0.05; in girls = -0.09 (0.21) ns. Maternal ∑MEHP, temperament at age 5 years: -threshold of responsiveness = -0.30 (0.12), p<0.05.. Significant associations for maternal ∑MEHP (ug/g creatinine) and lower threshold of responsiveness overall at ages 2 years and 5 years. In boys maternal ∑MEHP was also associated with significantly lower withdrawal and intensity of reaction at age 2 years..	Ku et. al 2020 5933569 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
uterine fibroids	Health Effect: Reproductive/Developmental-Uterine fibroids-Non-cancer. Outcome measure: diagnosis	General public. Adults (18+). South Korea; Seoul, Ansan, Incheon, Jeju. Female. Case-Control. PESS: . 2015-2016, South Korea, 111 women (20-49 years of age) (32 uterine fibroid cases and 79 controls). 2015-2016.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring at health examination.	nan. Confounders adjusted for: Adjusted for age, income, parity, urinary cotinine, alcohol consumption, and BMI.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Factor 1 (DEHP, DBP, and BBZP) OR (95% CI) for Tertile 3, Tertile 2: 2.71 (0.73, 10.12), 2.03 (0.54, 7.65)Factor 2 (DEHP and DPrHpP) OR (95% CI) for Tertile 3, Tertile 2: 4.60 (1.10, 19.20), 3.62 (0.87, 15.10). Significance found between cases and controls for sum of DEHP concentrations (p-value: 0.023) as DEHP concentrations were significantly higher in the cases than controls. Individual significance also found for MEOHP between cases and controls (p-value 0.032) as MEOHP concentrations were significantly higher in cases than controls. Significance also found for multiple chemical exposure of DEHP and DPrHpP ($p < 0.05$) and association with uterine fibroids..	Lee et. al 2020 7274600 Medium
uterine fibroids	Health Effect: Reproductive/Developmental-Uterine fibroids-Non-cancer. Outcome measure: diagnosis	General public. Adults (18+). South Korea; Seoul, Ansan, Incheon, Jeju. Female. Case-Control. PESS: . 2015-2016, South Korea, 111 women (20-49 years of age) (32 uterine fibroid cases and 79 controls). 2015-2016.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring at health examination.	nan. Confounders adjusted for: Adjusted for age, income, parity, urinary cotinine, alcohol consumption, and BMI.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for Q2 vs Q1: 4.82 (1.09-21.27). Significance found between cases and controls for MBzP concentrations with increased ORs of uterine fibroids..	Lee et. al 2020 7274600 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Depression symptoms	Health Effect: Neurological/Behavioral-Depression symptoms (score on Korean Version of Short Form Geriatric Depression Scale)-Non-cancer. Outcome measure: Korean version of Short Form Geriatric Depression Scale (SGDS-K) questionnaire scores	General public. Adults (18+), Older Adults (65+). South Korea; Seoul. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Older adults (age >= 65 years). Elderly Korean men and women recruited from two welfare community centers in Seoul (Recruited n=560; Used in analysis: 535). Recruitment and follow-up surveys: 2012-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during three visits to welfare community centers during 2012-2014.	Logistic Regression. Confounders adjusted for: age, sex, marital status, education level, number of rooms, moderate physical activity.	Lowest exposure concentration for a significant adverse health outcome response: continuous. % difference (95% CI) per 1 log unit increase in creatinine-adjusted urinary phthalate metabolite concentration (ug/L) for the association between phthalate metabolites and continuous total SGDS-K score:MEHHP: 8.06 (1.89-14.60)MEOHP: 11.95 (5.56-18.73)MECPP: 20.05 (2.62-40.42)Sum of all three DEHP metabolites: 22.23 (4.49–42.98)Sum of MEHHP and MEOHP: 10.32 (4.02–17.00)Odds ratio (95% CI) per 1 log unit increase in creatinine-adjusted urinary phthalate metabolite concentration (ug/L) for the association between phthalate metabolites and dichotomized total SGDS-K score: MEHHP: 1.13 (1.04-1.66)MEOHP: 1.36 (1.09-1.70)MECPP: 1.84 (1.11-3.02)Sum of all three DEHP metabolites: 1.92 (1.17–3.13)Sum of MEHHP and MEOHP: 1.35 (1.07–1.70)% difference (95% CI) per 1 log unit increase in creatinine-adjusted urinary phthalate metabolite concentration (ug/L) for the association between phthalate metabolites and affective symptoms: MEOHP: 9.72 (1.59-18.51)MECPP: 28.22 (2.71-60.07)Sum of all three DEHP metabolites: 30.46 (6.40–59.96)% difference (95% CI) per 1 log unit increase in creatinine-adjusted urinary phthalate metabolite concentration (ug/L) for the association between phthalate metabolites and spiritual symptoms: MEOHP: 13.73 (2.21-26.56)Sum of MEHHP and MEOHP: 13.01 (0.61–26.94). MEHHP, MEOHP, MECPP, and both sum DEHP measures were significantly associated with higher depressive symptoms based on the SGDS-K questionnaire. MEOHP, MECPP, and the sum of MEHHP, MEOHP, and MECPP were significantly associated with higher affective symptoms. MEOHP and the sum of MEOHP and MEHHP were significantly associated with higher spiritual symptoms..	Lee et. al 2018 5556125 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Full-Scale IQ	Health Effect: Neurological/Behavioral-Full-scale IQ at age 5 years (Wechsler Preschool and Primary Scale of Intelligence-III [WPPSI-III]) and full scale IQ at age 8 years (Wechsler Intelligence Scale for Children-IV [WISC-IV]))-Non-cancer. Outcome measure: Wechsler Intelligence Scales	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Adults (18+). United States; Cincinnati, OH. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Children (n=253) from greater Cincinnati, OH whose mothers were recruited during pregnancy in 2003-2006, followed through age 8y.. Health Outcomes and Measures of the Environment (HOME) Study. Recruitment 2003-2006; Follow-up 2013-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy and annually from ages 1-5y and at age 8y.	Generalized linear mixed model. Confounders adjusted for: maternal age, education, marital status, IQ, serum cotinine in pregnancy and pre-pregnancy BMI along with household income, child race, child sex, HOME scores.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI) for association between log10 sum of DEHP metabolites in urine at age 3 years and full-scale IQ at age 5 or 8 years: -1.9 (-3.7, -0.2). The sum of DEHP metabolites in age 3y urine was associated with significantly lower full scale IQ at ages 5 or 8 years. DEHP in urine from other time periods was not associated with significant differences in IQ scores..	Li et. al 2019 5053633 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Full-Scale IQ	Health Effect: Neurological/Behavioral-Full-scale IQ at age 5 years (Wechsler Preschool and Primary Scale of Intelligence-III [WPPSI-III]) and full scale IQ at age 8 years (Wechsler Intelligence Scale for Children-IV [WISC-IV]))-Non-cancer. Outcome measure: Wechsler Intelligence Scales	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Adults (18+). United States; Cincinnati, OH. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Children (n=253) from greater Cincinnati, OH whose mothers were recruited during pregnancy in 2003-2006, followed through age 8y.. Health Outcomes and Measures of the Environment (HOME) Study. Recruitment 2003-2006; Follow-up 2013-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy and annually from ages 1-5y and at age 8y.	Generalized linear mixed model. Confounders adjusted for: maternal age, education, marital status, IQ, serum cotinine in pregnancy and pre-pregnancy BMI along with household income, child race, child sex, HOME scores.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI) for association between log10 MBzP and full-scale IQ at age 5 or 8 years: -MBzP in urine at age 3y = -2.5 (-4.4, -0.6)-MBzP in urine at age 8y= -1.8 (-3.5, -0.1). MBzP in urine collected at ages 3 and 8 years was associated with significantly lower full scale IQ at ages 5 or 8 years. MBzP in urine from other time periods was not associated with significant differences in IQ scores..	Li et. al 2019 5053633 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Full-Scale IQ	Health Effect: Neurological/Behavioral-Full-scale IQ at age 5 years (Wechsler Preschool and Primary Scale of Intelligence-III [WPPSI-III]) and full scale IQ at age 8 years (Wechsler Intelligence Scale for Children-IV [WISC-IV]))-Non-cancer. Outcome measure: Wechsler Intelligence Scales	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Adults (18+). United States; Cincinnati, OH. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Children (n=253) from greater Cincinnati, OH whose mothers were recruited during pregnancy in 2003-2006, followed through age 8y.. Health Outcomes and Measures of the Environment (HOME) Study. Recruitment 2003-2006; Follow-up 2013-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy and annually from ages 1-5y and at age 8y.	Generalized linear mixed model. Confounders adjusted for: maternal age, education, marital status, IQ, serum cotinine in pregnancy and pre-pregnancy BMI along with household income, child race, child sex, HOME scores.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI) for association between log10 MnBP and full-scale IQ at age 5 or 8 years: -MnBP in urine at age 4y = 2.1 (0.3, 3.9). MnBP in urine collected at age 4y was associated with significantly higher full scale IQ at ages 5 or 8 years. MnBP in urine from other time periods was not associated with significant differences in IQ scores..	Li et. al 2019 5053633 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Full-Scale IQ	Health Effect: Neurological/Behavioral-Full-scale IQ at age 5 years (Wechsler Preschool and Primary Scale of Intelligence-III [WPPSI-III]) and full scale IQ at age 8 years (Wechsler Intelligence Scale for Children-IV [WISC-IV]))-Non-cancer. Outcome measure: Wechsler Intelligence Scales	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Adults (18+). United States; Cincinnati, OH. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Children (n=253) from greater Cincinnati, OH whose mothers were recruited during pregnancy in 2003-2006, followed through age 8y.. Health Outcomes and Measures of the Environment (HOME) Study. Recruitment 2003-2006; Follow-up 2013-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy and annually from ages 1-5y and at age 8y.	Generalized linear mixed model. Confounders adjusted for: maternal age, education, marital status, IQ, serum cotinine in pregnancy and pre-pregnancy BMI along with household income, child race, child sex, HOME scores.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (95% CI) for association between log10 MiBP and full-scale IQ at age 5 or 8 years: -MiBP in urine at age 4y = 1.8 (0.0, 3.6). MiBP in urine collected at age 4y was associated with significantly higher full scale IQ at ages 5 or 8 years. MiBP in urine from other time periods was not associated with significant differences in IQ scores..	Li et. al 2019 5053633 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Childhood behavior (includes internalizing problems, externalizing problems, a behavioral symptoms index and individual clinical subscales)	Health Effect: Neurological/Behavioral-Child behavior, as reported by parents or caregivers using the Behavioral Assessment System for Children-2 (BASC-2) (internalizing problems, externalizing problems, Behavioral Symptoms Index [BSI]) and nine clinical subscales.-Non-cancer. Outcome measure: Behavioral Assessment System for Children-2 (BASC-2), parent/caregiver report	General public, Pregnant people. Toddler (2-3), Preschool (3-5), Middle childhood (6-11). United States; Cincinnati, OH. Female, Male. Cohort (Prospective). PESS: Lifestage , Other PESS category specified in the reference. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Birth cohort of children from greater Cincinnati residing in homes build prior to 1978 during pregnancy. Health Outcomes and Measures of the Environment (HOME) study. Recruitment 2003 to 2006 during pregnancy; Follow-up at ages 1-5 years and at age 8 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during pregnancy and repeatedly during childhood.	Generalized linear mixed model. Confounders adjusted for: Maternal age, pre-pregnancy BMI, cotinine levels in pregnancy, maternal depression, alcohol use in pregnancy, maternal education, marital status, child sex, race/ethnicity, and age at outcome assessment.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted beta (95% CI) for difference in subscale scores per1 IQR increase in log10 childhood DEHP: Anxiety = -2.3 (-4.4, -0.2)Somatization = 1.9 (0.0, 3.8)Atypicality = 2.9 (0.3, 5.5). The sum of three DEHP metabolites in childhood was associated with significantly higher child behavior scores for somatization and atypicality, and significantly lower scores for anxiety..	Li et. al 2020 9419532 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Childhood behavior (includes internalizing problems, externalizing problems, a behavioral symptoms index and individual clinical subscales)	Health Effect: Neurological/Behavioral-Child behavior, as reported by parents or caregivers using the Behavioral Assessment System for Children-2 (BASC-2) (internalizing problems, externalizing problems, Behavioral Symptoms Index [BSI]) and nine clinical subscales.-Non-cancer. Outcome measure: Behavioral Assessment System for Children-2 (BASC-2), parent/caregiver report	General public, Pregnant people. Toddler (2-3), Preschool (3-5), Middle childhood (6-11). United States; Cincinnati, OH. Female, Male. Cohort (Prospective). PESS: Lifestage , Other PESS category specified in the reference. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Birth cohort of children from greater Cincinnati residing in homes build prior to 1978 during pregnancy. Health Outcomes and Measures of the Environment (HOME) study. Recruitment 2003 to 2006 during pregnancy; Follow-up at ages 1-5 years and at age 8 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during pregnancy and repeatedly during childhood.	Generalized linear mixed model. Confounders adjusted for: Maternal age, pre-pregnancy BMI, cotinine levels in pregnancy, maternal depression, alcohol use in pregnancy, maternal education, marital status, child sex, race/ethnicity, and age at outcome assessment.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted beta (95% CI) for difference in subscale scores per1 IQR increase in log10 childhood MnBP: Aggression = 1.8 (0.2, 3.4). Higher MnBP in childhood was associated with significantly higher child behavior scores for aggression..	Li et. al 2020 9419532 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Childhood behavior (includes internalizing problems, externalizing problems, a behavioral symptoms index and individual clinical subscales)	Health Effect: Neurological/Behavioral-Child behavior, as reported by parents or caregivers using the Behavioral Assessment System for Children-2 (BASC-2) (internalizing problems, externalizing problems, Behavioral Symptoms Index [BSI]) and nine clinical subscales.-Non-cancer. Outcome measure: Behavioral Assessment System for Children-2 (BASC-2), parent/caregiver report	General public, Pregnant people. Toddler (2-3), Preschool (3-5), Middle childhood (6-11). United States; Cincinnati, OH. Female, Male. Cohort (Prospective). PESS: Lifestage , Other PESS category specified in the reference. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Birth cohort of children from greater Cincinnati residing in homes build prior to 1978 during pregnancy. Health Outcomes and Measures of the Environment (HOME) study. Recruitment 2003 to 2006 during pregnancy; Follow-up at ages 1-5 years and at age 8 years.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during pregnancy and repeatedly during childhood.	Generalized linear mixed model. Confounders adjusted for: Maternal age, pre-pregnancy BMI, cotinine levels in pregnancy, maternal depression, alcohol use in pregnancy, maternal education, marital status, child sex, race/ethnicity, and age at outcome assessment.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Adjusted beta (95% CI) for difference in subscale scores per1 IQR increase in log10 childhood MBzP: Behavioral Symptom Index = 1.4 (0.0, 2.7) Depression= 1.3 (0.0, 2.7)Somatization = 1.3 (0.0, 2.7)Conduct problems = 3.0 (0.8, 5.1). Higher MBzP in childhood was associated with significantly higher child behavior scores for depression, somatization and conduct problems..	Li et. al 2020 9419532 Medium
Recurrent pregnancy loss	Health Effect: Reproductive/Developmental-Recurrent pregnancy loss-Non-cancer. Outcome measure: Diagnosed by a physician	Pregnant people. Adults (18+). Taiwan. Female. Case-Control. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Taiwanese women recruited at a hospital obstetrics and gynecology department (103 cases, 74 controls). 2013-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured via biomonitoring (unspecified time frame).	Mann-Whitney U test.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Mann-Whitney test p-value for the difference in MCMHP for cases vs. controls = 0.042. Urinary levels of MCMHP were significantly higher among cases than controls..	Liao et. al 2018 4728516 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
eGFR calculated from serum creatinine; UPCR calculated from urinary protein and creatinine	Health Effect: Renal/Kidney-Estimated glomerular filtration rate (eGFR), urinary protein to creatinine ratio (UPCR),-Non-cancer. Outcome measure: Estimated glomerular filtration rate (eGFR) was calculated using the modified equation formulated by Schwartz and colleagues, and urinary protein to creatinine ratio (UPCR) was measured from the first morning urine samples.	General public. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17). United States. Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Chronic Kidney Disease in Children (CKiD) Study: (2005-2008 and 2009-2014), United States, n = 538 children ages 1-17 (boys = 344, girls = 194) years of age). National Health And Nutrition Examination Survey (NHANES). 2005-2008 and 2009-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured in the years of 2007-2008.	Linear Regression. Confounders adjusted for: sex, age at visit, race, ethnicity, glomerular disease, birth weight, low birth weight, prematurity, BMI z-score, use of ACE-I/ARB, SBP and DBP z-scores, urinary creatinine, and urinary cotinine.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) for eGFR: not significant.Regression coefficient (95% CI) for UPCR: -16.21 (-25.74, -5.50).. MBzP was associated with a significant decrease in the urinary protein to creatinine ratio (MBzP = -16.21 (-25.74, -5.50))..	Malits et. al 2018 4829246 Medium
gestational diabetes status, miRNA expression (miR-9-5p, miR-16-5p, miR-29a-3p, miR-330-3p)	Health Effect: Nutritional/Metabolic-gestational diabetes mellitus status, mRNA expression (miR-9-5p, miR-16-5p, miR-29a-3p, miR-330-3p)-Non-cancer. Outcome measure: Gestational diabetes was assessed using a 75-g two-hour oral glucose tolerance test. miRNA expression (serum) was measured using various laboratory techniques.	Patients in clinics, Pregnant people. Adults (18+). Mexico; Mexico City. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). 40 pregnant women seeking care at a single prenatal facility in Mexico City (18 with gestational diabetes, 22 without gestational diabetes). not stated.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Mann-Whitney U test. Confounders adjusted for: none.	Lowest exposure concentration for a significant adverse health outcome response: continuous. MBP (not creatinine adjusted), among women without GDM:Spearman correlation coefficient for mir-29a: -0.7140 (p<0.0001) MBP (creatinine adjusted), among women without GDM:Spearman correlation coefficient for mir-29a: -0.5418 (p<0.05)MiBP (not creatinine adjusted) among women without GDM:Spearman correlation coefficient for mir-29a: -0.6719 (p<0.01). Among women without GDM, negative correlations were observed for MBP and MiBP and expression of mir-29a..	Martínez-Ibarra et. al 2019 5432795 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
gestational diabetes status, miRNA expression (miR-9-5p, miR-16-5p, miR-29a-3p, miR-330-3p)	Health Effect: Nutritional/Metabolic-gestational diabetes mellitus status, mRNA expression (miR-9-5p, miR-16-5p, miR-29a-3p, miR-330-3p)-Non-cancer. Outcome measure: Gestational diabetes was assessed using a 75-g two-hour oral glucose tolerance test. miRNA expression (serum) was measured using various laboratory techniques.	Patients in clinics, Pregnant people. Adults (18+). Mexico; Mexico City. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). 40 pregnant women seeking care at a single prenatal facility in Mexico City (18 with gestational diabetes, 22 without gestational diabetes). not stated.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Mann-Whitney U test. Confounders adjusted for: none.	Lowest exposure concentration for a significant adverse health outcome response: continuous. MBzP (creatinine adjusted), among women without GDM:Spearman correlation coefficient for mir-16: 0.4737 ($p<0.05$). Among women without GDM, MBzP was positively correlated with expression of mir-16..	Martínez-Ibarra et. al 2019 5432795 Low
gestational diabetes status, miRNA expression (miR-9-5p, miR-16-5p, miR-29a-3p, miR-330-3p)	Health Effect: Nutritional/Metabolic-gestational diabetes mellitus status, mRNA expression (miR-9-5p, miR-16-5p, miR-29a-3p, miR-330-3p)-Non-cancer. Outcome measure: Gestational diabetes was assessed using a 75-g two-hour oral glucose tolerance test. miRNA expression (serum) was measured using various laboratory techniques.	Patients in clinics, Pregnant people. Adults (18+). Mexico; Mexico City. Female. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). 40 pregnant women seeking care at a single prenatal facility in Mexico City (18 with gestational diabetes, 22 without gestational diabetes). not stated.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Mann-Whitney U test. Confounders adjusted for: none.	Lowest exposure concentration for a significant adverse health outcome response: continuous. MEHP (creatinine adjusted), among women without GDM:Spearman correlation coefficient for mir-29a: 0.4912 ($p<0.05$). Among women without GDM, MEHP was positively correlated with expression of mir-29a..	Martínez-Ibarra et. al 2019 5432795 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Sex hormone concentrations (luteinizing hormone, follicle stimulating hormone, testosterone, androstenedione, 17alpha-hydroxyprogesterone, dehydroepiandrosterone sulfate	Health Effect: Reproductive/Developmental-hormone levels:testosterone, luteinizing hormone (LH), follicle stimulating hormone (FSH), androstenedione (adione), 17 alpha-hydroxyprogesterone (17-OHP), dehydroepiandrosterone (DHEAS), testosterone/LH ratio-Non-cancer. Outcome measure: Measured in serum of infants at approximately 3-4 months of age	General public, Pregnant people. Infant (0-1), Adults (18+). Denmark; Odense. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women and their singleton infants residing in Odense, Denmark (n=479 mother/child pairs). Odense Child Cohort study. 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at approximately 28 weeks gestation.	Linear Regression. Confounders adjusted for: postconceptional age, parity, and BMI z-score.	Lowest exposure concentration for a significant adverse health outcome response: 2nd tertile, but specific ranges not provided; Median (IQR) = 13.2 (5.5, 23.6) ng/mL. Percent change (95%) in testosterone among males for MBP:T2 vs. T1: -20.0 (-35.5, -0.7)T3 vs T1: -22.5 (-38.1, -2.9)per doubling MBP: -8.5 (-14.5, -2.3) p-trend: 0.029Percent change (95%) in DHEAS among males for MBP:T2 vs. T1: 38.0 (9.1, 74.6)T3 vs T1: 20.8 (-5.5, 54.5) p-trend: 0146. For testosterone among males, a significant inverse association was reported for T3 vs T1 and T2 vs. T1 of MBP, and the p-value for trend was statistically significant. When MBP was modeled continuously, the inverse association was maintained. For DHEAS, a significant inverse association was reported among males for the 2nd but not 3rd tertile of MBP. No other stiatistically significant results for other sex hormones or among females..	Muerköster et. al 2020 7978907 Medium
Sex hormone concentrations (luteinizing hormone, follicle stimulating hormone, testosterone, androstenedione, 17alpha-hydroxyprogesterone, dehydroepiandrosterone sulfate	Health Effect: Reproductive/Developmental-hormone levels:testosterone, luteinizing hormone (LH), follicle stimulating hormone (FSH), androstenedione (adione), 17 alpha-hydroxyprogesterone (17-OHP), dehydroepiandrosterone (DHEAS), testosterone/LH ratio-Non-cancer. Outcome measure: Measured in serum of infants at approximately 3-4 months of age	General public, Pregnant people. Infant (0-1), Adults (18+). Denmark; Odense. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women and their singleton infants residing in Odense, Denmark (n=479 mother/child pairs). Odense Child Cohort study. 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at approximately 28 weeks gestation.	Linear Regression. Confounders adjusted for: postconceptional age, parity, and BMI z-score.	Lowest exposure concentration for a significant adverse health outcome response: 2nd tertile, but specific ranges not provided; Median (IQR) = 2.4 (<LOD, 5.2) ng/mL. Percent change (95%) in FSH among males for MbzP:T2 vs. T1: -13.8 (-25.3, -0.5)T3 vs T1 –6.6 (-18.9, 7.7) p-trend 0.411. For follicle stimulating hormone among males, a significant inverse association was reported for T2 vs T1. No significant results were reported for other sex hormones among males or females..	Muerköster et. al 2020 7978907 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Sex hormone concentrations (luteinizing hormone, follicle stimulating hormone, testosterone, androstenedione, 17alpha-hydroxyprogesterone, dehydroepiandrosterone sulfate	Health Effect: Reproductive/Developmental-hormone levels:testosterone, luteinizing hormone (LH), follicle stimulating hormone (FSH), androstenedione (adione), 17 alpha-hydroxyprogesterone (17-OHP), dehydroepiandrosterone (DHEAS), testosterone/LH ratio-Non-cancer. Outcome measure: Measured in serum of infants at approximately 3-4 months of age	General public, Pregnant people. Infant (0-1), Adults (18+). Denmark; Odense. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women and their singleton infants residing in Odense, Denmark (n=479 mother/child pairs). Odense Child Cohort study. 2010-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at approximately 28 weeks gestation.	Linear Regression. Confounders adjusted for: postconceptional age, parity, and BMI z-score.	Lowest exposure concentration for a significant adverse health outcome response: 3rd tertile, but specific ranges not provided; Median (IQR) = 23.6 (10.3, 41.6) ng/mL. Percent change (95%) in testosterone/LH ratio among males for MiBP:T2 vs T1: -15.3 (-32.1, 5.7),T3 vs. T1: -21.5 (-37.6, -1.2) p-trend 0.039. For the testosterone/LH ratio among males, a significant negative association was reported for T3 vs T1, and the p-value for trend was statistically significant. No other sex hormones during min-puberty were significant, and no significant results for females..	Muerköster et. al 2020 7978907 Medium
Placental weight, birth weight to placental weight ratio	Health Effect: Reproductive/Developmental-Placental weight, birth weight to placental weight ratio-Non-cancer. Outcome measure: Medical records	General public, Pregnant people. Infant (0-1), Adults (18+). United States; Massachusetts. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Sub-fertile adults receiving care at a fertility center in Massachusetts, followed from preconception through birth. Environment and Reproductive Health (EARTH) Study. 2005 to 2016.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured preconception and during gestation.	Linear Regression. Confounders adjusted for: maternal age, maternal BMI, maternal education, maternal smoking status, and infant sex; paternal preconception exposures were additionally adjusted for paternal age and BMI and paternal smoking.	Lowest exposure concentration for a significant adverse health outcome response: Continuous; SG-adjusted ∑DEHP geometric mean (GSD) for paternal preconception samples = 61.6 (9.24) ng/mL, maternal preconception samples = 49.3 (3.08), maternal prenatal samples = 46.2 (6.2) ng/mL.. Beta (95% CI) for change in placental weight (g) per natural log increase in urinary phthalate measures:-∑DEHP, paternal preconception = −24 (−48, −1), p=0.04-MECPP, paternal preconception = −25 (−49, −2), p=0.03Not significant for other time points or DEHP metabolites.. Paternal preconception concentrations of the sum of DEHP metabolites (MEHP, MEHHP, MEOHP and MECPP) and MECPP were associated with significantly lower placental weight. Associations with maternal preconception and prenatal exposures did not reach significance. Associations with the birth weight to placental weight ratio were also non-significant..	Mustieles et. al 2019 5742214 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Total SRS score, social awareness, social cognition, social communication, social motivation, restricted interests/repetitive behavior	Health Effect: Neurological/Behavioral-Autistic Traits: Total Social Responsiveness Scale (SRS) T-score, social awareness, social cognition, social communication, social motivation, restricted interests and repetitive behavior, Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 compatible social communication, and DSM-5 compatible restricted interests and repetitive behavior-Non-cancer-Reproductive/Developmental-Autistic Traits: Total Social Responsiveness Scale (SRS) T-score, social awareness, social cognition, social communication, social motivation, restricted interests and repetitive behavior, Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 compatible social communication, and DSM-5 compatible restricted interests and repetitive behavior-Non-cancer. Outcome measure: SRS-2	General public, Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). 556 Canadian mothers and infants (Enrolled n =2001, Follow-up n =610; Used in analysis n = 510). Maternal–Infant Research on Environmental Chemicals (MIREC). 2008-2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Maternal first trimester exposure measured via biomonitoring.	Generalized Additive Model (GAM). Confounders adjusted for: study city, child sex, household income, maternal education, maternal age, parity, marital status, race/ethnicity, and year of enrollment.	Lowest exposure concentration for a significant adverse health outcome response: continuous. A 2-fold increase in urinary MBP and MCPP concentrations was associated with increases of 0.6 (95% CI: 0.1,1.0) p=0.02, and 0.5 (95% CI: 0.1,0.8), p=0.01, points in total SRS scores, respectively. A 2-fold increase in MBP and MCPP concentrations was associated with increases of 0.5 (95%CI:0.1, 1.0) p=0.02, and 0.6 (95% CI: 0.3,0.9) p<0.001, points, respectively, on the social communication subscale. Comparable estimates were observed for the other SRS subscales (Table 2), regardless of significance. A 2-fold increase in urinary MBP was associated with an increase of 0.6 (95% CI: 0.1, 1.1) p=0.01 points, and a 2-fold increase in urinary MCPP was associated with an increase of 0.3 (95% CI: 0.0, 0.7) p=0.06, in social cognition scores. A 2-fold increase in urinary MBP was associated with an increase of 0.5 (95% CI: 0.0, 1.0) p=0.06 points, and a 2-fold increase in urinary MCPP was associated with an increase of 0.4 (95% CI: 0.0, 0.8) p=0.07, in social motivation scores. A 2-fold increase in urinary MBP was associated with an increase of 0.5 (95% CI: 0.0, 1.0) p=0.05 points, and a 2-fold increase in urinary MCPP was associated with an increase of 0.5 (95% CI: 0.1, 0.9) p=0.01, in restricted interests/repetitive behavior scores. No associations were observed for MBzP and ΣDEHP (Table 2).. In multivariable adjusted models, increasing gestational MBP or MCPP urinary concentrations were significantly associated with higher total SRS T-scores indicative of greater social impairment (Table 2). For SRS subscales, maternal urinary MBP and MCPP concentrations were associated with higher social cognition, social communication, social motivation, and restricted interests/repetitive behaviors subscales. No similar associations were observed for MBzP or ΣDEHP (Table 2)..	Oulhote et. al 2020 6718069 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
BOYS: Total SRS score, social awareness, social cognition, social communication, social motivation, restricted interests/repetitive behavior	Health Effect: Neurological/Behavioral-Autistic Traits: Total Social Responsiveness Scale (SRS) T-score, social awareness, social cognition, social communication, social motivation, restricted interests and repetitive behavior, Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 compatible social communication, and DSM-5 compatible restricted interests and repetitive behavior-Non-cancer-Reproductive/Developmental-Autistic Traits: Total Social Responsiveness Scale (SRS) T-score, social awareness, social cognition, social communication, social motivation, restricted interests and repetitive behavior, Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 compatible social communication, and DSM-5 compatible restricted interests and repetitive behavior-Non-cancer. Outcome measure: SRS-2	General public, Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). 556 Canadian mothers and infants (Enrolled n =2001, Follow-up n =610; Used in analysis n = 510). Maternal–Infant Research on Environmental Chemicals (MIREC). 2008-2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Maternal first trimester exposure measured via biomonitoring.	Generalized Additive Model (GAM). Confounders adjusted for: study city, child sex, household income, maternal education, maternal age, parity, marital status, race/ethnicity, and year of enrollment.	Lowest exposure concentration for a significant adverse health outcome response: continuous. A 2-fold increase in gestational urinary MBP concentrations and SRS scores was associated with 1.0 (95% CI: 0.4, 1.6), 1.1 (95% CI: 0.4, 1.7), 0.9 (95% CI: 0.3, 1.6) and 0.9 (95% CI: 0.2, 1.6) higher Total, Social Cognition Social Communication, and Restricted Interests/Repetitive Behavior scores among boys (Table 2), respectively, but not among girls. No pattern of effect modification by sex was noted for MCPP, MBzP or ΣDEHP.. Overall, associations between gestational urinary phthalate concentrations and SRS scores appeared stronger in boys than girls, with many associations with MBP exhibiting significant (p<0.1) effect modification by child sex (Figure 2; Table 2)..	Oulhote et. al 2020 6718069 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
FOLIC ACID SUPPLEMENTATION: Total SRS score, social awareness, social cognition, social communication, social motivation, restricted interests/repetitive behavior	Health Effect: Neurological/Behavioral-Autistic Traits: Total Social Responsiveness Scale (SRS) T-score, social awareness, social cognition, social communication, social motivation, restricted interests and repetitive behavior, Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 compatible social communication, and DSM-5 compatible restricted interests and repetitive behavior-Non-cancer-Reproductive/Developmental-Autistic Traits: Total Social Responsiveness Scale (SRS) T-score, social awareness, social cognition, social communication, social motivation, restricted interests and repetitive behavior, Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 compatible social communication, and DSM-5 compatible restricted interests and repetitive behavior-Non-cancer. Outcome measure: SRS-2	General public, Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). 556 Canadian mothers and infants (Enrolled n =2001, Follow-up n =610; Used in analysis n = 510). Maternal–Infant Research on Environmental Chemicals (MIREC). 2008-2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Maternal first trimester exposure measured via biomonitoring.	Generalized Additive Model (GAM). Confounders adjusted for: study city, child sex, household income, maternal education, maternal age, parity, marital status, race/ethnicity, and year of enrollment.	Lowest exposure concentration for a significant adverse health outcome response: continuous. A 2-fold increase in gestational urinary MBP concentrations was associated with an increase of 1.3 points (95% CI: 0.4, 2.3) in total SRS scores among children whose mothers had taken <400 micrograms of folic acid per day while results for children whose mothers had taken greater than or equal to 400 micrograms of folic acid per day noted a 2-fold increase in gestational urinary MBP was associated with a 0.4 (95% CI: -0.1, 0.8)) points change in total SRS scores, p for interaction=0.04. A 2-fold increase in gestational urinary MBP concentrations was associated with an increase of 1.7 points (95% CI: 0.7, 2.6) in social cognition scores among children whose mothers had taken <400 micrograms of folic acid per day while results for children whose mothers had taken greater than or equal to 400 micrograms of folic acid per day noted a 2-fold increase in gestational urinary MBP was associated with a 0.4 (95% CI: -0.1, 0.8)) points change in social cognition scores, p for interaction=0.01(Table S3). None of the other SRS subscales indicated significant folic acid intake interactions with MBP.. Folic acid supplementation during pregnancy consistently and significantly attenuated the positive associations between gestational urinary phthalate concentrations and high SRS total and subscale scores (Figure 3, Table S3). This trend of effect modification was significant ($P < 0.1$) for MCPP and ΣDEHP with all SRS subscales and Total scores and was also significant for MBP with Social Cognition and Total scores, and for MBzP with Social Cognition, Restricted Interests and Repetitive Behavior and Total SRS scores..	Oulhote et. al 2020 6718069 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
FOLIC ACID SUPPLEMENTATION: Total SRS score, social awareness, social cognition, social communication, social motivation, restricted interests/repetitive behavior	Health Effect: Neurological/Behavioral-Autistic Traits: Total Social Responsiveness Scale (SRS) T-score, social awareness, social cognition, social communication, social motivation, restricted interests and repetitive behavior, Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 compatible social communication, and DSM-5 compatible restricted interests and repetitive behavior-Non-cancer-Reproductive/Developmental-Autistic Traits: Total Social Responsiveness Scale (SRS) T-score, social awareness, social cognition, social communication, social motivation, restricted interests and repetitive behavior, Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 compatible social communication, and DSM-5 compatible restricted interests and repetitive behavior-Non-cancer. Outcome measure: SRS-2	General public, Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). 556 Canadian mothers and infants (Enrolled n =2001, Follow-up n =610; Used in analysis n = 510). Maternal–Infant Research on Environmental Chemicals (MIREC). 2008-2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Maternal first trimester exposure measured via biomonitoring.	Generalized Additive Model (GAM). Confounders adjusted for: study city, child sex, household income, maternal education, maternal age, parity, marital status, race/ethnicity, and year of enrollment.	Lowest exposure concentration for a significant adverse health outcome response: continuous. A 2-fold increase in gestational urinary MCPP concentrations was associated with an increase of 1.8 points (95% CI: 1.0, 2.6) in total SRS scores among children whose mothers had taken <400 micrograms of folic acid per day while results for children whose mothers had taken greater than or equal to 400 micrograms of folic acid per day noted a 2-fold increase in gestational urinary MCPP was associated with a weaker increase of 0.3 (95% CI: 0.0, 0.7)) points in total SRS scores, p for interaction <0.001 (Table S3). Similarly, for social awareness, social cognition, social communication, social motivation and restricted interests/repetitive behavior, a 2-fold increase in gestational urinary MCPP was associated with an increase of 1.2 (95% CI: 0.1, 2.3), 1.9 (95% CI: 1.1,2.8), 1.4 (95% CI: 0.6, 2.3), 1.6 (95% CI: 0.6, 2.6), and 1.9 (95% CI: 0.9, 2.8), respectively in children whose mothers had taken inadequate (<400 micrograms) of folic acid per day versus 0.0 (95% CI: -0.4, 0.5) p-interaction=0.04, 0.1 (95% CI: -0.3, 0.4) p-interaction<0.001, 0.5 (95% CI: 0.2, 0.9) p-interaction=0.04, and 0.2 (-0.2, 0.6) p-interaction=0.01, respectively in children whose mothers had taken adequate (>=400 micrograms) of folic acid per day.. Folic acid supplementation during pregnancy consistently and significantly attenuated the positive associations between gestational urinary phthalate concentrations and high SRS total and subscale scores (Figure 3, Table S3). This trend of effect modification was significant (P < 0.1) for MCPP and ΣDEHP with all SRS subscales and Total scores and was also significant for MBP with Social Cognition and Total scores, and for MBzP with Social Cognition, Restricted Interests and Repetitive Behavior and Total SRS scores..	Oulhote et. al 2020 6718069 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
FOLIC ACID SUPPLEMENTATION: Total SRS score, social awareness, social cognition, social communication, social motivation, restricted interests/repetitive behavior	Health Effect: Neurological/Behavioral-Autistic Traits: Total Social Responsiveness Scale (SRS) T-score, social awareness, social cognition, social communication, social motivation, restricted interests and repetitive behavior, Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 compatible social communication, and DSM-5 compatible restricted interests and repetitive behavior-Non-cancer-Reproductive/Developmental-Autistic Traits: Total Social Responsiveness Scale (SRS) T-score, social awareness, social cognition, social communication, social motivation, restricted interests and repetitive behavior, Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 compatible social communication, and DSM-5 compatible restricted interests and repetitive behavior-Non-cancer. Outcome measure: SRS-2	General public, Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). 556 Canadian mothers and infants (Enrolled n =2001, Follow-up n =610; Used in analysis n = 510). Maternal–Infant Research on Environmental Chemicals (MIREC). 2008-2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Maternal first trimester exposure measured via biomonitoring.	Generalized Additive Model (GAM). Confounders adjusted for: study city, child sex, household income, maternal education, maternal age, parity, marital status, race/ethnicity, and year of enrollment.	Lowest exposure concentration for a significant adverse health outcome response: continuous. A 2-fold increase in gestational urinary MBzP concentrations was associated with an increase of 1.2 points (95% CI: 0.2, 2.2) in total SRS scores among children whose mothers had taken <400 micrograms of folic acid per day while results for children whose mothers had taken greater than or equal to 400 micrograms of folic acid per day noted a 2-fold increase in gestational urinary MBzP was associated with a 0.0 (95% CI: -0.4, 0.4)) points change in total SRS scores, p for interaction= 0.03 (Table S3). Similarly, for social cognition and restricted interests, a 2-fold increase in gestational urinary MBzP was associated with an increase of 1.7 (95% CI: 0.7, 2.8) and 1.1 (95% CI: 0.0,2.3), respectively in children whose mothers had taken inadequate (<400 micrograms) of folic acid per day versus 0.0 (95% CI: -0.4, 0.4) p-interaction<0.001 and 0.1 (95% CI: -0.3, 0.6) p-interaction=0.08, respectively in children whose mothers had taken adequate (>=400 micrograms) of folic acid per day. None of the other SRS subscales indicated significant folic acid intake interactions with MBzP.. Folic acid supplementation during pregnancy consistently and significantly attenuated the positive associations between gestational urinary phthalate concentrations and high SRS total and subscale scores (Figure 3, Table S3). This trend of effect modification was significant (P < 0.1) for MCPP and ΣDEHP with all SRS subscales and Total scores and was also significant for MBP with Social Cognition and Total scores, and for MBzP with Social Cognition, Restricted Interests and Repetitive Behavior and Total SRS scores..	Oulhote et. al 2020 6718069 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
FOLIC ACID SUPPLEMENTATION: Total SRS score, social awareness, social cognition, social communication, social motivation, restricted interests/repetitive behavior	Health Effect: Neurological/Behavioral-Autistic Traits: Total Social Responsiveness Scale (SRS) T-score, social awareness, social cognition, social communication, social motivation, restricted interests and repetitive behavior, Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 compatible social communication, and DSM-5 compatible restricted interests and repetitive behavior-Non-cancer-Reproductive/Developmental-Autistic Traits: Total Social Responsiveness Scale (SRS) T-score, social awareness, social cognition, social communication, social motivation, restricted interests and repetitive behavior, Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 compatible social communication, and DSM-5 compatible restricted interests and repetitive behavior-Non-cancer. Outcome measure: SRS-2	General public, Pregnant people. Toddler (2-3), Preschool (3-5), Adults (18+). Canada. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). 556 Canadian mothers and infants (Enrolled n =2001, Follow-up n =610; Used in analysis n = 510). Maternal–Infant Research on Environmental Chemicals (MIREC). 2008-2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Maternal first trimester exposure measured via biomonitoring.	Generalized Additive Model (GAM). Confounders adjusted for: study city, child sex, household income, maternal education, maternal age, parity, marital status, race/ethnicity, and year of enrollment.	Lowest exposure concentration for a significant adverse health outcome response: continuous. A 2-fold increase in gestational urinary ΣDEHP concentrations was associated with an increase of 1.5 points (95% CI: 0.5, 2.5) in total SRS scores among children whose mothers had taken <400 micrograms of folic acid per day while results for children whose mothers had taken greater than or equal to 400 micrograms of folic acid per day noted a 2-fold increase in gestational urinary ΣDEHP was associated with a decrease -0.1 (95% CI: -0.6, 0.4)) points in total SRS scores, p for interaction <0.001 (Table S3). Similarly, for social awareness, social cognition, social communication, social motivation and restricted interests/repetitive behavior, a 2-fold increase in gestational urinary ΣDEHP was associated with an increase of 0.9 (95% CI: -0.4, 2.1), 1.7 (95% CI: 0.7,2.7), 1.3 (95% CI: 0.3, 2.3), 1.2 (95% CI: 0.0, 2.4), and 1.9 (95% CI: 0.9, 2.8), respectively in children whose mothers had taken inadequate (<400 micrograms) of folic acid per day versus -0.5 (95% CI: -1.2, 0.1) p-interaction=0.03, -0.2 (95% CI: -0.7, 0.3) p-interaction<0.001, 0.1 (95% CI: -0.4, 0.6) p-interaction=0.02, and -0.2 (-0.8, 0.3) p-interaction=0.01, respectively in children whose mothers had taken adequate (>=400 micrograms) of folic acid per day.. Folic acid supplementation during pregnancy consistently and significantly attenuated the positive associations between gestational urinary phthalate concentrations and high SRS total and subscale scores (Figure 3, Table S3). This trend of effect modification was significant (P < 0.1) for MCPP and ΣDEHP with all SRS subscales and Total scores and was also significant for MBP with Social Cognition and Total scores, and for MBzP with Social Cognition, Restricted Interests and Repetitive Behavior and Total SRS scores..	Oulhote et. al 2020 6718069 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Breast cancer	Health Effect: Cancer/Carcinogenesis-Breast cancer-Cancer-Reproductive/Developmental-Breast cancer-Cancer. Outcome measure: Cancer database and physician confirmation	Pregnant people. Adults (18+), Older Adults (65+). United States; Long Island, New York. Female. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Older adults (age >= 65 years). 1,308 adult females in Long Island, New York (n=710 cases, n=598 controls, cases followed-up for mortality data). Long Island Breast Cancer Study Project (LIBCSP). Enrollment: 1996-1997; Follow-up: Up to 12/31/2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at enrollment, post-diagnosis of breast cancer and pre-mortality.	Logistic Regression. Confounders adjusted for: Age, age at menarche, education, menopausal status, hormone replacement therapy use, body mass index, oral contraceptive use.	Lowest exposure concentration for a significant adverse health outcome response: 43.9-67.9 ug/g creatinine. OR (95% CI):Q2 vs. Q1: 0.70 (0.49, 1.00)Q3 vs. Q1: 0.85 (0.60, 1.20)Q4 vs. Q1: 0.65 (0.45, 0.93)Q5 vs. Q1: 0.79 (0.56, 1.13). A significant inverse association was reported for breast cancer and MnBP for the 4th quintile compared to the 1st quintile; significance was not maintained for other quartiles or when analyzed continuously..	Parada et. al 2018 4728408 Medium

Continued on next page ...

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Breast cancer	Health Effect: Cancer/Carcinogenesis-Breast cancer-Cancer-Reproductive/Developmental-Breast cancer-Cancer. Outcome measure: Cancer database and physician confirmation	Pregnant people. Adults (18+), Older Adults (65+). United States; Long Island, New York. Female. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Older adults (age >= 65 years). 1,308 adult females in Long Island, New York (n=710 cases, n=598 controls, cases followed-up for mortality data). Long Island Breast Cancer Study Project (LIBCSP). Enrollment: 1996-1997; Follow-up: Up to 12/31/2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at enrollment, post-diagnosis of breast cancer and pre-mortality.	Logistic Regression. Confounders adjusted for: Age, age at menarche, education, menopausal status, hormone replacement therapy use, body mass index, oral contraceptive use.	Lowest exposure concentration for a significant adverse health outcome response: 3.79-6.16 ug/g creatinine. OR (95% CI):Q2 vs. Q1: 0.86 (0.60, 1.21)Q3 vs. Q1: 0.80 (0.56, 1.15)Q4 vs. Q1: 0.69 (0.48, 0.99)Q5 vs. Q1: 0.79 (0.55, 1.13). A significant inverse association was reported for breast cancer and MiBP for the 4th quintile compared to the 1st quintile; significance was not maintained for other quartiles or when analyzed continuously..	Parada et. al 2018 4728408 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Breast cancer	Health Effect: Cancer/Carcinogenesis-Breast cancer-Cancer-Reproductive/Developmental-Breast cancer-Cancer. Outcome measure: Cancer database and physician confirmation	Pregnant people. Adults (18+), Older Adults (65+). United States; Long Island, New York. Female. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Older adults (age >= 65 years). 1,308 adult females in Long Island, New York (n=710 cases, n=598 controls, cases followed-up for mortality data). Long Island Breast Cancer Study Project (LIBCSP). Enrollment: 1996-1997; Follow-up: Up to 12/31/2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at enrollment, post-diagnosis of breast cancer and pre-mortality.	Logistic Regression. Confounders adjusted for: Age, age at menarche, education, menopausal status, hormone replacement therapy use, body mass index, oral contraceptive use.	Lowest exposure concentration for a significant adverse health outcome response: 7.03-10.9 ug/g creatinine. OR (95% CI):Q2 vs. Q1: 0.64 (0.45, 0.91)Q3 vs. Q1: 0.81 (0.57, 1.14)Q4 vs. Q1: 0.59 (0.41, 0.84)Q5 vs. Q1: 0.72 (0.50, 1.03). A significant inverse association was reported for breast cancer and MBzP for the 2nd and 4th quintile compared to the 1st quintile; significance was not maintained for other quartiles or when analyzed continuously..	Parada et. al 2018 4728408 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Breast cancer	Health Effect: Cancer/Carcinogenesis-Breast cancer-Cancer-Reproductive/Developmental-Breast cancer-Cancer. Outcome measure: Cancer database and physician confirmation	Pregnant people. Adults (18+), Older Adults (65+). United States; Long Island, New York. Female. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Older adults (age >= 65 years). 1,308 adult females in Long Island, New York (n=710 cases, n=598 controls, cases followed-up for mortality data). Long Island Breast Cancer Study Project (LIBCSP). Enrollment: 1996-1997; Follow-up: Up to 12/31/2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at enrollment, post-diagnosis of breast cancer and pre-mortality.	Logistic Regression. Confounders adjusted for: Age, age at menarche, education, menopausal status, hormone replacement therapy use, body mass index, oral contraceptive use.	Lowest exposure concentration for a significant adverse health outcome response: MECCP: 34.0-45.9 ug/g creatinine. OR (95% CI) for MECCP:Q2 vs. Q1: 1.08 (0.76, 1.53)Q3 vs. Q1: 0.68 (0.47, 0.99)Q4 vs. Q1: 0.82 (0.57, 1.17)Q5 vs. Q1: 0.79 (0.55, 1.14). A significant inverse association was reported for breast cancer and MECCP for the 3rd quintile compared to the 1st quintile; significance was not maintained for other quartiles or when analyzed continuously. No other DEHP metabolites were statistically significant..	Parada et. al 2018 4728408 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Breast cancer	Health Effect: Reproductive/Developmental-Breast cancer mortality-Cancer-Mortality-Breast cancer mortality-Cancer-Cancer/Carcinogenesis-Breast cancer mortality-Cancer. Outcome measure: Cancer database and physician confirmation	Pregnant people. Adults (18+), Older Adults (65+). United States; Long Island, New York. Female. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Older adults (age >= 65 years). 1,308 adult females in Long Island, New York (n=710 cases, n=598 controls, cases followed-up for mortality data). Long Island Breast Cancer Study Project (LIBCSP). Enrollment: 1996-1997; Follow-up: Up to 12/31/2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at enrollment, post-diagnosis of breast cancer and pre-mortality.	Logistic Regression. Confounders adjusted for: Age, education, menopausal status, hormone replacement therapy use, body mass index, oral contraceptive use, receipt of hemotherapy treatment prior to urine sample collection.	Lowest exposure concentration for a significant adverse health outcome response: MEHP Q2 (no concentrations provided). OR (95% CI) for MEHP:Q2 vs. Q1: 0.51 (0.27, 0.96)Q3 vs. Q1: 0.65 (0.35, 1.18)Q4 vs. Q1: 0.47 (0.25, 0.89)Q5 vs. Q1: 0.54 (0.28, 1.04). A significant inverse association was reported for breast cancer mortality and MEHP in for the 2nd and 4th quintiles. No other significant associations were reported for DEHP metabolites..	Parada et. al 2018 4728408 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
autism spectrum-related behaviors	Health Effect: Neurological/Behavioral-Autism spectrum-related behaviors (Social Responsiveness Scale score)-Non-cancer. Outcome measure: Social Responsiveness Scale (SRS) scores	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). United States; Cincinnati, Ohio. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Pregnant women recruited from nine prenatal clinics in the Cincinnati, Ohio area and their children (n=276). Health Outcomes and Measures of the Environment (HOME) cohort. Recruitment: during pregnancy 2003-2008; Follow-up: age 4-8.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Quantile regression. Confounders adjusted for: maternal age, maternal race, income, parity, serum cotinine.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) at different percentiles of the outcome distribution: 50th percentile: 2 (-1, 4); 75th percentile: -1 (-4, 4); 95th percentile: 14 (2, 23). At the 95th percentile of the outcome distribution, MiBP was associated with more deficits in social responsiveness traits in the HOME cohort..	Patti et. al 2021 8350115 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
autism spectrum-related behaviors	Health Effect: Neurological/Behavioral-Autism spectrum-related behaviors (Social Responsiveness Scale score)-Non-cancer. Outcome measure: Social Responsiveness Scale (SRS) scores	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). United States; Cincinnati, Ohio. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Pregnant women recruited from nine prenatal clinics in the Cincinnati, Ohio area and their children (n=276). Health Outcomes and Measures of the Environment (HOME) cohort. Recruitment: during pregnancy 2003-2008; Follow-up: age 4-8.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Quantile regression. Confounders adjusted for: maternal age, maternal race, income, parity, serum cotinine.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) at different percentiles of the outcome distribution: 50th percentile: 1 (-3, 4); 75th percentile: 1 (-2, 5); 95th percentile: 10 (2, 14). At the 95th percentile of the outcome distribution, MBzP was associated with more deficits in social responsiveness traits in the HOME cohort..	Patti et. al 2021 8350115 High

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
autism spectrum-related behaviors	Health Effect: Neurological/Behavioral-Autism spectrum-related behaviors (Social Responsiveness Scale score)-Non-cancer. Outcome measure: Social Responsiveness Scale (SRS) scores	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). United States; Cincinnati, Ohio. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Pregnant women recruited from nine prenatal clinics in the Cincinnati, Ohio area and their children (n=276). Health Outcomes and Measures of the Environment (HOME) cohort. Recruitment: during pregnancy 2003-2008; Follow-up: age 4-8.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Quantile regression. Confounders adjusted for: maternal age, maternal race, income, parity, serum cotinine.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) at different percentiles of the outcome distribution:50th percentile: 2 (-3, 3); 75th percentile: -2 (-5, 8); 95th percentile: 14 (1, 16). At the 95th percentile of the outcome distribution, MBP was associated with more deficits in social responsiveness traits in the HOME cohort..	Patti et. al 2021 8350115 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
autism spectrum-related behaviors	Health Effect: Neurological/Behavioral-Autism spectrum-related behaviors (Social Responsiveness Scale score)-Non-cancer. Outcome measure: Social Responsiveness Scale (SRS) scores	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). United States; Cincinnati, Ohio. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Pregnant women recruited from nine prenatal clinics in the Cincinnati, Ohio area and their children (n=276). Health Outcomes and Measures of the Environment (HOME) cohort. Recruitment: during pregnancy 2003-2008; Follow-up: age 4-8.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Quantile regression. Confounders adjusted for: maternal age, maternal race, income, parity, serum cotinine.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) at different percentiles of the outcome distribution:50th percentile: 5 (2, 7); 75th percentile: 4 (-1, 7); 95th percentile: 9 (-1, 17). At the 50th percentile of the outcome distribution, MBP was associated with more deficits in social responsiveness traits in the HOME cohort. Associations at the 75th and 95th percentiles positive but not significant..	Patti et. al 2021 8350115 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
autism spectrum disorder-related behaviors	Health Effect: Neurological/Behavioral-Autism spectrum-related behaviors (Social Responsiveness Scale score)-Non-cancer. Outcome measure: Social Responsiveness Scales (SRS) scores	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). United States; Pennsylvania, Maryland, California, United States. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Pregnant women who previously had a child diagnosed with autism spectrum disorder and their children (n=140). Early Autism Risk Longitudinal Investigation (EARLI) cohort. Recruitment: during pregnancy 2009-2012; Follow-up: age 3.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Quantile regression. Confounders adjusted for: maternal age, maternal race, income, parity, urine cotinine.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) at different percentiles of the outcome distribution:50th percentile: -5 (-9, -1); 75th percentile: -7 (-11, 5); 95th percentile: -12 (-15, 6). At the 50th percentile of the outcome distribution, MBP was associated with fewer deficits in social responsiveness traits in the EARLI cohort. Associations at the 75th and 95th percentiles were inverse but not statistically significant..	Patti et. al 2021 8350115 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
autism spectrum disorder-related behaviors	Health Effect: Neurological/Behavioral-Autism spectrum-related behaviors (Social Responsiveness Scale score)-Non-cancer. Outcome measure: Social Responsiveness Scales (SRS) scores	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). United States; Pennsylvania, Maryland, California, United States. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). Pregnant women who previously had a child diagnosed with autism spectrum disorder and their children (n=140). Early Autism Risk Longitudinal Investigation (EARLI) cohort. Recruitment: during pregnancy 2009-2012; Follow-up: age 3.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Quantile regression. Confounders adjusted for: maternal age, maternal race, income, parity, urine cotinine.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) at different percentiles of the outcome distribution:50th percentile: -5 (-7, -1); 75th percentile: -6 (-11, -2); 95th percentile: -15 (-23, 9). At the 50th and 75th percentiles of the outcome distribution, MBP was associated with fewer deficits in social responsiveness traits in the EARLI cohort. Association at the 95th percentile was inverse but not statistically significant..	Patti et. al 2021 8350115 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
psychomotor development index	Health Effect: Neurological/Behavioral-Bayley Scales of Infant Development of China Revision (mental development index, psychomotor development index)-Non-cancer. Outcome measure: Clinical evaluation	Patients in clinics, Pregnant people. Infant (0-1), Toddler (2-3), Adults (18+). China; Wuhan, Hubei Province. Female, Male. Cohort (Prospective). PESS: Lifestage , Aggregate Exposures (ex. multiple air exposure sources), Other PESS category specified in the reference. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Mother-child pairs in Hubei Province receiving antenatal examination at Wuhan Medical & Healthcare Center for Women and Children (Enrolled n = 856; Follow-up n = 478; Used in analysis n = 476). Recruitment: 2014-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Generalized linear model. Confounders adjusted for: child's sex, maternal age, maternal education, pre-pregnancy BMI, gestational weight gain, smoking status, folic acid supplementation during pregnancy, parity, breastfeeding status.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) per Ln-unit increase: -1.90 (-3.43, -0.37). Negative association reported in sex-stratified analyses but not significant. Exclusion of premature and LBW children did not change the findings..	Qian et. al 2019 6967437 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
psychomotor development index	Health Effect: Neurological/Behavioral-Bayley Scales of Infant Development of China Revision (mental development index, psychomotor development index)-Non-cancer. Outcome measure: Clinical evaluation	Patients in clinics, Pregnant people. Infant (0-1), Toddler (2-3), Adults (18+). China; Wuhan, Hubei Province. Female, Male. Cohort (Prospective). PESS: Lifestage , Aggregate Exposures (ex. multiple air exposure sources), Other PESS category specified in the reference. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Mother-child pairs in Hubei Province receiving antenatal examination at Wuhan Medical & Healthcare Center for Women and Children (Enrolled n = 856; Follow-up n = 478; Used in analysis n = 476). Recruitment: 2014-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Generalized linear model. Confounders adjusted for: child's sex, maternal age, maternal education, pre-pregnancy BMI, gestational weight gain, smoking status, folic acid supplementation during pregnancy, parity, breastfeeding status.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) per Ln-unit increase MECPP: 2.15 (0.01, 4.29). Non-significant positive associations reported per ln-unit increase in MEHP, MEOHP, and MEHHP across the whole study population..	Qian et. al 2019 6967437 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
psychomotor development index	Health Effect: Neurological/Behavioral-Bayley Scales of Infant Development of China Revision (mental development index, psychomotor development index)-Non-cancer. Outcome measure: Clinical evaluation	Patients in clinics, Pregnant people. Infant (0-1), Toddler (2-3), Adults (18+). China; Wuhan, Hubei Province. Female, Male. Cohort (Prospective). PESS: Lifestage , Aggregate Exposures (ex. multiple air exposure sources), Other PESS category specified in the reference. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Mother-child pairs in Hubei Province receiving antenatal examination at Wuhan Medical & Healthcare Center for Women and Children (Enrolled n = 856; Follow-up n = 478; Used in analysis n = 476). Recruitment: 2014-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Generalized linear model. Confounders adjusted for: child's sex, maternal age, maternal education, pre-pregnancy BMI, gestational weight gain, smoking status, folic acid supplementation during pregnancy, parity, breastfeeding status.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) per Ln-unit increase MEHP among boys: 2.25 (0.54, 3.96). No association reported with MEHP exposure among girls..	Qian et. al 2019 6967437 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
psychomotor development index	Health Effect: Neurological/Behavioral-Bayley Scales of Infant Development of China Revision (mental development index, psychomotor development index)-Non-cancer. Outcome measure: Clinical evaluation	Patients in clinics, Pregnant people. Infant (0-1), Toddler (2-3), Adults (18+). China; Wuhan, Hubei Province. Female, Male. Cohort (Prospective). PESS: Lifestage , Aggregate Exposures (ex. multiple air exposure sources), Other PESS category specified in the reference. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Mother-child pairs in Hubei Province receiving antenatal examination at Wuhan Medical & Healthcare Center for Women and Children (Enrolled n = 856; Follow-up n = 478; Used in analysis n = 476). Recruitment: 2014-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Generalized linear model. Confounders adjusted for: child's sex, maternal age, maternal education, pre-pregnancy BMI, gestational weight gain, smoking status, folic acid supplementation during pregnancy, parity, breastfeeding status.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) per Ln-unit increase MEOHP among boys: 2.55 (0.05, 5.06). Non-significant negative association reported with MEOHP exposure among girls..	Qian et. al 2019 6967437 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
psychomotor development index	Health Effect: Neurological/Behavioral-Bayley Scales of Infant Development of China Revision (mental development index, psychomotor development index)-Non-cancer. Outcome measure: Clinical evaluation	Patients in clinics, Pregnant people. Infant (0-1), Toddler (2-3), Adults (18+). China; Wuhan, Hubei Province. Female, Male. Cohort (Prospective). PESS: Lifestage , Aggregate Exposures (ex. multiple air exposure sources), Other PESS category specified in the reference. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Mother-child pairs in Hubei Province receiving antenatal examination at Wuhan Medical & Healthcare Center for Women and Children (Enrolled n = 856; Follow-up n = 478; Used in analysis n = 476). Recruitment: 2014-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Generalized linear model. Confounders adjusted for: child's sex, maternal age, maternal education, pre-pregnancy BMI, gestational weight gain, smoking status, folic acid supplementation during pregnancy, parity, breastfeeding status.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) per Ln-unit increase MECPP among boys: 3.49 (0.88, 6.10). No association reported with MECPP exposure among girls..	Qian et. al 2019 6967437 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
psychomotor development index	Health Effect: Neurological/Behavioral-Bayley Scales of Infant Development of China Revision (mental development index, psychomotor development index)-Non-cancer. Outcome measure: Clinical evaluation	Patients in clinics, Pregnant people. Infant (0-1), Toddler (2-3), Adults (18+). China; Wuhan, Hubei Province. Female, Male. Cohort (Prospective). PESS: Lifestage , Aggregate Exposures (ex. multiple air exposure sources), Other PESS category specified in the reference. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Mother-child pairs in Hubei Province receiving antenatal examination at Wuhan Medical & Healthcare Center for Women and Children (Enrolled n = 856; Follow-up n = 478; Used in analysis n = 476). Recruitment: 2014-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Generalized linear model. Confounders adjusted for: child's sex, maternal age, maternal education, pre-pregnancy BMI, gestational weight gain, smoking status, folic acid supplementation during pregnancy, parity, breastfeeding status.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) per Ln-unit increase sumDEHP among boys: 3.24 (0.70, 5.78).. Non-significant negative association reported with sumDEHP exposure among girls..	Qian et. al 2019 6967437 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
psychomotor development index	Health Effect: Neurological/Behavioral-Bayley Scales of Infant Development of China Revision (mental development index, psychomotor development index)-Non-cancer. Outcome measure: Clinical evaluation	Patients in clinics, Pregnant people. Infant (0-1), Toddler (2-3), Adults (18+). China; Wuhan, Hubei Province. Female, Male. Cohort (Prospective). PESS: Lifestage , Aggregate Exposures (ex. multiple air exposure sources), Other PESS category specified in the reference. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Mother-child pairs in Hubei Province receiving antenatal examination at Wuhan Medical & Healthcare Center for Women and Children (Enrolled n = 856; Follow-up n = 478; Used in analysis n = 476). Recruitment: 2014-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Generalized linear model. Confounders adjusted for: child's sex, maternal age, maternal education, pre-pregnancy BMI, gestational weight gain, smoking status, folic acid supplementation during pregnancy, parity, breastfeeding status.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Beta (95% CI) per Ln-unit increase DnBP using cumulative risk assessment: -1.88 (-3.40, -0.36). Non-significant negative associations reported among boys and girls..	Qian et. al 2019 6967437 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
psychomotor development index	Health Effect: Neurological/Behavioral-Bayley Scales of Infant Development of China Revision (mental development index, psychomotor development index)-Non-cancer. Outcome measure: Clinical evaluation	Patients in clinics, Pregnant people. Infant (0-1), Toddler (2-3), Adults (18+). China; Wuhan, Hubei Province. Female, Male. Cohort (Prospective). PESS: Lifestage , Aggregate Exposures (ex. multiple air exposure sources), Other PESS category specified in the reference. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Mother-child pairs in Hubei Province receiving antenatal examination at Wuhan Medical & Healthcare Center for Women and Children (Enrolled n = 856; Follow-up n = 478; Used in analysis n = 476). Recruitment: 2014-2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Generalized linear model. Confounders adjusted for: child's sex, maternal age, maternal education, pre-pregnancy BMI, gestational weight gain, smoking status, folic acid supplementation during pregnancy, parity, breastfeeding status.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Beta (95% CI) per Ln-unit increase sumDEHP using cumulative risk assessment: 3.14 (0.62, 5.66). Non-significant positive association reported for the total study population, and a non-significant negative association reported among girls..	Qian et. al 2019 6967437 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Incident primary invasive breast cancer	Health Effect: Cancer/Carcinogenesis-Breast cancer-Cancer-Reproductive/Developmental-Breast cancer-Cancer. Outcome measure: Self-reported with medical records adjudication	General public. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: Lifestage . Lifestage PESS: Older adults (age >= 65 years). 1,257 postmenopausal women (n=419 cases, 838 controls). Women's Health Initiative. Recruitment: 1993-1993; Follow-up: 2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured via biomonitoring (2-3 spot urines) within ~3 years of recruitment.	Logistic Regression. Confounders adjusted for: age, race/region, neighborhood socioeconomic status index, body mass index, alcohol use, smoking status, Gail risk score, postmenopausal hormone therapy use at enrollment, hormone therapy trial assignment, dietary modification trial assignment.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. OR (95% CI) per ln-unit increase in DBP metabolites ln-MHBP: ER-PR- cases = 2.07 (1.05 - 4.08)*; ER+/PR+ cases = 0.98 (0.84 - 1.15) ln-MBP: ER-PR- cases = 1.67 (0.96 - 2.89); ER+/PR+ cases = 1.14 (0.97 - 1.35) ln-sumDBP: ER-PR- cases = 1.71 (0.97 - 3.00); ER+/PR+ cases = 1.12 (0.96 - 1.31). Significant positive association with MHBP for ER-/PR- breast cancer cases, null association for ER+/PR+ cases. Positive but marginally non-significant association for ER-/PR- breast cancer cases and MBP and the sum of both DBP metabolites. Associations using quartiles of exposure were largely non-significant..	Reeves et. al 2019 5043615 Medium
Incident primary invasive breast cancer	Health Effect: Cancer/Carcinogenesis-Breast cancer-Cancer-Reproductive/Developmental-Breast cancer-Cancer. Outcome measure: Self-reported with medical records adjudication	General public. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: Lifestage . Lifestage PESS: Older adults (age >= 65 years). 1,257 postmenopausal women (n=419 cases, 838 controls). Women's Health Initiative. Recruitment: 1993-1993; Follow-up: 2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured via biomonitoring (2-3 spot urines) within ~3 years of recruitment.	Logistic Regression. Confounders adjusted for: age, race/region, neighborhood socioeconomic status index, body mass index, alcohol use, smoking status, Gail risk score, postmenopausal hormone therapy use at enrollment, hormone therapy trial assignment, dietary modification trial assignment.	Lowest exposure concentration for a significant adverse health outcome response: Q4: 2.02 - 121.78 ug/g creatinine. OR (95% CI) for quartiles of MHiBP and ER-/PR- breast cancer: Q2 vs. Q1: 0.88 (0.18 - 4.25) Q3 vs. Q1: 0.54 (0.14 - 2.06) Q4 vs. Q1: 0.19 (0.04 - 0.97)* For ER-PR- breast cancer, OR (95% CI) per ln-MHiBP: 0.59 (0.34 - 1.04) OR (95% CI) for quartiles of MHiBP and ER+/PR+ breast cancer: Q2 vs. Q1: 0.82 (0.52 - 1.29) Q3 vs. Q1: 0.68 (0.43 - 1.08) Q4 vs. Q1: 0.71 (0.45 - 1.13) For ER-PR- breast cancer, OR (95% CI) per ln-MHiBP: 0.93 (0.75 - 1.16). The highest quartile of MHiBP was associated with a significantly reduced risk of breast cancer among ER-/PR- cases, but not among ER+/PR+ cases. Associations were not significant for MiBP or the sum of both DiBP metabolites..	Reeves et. al 2019 5043615 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Incident primary invasive breast cancer	Health Effect: Cancer/Carcinogenesis-Breast cancer-Cancer-Reproductive/Developmental-Breast cancer-Cancer. Outcome measure: Self-reported with medical records adjudication	General public. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: Lifestage . Lifestage PESS: Older adults (age >= 65 years). 1,257 postmenopausal women (n=419 cases, 838 controls). Women's Health Initiative (WHI). 1993-1998.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured via biomonitoring (2-3 spot urines) within ~3 years of recruitment.	Logistic Regression. Confounders adjusted for: age, race/region, neighborhood socioeconomic status index, body mass index, alcohol use, smoking status, Gail risk score, postmenopausal hormone therapy use at enrollment, hormone therapy trial assignment, dietary modification trial assignment.	Lowest exposure concentration for a significant adverse health outcome response: 18.03-27.42 ug/g creatinine. OR (95% CI) for Q3 v Q1 MBzP: For all cases: 0.57 (0.39-0.84) For ER-/PR- cancers: 0.23 (0.05 to 0.97) For ER+/PR+ cancers: 0.65 (0.41 to 1.03). Significant inverse association between the third quartile of MBzP and breast cancer risk overall, and for ER-/PR- cancers. An inverse association with ER+/PR+ tumors was marginally non-significant. Associations were not significant using continuous exposure, or with other MBzP quantiles..	Reeves et. al 2019 5043615 Medium
ER+/PR+ breast cancer risk	Health Effect: Cancer/Carcinogenesis-Breast cancer-Cancer-Reproductive/Developmental-Breast cancer-Cancer. Outcome measure: Self-reported with medical records adjudication	General public. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: Lifestage . Lifestage PESS: Older adults (age >= 65 years). 1,257 postmenopausal women (n=419 cases, 838 controls). Women's Health Initiative (WHI). 1993-1998.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured via biomonitoring (2-3 spot urines) within ~3 years of recruitment.	Logistic Regression. Confounders adjusted for: age, race/region, neighborhood socioeconomic status index, body mass index, alcohol use, smoking status, Gail risk score, postmenopausal hormone therapy use at enrollment, hormone therapy trial assignment, dietary modification trial assignment.	Lowest exposure concentration for a significant adverse health outcome response: 27.69-43.35 ug/g creatinine. OR (95% CI) for Q3 v Q1 MEHHP: For all cases: 0.85 (0.58 - 1.24) For ER-PR- cancers: 1.97 (0.47 - 8.32) For ER+/PR+ cancers: 0.58 (0.36-0.94)*. Significant inverse association between the third quartile of MEHHP and ER+/PR+ breast cancer risk. Associations were not significant overall, with ER-/PR- tumors, using continuous exposure, or with other MEHHP quantiles..	Reeves et. al 2019 5043615 Medium
ER+/PR+ breast cancer risk	Health Effect: Cancer/Carcinogenesis-Breast cancer-Cancer-Reproductive/Developmental-Breast cancer-Cancer. Outcome measure: Self-reported with medical records adjudication	General public. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: Lifestage . Lifestage PESS: Older adults (age >= 65 years). 1,257 postmenopausal women (n=419 cases, 838 controls). Women's Health Initiative (WHI). 1993-1998.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured via biomonitoring (2-3 spot urines) within ~3 years of recruitment.	Logistic Regression. Confounders adjusted for: age, race/region, neighborhood socioeconomic status index, body mass index, alcohol use, smoking status, Gail risk score, postmenopausal hormone therapy use at enrollment, hormone therapy trial assignment, dietary modification trial assignment.	Lowest exposure concentration for a significant adverse health outcome response: 17.19-26.53 ug/g creatinine. OR (95% CI) for Q3 v Q1 MEOHP: For all cases: 0.70 (0.47 - 1.03) For ER-PR- cancers: 0.90 (0.21 - 3.77) For ER+/PR+ cancers: 0.58 (0.36-0.94)*. Significant inverse association between the third quartile of MEOHP and ER+/PR+ breast cancer risk. Associations were not significant overall, with ER-/PR- tumors, using continuous exposure, or with other MEOHP quantiles..	Reeves et. al 2019 5043615 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Change in weight after pregnancy	Health Effect: Nutritional/Metabolic-Weight change after pregnancy-Non-cancer-Reproductive/Developmental-Weight change after pregnancy-Non-cancer. Outcome measure: Measured during clinical follow-up visits	General public, Pregnant people. Adults (18+). Mexico. Female. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Mexican women from a subsample of the ELEMENT cohort recruited during pregnancy (n = 178). ELEMENT cohort. Recruitement: 1997-2004; Follow-up: 1998-2005 and 2008-2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Linear mixed model. Confounders adjusted for: age, education, parity rate, energy intake, marital status.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI): -0.21 (-0.38, -0.03). Significant negative associations for MBzP from main model. Significant negative associations also reported in models including all 9 metabolites..	Rodríguez-Carmona et. al 2019 5043451 Medium
Change in weight after pregnancy	Health Effect: Nutritional/Metabolic-Weight change after pregnancy-Non-cancer-Reproductive/Developmental-Weight change after pregnancy-Non-cancer. Outcome measure: Measured during clinical follow-up visits	General public, Pregnant people. Adults (18+). Mexico. Female. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Mexican women from a subsample of the ELEMENT cohort recruited during pregnancy (n = 178). ELEMENT cohort. Recruitement: 1997-2004; Follow-up: 1998-2005 and 2008-2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Linear mixed model. Confounders adjusted for: age, education, parity rate, energy intake, marital status.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI): 0.19 (0.03, 0.35). Significant positive associations for MiBP in models including all 9 metabolites..	Rodríguez-Carmona et. al 2019 5043451 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
FT3	Health Effect: Thyroid-TSH, TT4, TT3, FT4, FT3-Non-cancer. Outcome measure: Clinical immunoassay analyzer	General public, Pregnant people. Infant (0-1), Adults (18+). United States; Cincinnati, Ohio. Female, Male. Cohort (Retrosepctive). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant mothers enrolled in the HOME study from March 2003-January 2006 (Enrolled n=468, Followed to birth of singleton pregnancies n=389, Used in analysis n=276).. HOME (Health Outcomes and Measures of the Environment). March 2003-January 2006.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at 16 and 26 weeks of gestation, and at birth.	Linear Regression. Confounders adjusted for: maternal age at delivery, race, education, marital status, household income, parity, serum cotinine during pregnancy, body mass index, prenatal vitamin use, infant sex, average of log10- maternal urinary bisphenol A, gestational age at delivery, and mode of delivery.	Lowest exposure concentration for a significant adverse health outcome response: continuous; median sum DEHP (ug/g creatinine) = 93. Percent difference (95% CI) in cord serum FT3 per 10-fold increase in maternal urinary sum DEHP (adjusted for PCBs and BDEs): -11.0 (-0.21, -0.01). Significant negative associations were reported for urinary sum DEHP and at birth cord blood Ln((FT3) when co-exposure to PCB-153, BDE-28, and BDE-47 were controlled . No significant results were reported for maternal thyroid hormones..	Romano et. al 2018 4728848 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
TSH	Health Effect: Thyroid-TSH, TT4, TT3, FT4, FT3-Non-cancer. Outcome measure: Clinical immunoassay analyzer	General public, Pregnant people. Infant (0-1), Adults (18+). United States; Cincinnati, Ohio. Female, Male. Cohort (Retrosepctive). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant mothers enrolled in the HOME study from March 2003-January 2006 (Enrolled n=468, Followed to birth of singleton pregnancies n=389, Used in analysis n=276).. HOME (Health Outcomes and Measures of the Environment). March 2003-January 2006.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at 16 and 26 weeks of gestation, and at birth.	Linear Regression. Confounders adjusted for: maternal age at delivery, race, education, marital status, household income, parity, serum cotinine during pregnancy, body mass index, prenatal vitamin use, infant sex, average of log10- maternal urinary bisphenol A, gestational age at delivery, and mode of delivery.	Lowest exposure concentration for a significant adverse health outcome response: continuous; median MBZP (ug/g creatinine) = 10. Percent difference (95% CI) in cord serum TSH per 10-fold increase in maternal urinary MBzP: -19.0 (-33.1, -1.9)Percent difference (95% CI) in cord serum TSH per 10-fold increase in maternal urinary MBzP (adjusted for PCBs and PBDEs): -19.8 (-34.7, -1.5). Significant negative associations were reported for urinary MBzP and at birth cord blood Ln(TSH) levels. No significant results were reported for maternal thyroid hormones..	Romano et. al 2018 4728848 Medium
Overweight patients	Health Effect: Nutritional/Metabolic-Weight change-Non-cancer-Nutritional/Metabolic-Overweight and obesity-Non-cancer. Outcome measure: Height and weight measured at baseline, year 3, and year 6 clinic visits and used to determine BMI	Patients in clinics. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: . Postmenopausal women from clinics throughout the United States (enrolled n=1257; used in analysis n=997). Women's Health Initiative. 1993-1998, follow-up: through 2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at clinic visits.	Logistic Regression. Confounders adjusted for: creatinine, age, ethnicity, alcohol use, physical activity, smoking status, healthy eating index, dietary energy intake, hormone replacement therapy use, education, income, history of diabetes, hypertension, dyslipidemia, cardiovascular diseases.	Lowest exposure concentration for a significant adverse health outcome response: 5.50-108.00 ng/mL. MCPP OR (95% CI) for Q4 vs. Q1: 1.90 (1.10-3.27). Significant positive association reported for Q4 vs. Q1, other quartiles were not significant. P-value for trend reported as 0.02.	Santana et. al 2019 5613207 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Obese patients	Health Effect: Nutritional/Metabolic-Weight change-Non-cancer-Nutritional/Metabolic-Overweight and obesity-Non-cancer. Outcome measure: Height and weight measured at baseline, year 3, and year 6 clinic visits and used to determine BMI	Patients in clinics. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: . Postmenopausal women from clinics throughout the United States (enrolled n=1257; used in analysis n=997). Women's Health Initiative. 1993-1998, follow-up: through 2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at clinic visits.	Logistic Regression. Confounders adjusted for: creatinine, age, ethnicity, alcohol use, physical activity, smoking status, healthy eating index, dietary energy intake, hormone replacement therapy use, education, income, history of diabetes, hypertension, dyslipidemia, cardiovascular diseases.	Lowest exposure concentration for a significant adverse health outcome response: 3.10-5.40 ng/mL. MCPP OR (95% CI) for Q3 vs. Q1: 1.86 (1.10-3.16). Significant positive association reported for Q3 vs. Q1, other quartiles were not significant. P-value for trend reported as 0.02.	Santana et. al 2019 5613207 Medium
Estimated additional weight change associated with phthalate biomarker concentration at years 3 and 6	Health Effect: Nutritional/Metabolic-Weight change-Non-cancer-Nutritional/Metabolic-Overweight and obesity-Non-cancer. Outcome measure: Height and weight measured at baseline, year 3, and year 6 clinic visits and used to determine BMI	Patients in clinics. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: . Postmenopausal women from clinics throughout the United States (enrolled n=1257; used in analysis n=660 controls). Women's Health Initiative. 1993-1998, follow-up: through 2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at clinic visits.	Mixed effects models. Confounders adjusted for: creatinine, age, ethnicity, alcohol use, physical activity, smoking status, healthy eating index, dietary energy intake, hormone replacement therapy use, education, income, history of diabetes, hypertension, dyslipidemia, cardiovascular diseases.	Lowest exposure concentration for a significant adverse health outcome response: MCPP: 3.10-5.40 ng/mL; MBP: 12.10-23.60 ng/mL. MCPP Beta (95% CI) for Q3 vs. Q1: -0.65 (-2.07-0.77)MBP Beta for Q2 vs. Q1: -0.52 (-1.98-0.95). Significant negative association reported for Q2 vs. Q1 of MBP and for Q3 vs. Q1 of MCPP.	Santana et. al 2019 5613207 Medium
Estimated additional weight change associated with phthalate biomarker concentration at years 3 and 6	Health Effect: Nutritional/Metabolic-Weight change-Non-cancer-Nutritional/Metabolic-Overweight and obesity-Non-cancer. Outcome measure: Height and weight measured at baseline, year 3, and year 6 clinic visits and used to determine BMI	Patients in clinics. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: . Postmenopausal women from clinics throughout the United States (enrolled n=1257; used in analysis n=660 controls). Women's Health Initiative. 1993-1998, follow-up: through 2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at clinic visits.	Mixed effects models. Confounders adjusted for: creatinine, age, ethnicity, alcohol use, physical activity, smoking status, healthy eating index, dietary energy intake, hormone replacement therapy use, education, income, history of diabetes, hypertension, dyslipidemia, cardiovascular diseases.	Lowest exposure concentration for a significant adverse health outcome response: 12.10-22.20 ng/mL. Year 3 Beta (95% CI) for Q3 vs. Q1: -0.44 (-1.87-0.98). Significant negative association reported for Q3 vs. Q1 of MBzP in year 3. No significant associations noted for year 6.	Santana et. al 2019 5613207 Medium

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Overweight and obese patients	Health Effect: Nutritional/Metabolic-Weight change-Non-cancer-Nutritional/Metabolic-Overweight and obesity-Non-cancer. Outcome measure: Height and weight measured at baseline, year 3, and year 6 clinic visits and used to determine BMI	Patients in clinics. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: . Postmenopausal women from clinics throughout the United States (enrolled n=1257; used in analysis n=997). Women's Health Initiative. 1993-1998, follow-up: through 2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at clinic visits.	Logistic Regression. Confounders adjusted for: creatinine, age, ethnicity, alcohol use, physical activity, smoking status, healthy eating index, dietary energy intake, hormone replacement therapy use, education, income, history of diabetes, hypertension, dyslipidemia, cardiovascular diseases.	Lowest exposure concentration for a significant adverse health outcome response: 6.00-12.00 ng/mL. Obese OR (95% CI) for Q2 vs. Q1: 2.58 (1.52-4.38)Q4 vs. Q1: 2.73 (1.48-5.04). Significant positive association for Q2 and Q4 vs. Q1 of MBzP concentrations.	Santana et. al 2019 5613207 Medium
Overweight and obese patients	Health Effect: Nutritional/Metabolic-Weight change-Non-cancer-Nutritional/Metabolic-Overweight and obesity-Non-cancer. Outcome measure: Height and weight measured at baseline, year 3, and year 6 clinic visits and used to determine BMI	Patients in clinics. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: . Postmenopausal women from clinics throughout the United States (enrolled n=1257; used in analysis n=997). Women's Health Initiative. 1993-1998, follow-up: through 2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at clinic visits.	Logistic Regression. Confounders adjusted for: creatinine, age, ethnicity, alcohol use, physical activity, smoking status, healthy eating index, dietary energy intake, hormone replacement therapy use, education, income, history of diabetes, hypertension, dyslipidemia, cardiovascular diseases.	Lowest exposure concentration for a significant adverse health outcome response: MiBP: 2.20-4.10; 4.20-212.00 ng/mL. Overweight OR (95% CI) for Q3 vs. Q1: 1.73 (1.08-2.76); Q4 vs. Q1: 2.27 (1.35-3.81)Obese OR (95% CI) for Q3 vs. Q1: 1.97 (1.17-3.31); Q4 vs. Q1: 2.30 (1.28-4.13). Significant positive associations for Q3 and Q4 vs. Q1 for MiBP and overweight patients. Significant positive associations for Q3 and Q4 vs. for MiBP concentrations and obese patients..	Santana et. al 2019 5613207 Medium
Estimated additional weight change associated with phthalate biomarker concentrations	Health Effect: Nutritional/Metabolic-Weight change-Non-cancer-Nutritional/Metabolic-Overweight and obesity-Non-cancer. Outcome measure: Height and weight measured at baseline, year 3, and year 6 clinic visits and used to determine BMI	Patients in clinics. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: . Postmenopausal women from clinics throughout the United States (enrolled n=1257; used in analysis n=660 controls). Women's Health Initiative. 1993-1998, follow-up: through 2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at clinic visits.	Mixed effects models. Confounders adjusted for: creatinine, age, ethnicity, alcohol use, physical activity, smoking status, healthy eating index, dietary energy intake, hormone replacement therapy use, education, income, history of diabetes, hypertension, dyslipidemia, cardiovascular diseases.	Lowest exposure concentration for a significant adverse health outcome response: 1.10-2.10 ng/mL for year 3; 2.20-4.10 ng/mL for year 6. Year 3 MiBP Beta (95% CI) for Q2 vs. Q1: -0.48 (-1.83-0.87)Year 6 for Q3 vs. Q1: -0.48 (-1.88-0.92). Significant associations between Q2 and Q1 Beta for weight change in year 3 and for Q3 vs. Q1 in year 6.	Santana et. al 2019 5613207 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Overweight and obese patients	Health Effect: Nutritional/Metabolic-Weight change-Non-cancer-Nutritional/Metabolic-Overweight and obesity-Non-cancer. Outcome measure: Height and weight measured at baseline, year 3, and year 6 clinic visits and used to determine BMI	Patients in clinics. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: . Postmenopausal women from clinics throughout the United States (enrolled n=1257; used in analysis n=997). Women's Health Initiative. 1993-1998, follow-up: through 2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at clinic visits.	Logistic Regression. Confounders adjusted for: creatinine, age, ethnicity, alcohol use, physical activity, smoking status, healthy eating index, dietary energy intake, hormone replacement therapy use, education, income, history of diabetes, hypertension, dyslipidemia, cardiovascular diseases.	Lowest exposure concentration for a significant adverse health outcome response: Overweight: 0.1008-0.1827 ng/mL; Obese: 0.1828-0.341 ng/mL. Overweight OR (95% CI) for Q2 vs. Q1: 1.58 (1.03-2.44); Q3 vs. Q1: 2.31 (1.44-3.69); Q4 vs. Q1: 2.72 (1.57-4.72)Obese OR (95% CI) for Q3 vs. Q1: 2.33 (1.38=3.94); Q4 vs. Q1: 3.29 (1.80-6.03). Significant positive OR for Q2-4 of DEHP metabolites and overweight patients; significant positive OR for Q3-4 of DEHP metabolites and obese patients.	Santana et. al 2019 5613207 Medium
Overweight and obese patients	Health Effect: Nutritional/Metabolic-Weight change-Non-cancer-Nutritional/Metabolic-Overweight and obesity-Non-cancer. Outcome measure: Height and weight measured at baseline, year 3, and year 6 clinic visits and used to determine BMI	Patients in clinics. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: . Postmenopausal women from clinics throughout the United States (enrolled n=1257; used in analysis n=997). Women's Health Initiative. 1993-1998, follow-up: through 2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at clinic visits.	Logistic Regression. Confounders adjusted for: creatinine, age, ethnicity, alcohol use, physical activity, smoking status, healthy eating index, dietary energy intake, hormone replacement therapy use, education, income, history of diabetes, hypertension, dyslipidemia, cardiovascular diseases.	Lowest exposure concentration for a significant adverse health outcome response: Overweight: 2.00-4.10 ng/mL. Overweight OR (95% CI) for Q3 vs. Q1: 1.60 (1.02-2.51); Q4 vs. Q1: 1.71 (1.04-2.80). Significant positive OR for Q3-4 of MEHP metabolites and overweight patients; no significant associations for obese patients.	Santana et. al 2019 5613207 Medium
Overweight and obese patients	Health Effect: Nutritional/Metabolic-Weight change-Non-cancer-Nutritional/Metabolic-Overweight and obesity-Non-cancer. Outcome measure: Height and weight measured at baseline, year 3, and year 6 clinic visits and used to determine BMI	Patients in clinics. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: . Postmenopausal women from clinics throughout the United States (enrolled n=1257; used in analysis n=997). Women's Health Initiative. 1993-1998, follow-up: through 2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at clinic visits.	Logistic Regression. Confounders adjusted for: creatinine, age, ethnicity, alcohol use, physical activity, smoking status, healthy eating index, dietary energy intake, hormone replacement therapy use, education, income, history of diabetes, hypertension, dyslipidemia, cardiovascular diseases.	Lowest exposure concentration for a significant adverse health outcome response: Overweight: 17.20-33.00 MEHHP: 4 0.60-9.20 ng/mL 9.Overweight: 17.20-33.20 ng/mL; Obese: 17.20-33.00 ng/mL. Overweight OR (95% CI) for Q3 vs. Q1: 1.80 (1.14-2.83); Q4 vs. Q1: 2.33 (1.36-3.98)Obese OR (95% CI) for Q3 vs. Q1: 1.96 (1.17-3.30); Q4 vs. Q1: 2.93 (1.62-5.31). Significant positive OR for Q3-4 of MEHHP metabolites and overweight patients; Significant positive OR for Q3-4 of MEHHP metabolites and obese patients.	Santana et. al 2019 5613207 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Overweight and obese patients	Health Effect: Nutritional/Metabolic-Weight change-Non-cancer-Nutritional/Metabolic-Overweight and obesity-Non-cancer. Outcome measure: Height and weight measured at baseline, year 3, and year 6 clinic visits and used to determine BMI	Patients in clinics. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: . Postmenopausal women from clinics throughout the United States (enrolled n=1257; used in analysis n=997). Women's Health Initiative. 1993-1998, follow-up: through 2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at clinic visits.	Logistic Regression. Confounders adjusted for: creatinine, age, ethnicity, alcohol use, physical activity, smoking status, healthy eating index, dietary energy intake, hormone replacement therapy use, education, income, history of diabetes, hypertension, dyslipidemia, cardiovascular diseases.	Lowest exposure concentration for a significant adverse health outcome response: Overweight: 10.70-20.40 g/mL; Obese: 10.70-20.40 ng/mL. Overweight OR (95% CI) for Q3 vs. Q1: 1.84 (1.16-2.90); Q4 vs. Q1: 2.01 (1.19-3.43)Obese OR (95% CI) for Q3 vs. Q1: 1.89 (1.13-3.16); Q4 vs. Q1: 2.40 (1.33-4.32). Significant positive OR for Q3-4 of MEOHP metabolites and overweight patients; Significant positive OR for Q3-4 of MEOHP metabolites and obese patients.	Santana et. al 2019 5613207 Medium
Overweight and obese patients	Health Effect: Nutritional/Metabolic-Weight change-Non-cancer-Nutritional/Metabolic-Overweight and obesity-Non-cancer. Outcome measure: Height and weight measured at baseline, year 3, and year 6 clinic visits and used to determine BMI	Patients in clinics. Adults (18+), Older Adults (65+). United States. Female. Nested Case-Control. PESS: . Postmenopausal women from clinics throughout the United States (enrolled n=1257; used in analysis n=997). Women's Health Initiative. 1993-1998, follow-up: through 2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured at clinic visits.	Logistic Regression. Confounders adjusted for: creatinine, age, ethnicity, alcohol use, physical activity, smoking status, healthy eating index, dietary energy intake, hormone replacement therapy use, education, income, history of diabetes, hypertension, dyslipidemia, cardiovascular diseases.	Lowest exposure concentration for a significant adverse health outcome response: Overweight: 22.70-41.50 ng/mL; Obese: 22.70-41.50 ng/mL. Overweight OR (95% CI) for Q3 vs. Q1: 1.98 (1.24-3.16); Q4 vs. Q1: 2.57 (1.49-4.43)Obese OR (95% CI) for Q3 vs. Q1: 2.48 (1.46-4.19); Q4 vs. Q1: 3.50 (1.90-6.45). Significant positive OR for Q3-4 of MECPP metabolites and overweight patients; Significant positive OR for Q3-4 of MECPP metabolites and obese patients.	Santana et. al 2019 5613207 Medium
cingulate volume, cerebellum volume	Health Effect: Neurological/Behavioral-Brain MRI voxel-based morphometry (VBM) and generalized q-sampling imaging (GQI) mapping-Non-cancer. Outcome measure: brain MRI	General public, Pregnant people. Teens (12-17), Adults (18+). Taiwan; central Taiwan. Female, Male. Cohort (Prospective). PESS: . 49 mother-child pairs in Taiwan. Taiwan Maternal and Infant Cohort Study. NR.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during pregnancy.	Linear Regression. Confounders adjusted for: Gender, IQ, family income, creatinine.	Lowest exposure concentration for a significant adverse health outcome response: continuous. p-value < 0.05. Statistically significant negative associations were found between MBzP exposure and cingulate and cerebellum volumes (corrected $p<0.05$)..	Shen et. al 2021 8453074 Medium

Continued on next page ...

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
generalized q-sampling imaging (GQI): generalized fractional anisotropy (GFA) in superior longitudinal fasciculus (SLF)	Health Effect: Neurological/Behavioral-Brain MRI voxel-based morphometry (VBM) and generalized q-sampling imaging (GQI) mapping-Non-cancer. Outcome measure: brain MRI	General public, Pregnant people. Teens (12-17), Adults (18+). Taiwan; central Taiwan. Female, Male. Cohort (Prospective). PESS: . 49 mother-child pairs in Taiwan. Taiwan Maternal and Infant Cohort Study. NR.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during pregnancy.	Partial correlation. Confounders adjusted for: Gender, IQ, family income, creatinine.	Lowest exposure concentration for a significant adverse health outcome response: continuous. BMP: r=-0.403, p-value=0.008. MBP/DEHP/MEHP concentrations and GFA/NQA in the superior longitudinal fasciculus.	Shen et. al 2021 8453074 Medium
generalized q-sampling imaging (GQI): generalized fractional anisotropy (GFA) in the superior longitudinal fasciculus (SLF)	Health Effect: Neurological/Behavioral-Brain MRI voxel-based morphometry (VBM) and generalized q-sampling imaging (GQI) mapping-Non-cancer. Outcome measure: brain MRI	General public, Pregnant people. Teens (12-17), Adults (18+). Taiwan; central Taiwan. Female, Male. Cohort (Prospective). PESS: . 49 mother-child pairs in Taiwan. Taiwan Maternal and Infant Cohort Study. NR.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during pregnancy.	Partial correlation. Confounders adjusted for: Gender, IQ, family income, creatinine.	Lowest exposure concentration for a significant adverse health outcome response: continuous. DEHP: r=-0.316, p-value=0.044; MEOHP: r=-0.350, p-value=0.025. Significant negative correlations between DEHP/MEHP/MEOHP concentrations and GFA in the corona radiata (CR).	Shen et. al 2021 8453074 Medium
generalized q-sampling imaging (GQI): generalized fractional anisotropy (GFA) in corona radiata (CR)	Health Effect: Neurological/Behavioral-Brain MRI voxel-based morphometry (VBM) and generalized q-sampling imaging (GQI) mapping-Non-cancer. Outcome measure: brain MRI	General public, Pregnant people. Teens (12-17), Adults (18+). Taiwan; central Taiwan. Female, Male. Cohort (Prospective). PESS: . 49 mother-child pairs in Taiwan. Taiwan Maternal and Infant Cohort Study. NR.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during pregnancy.	Partial correlation. Confounders adjusted for: Gender, IQ, family income, creatinine.	Lowest exposure concentration for a significant adverse health outcome response: continuous. DEHP: r=-0.372, p-value=0.017. Significant negative correlations between DEHP/MEHP/MEOHP concentrations and GFA in the superior longitudinal fasciculus (SLF).	Shen et. al 2021 8453074 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Rhinitis	Health Effect: Lung/Respiratory-Asthma and allergic indicators (wheezing, sneezing, rhinitis)-Non-cancer. Outcome measure: Questionnaire	General public. Preschool (3-5), Middle childhood (6-11). China; 6 administrative districts in Shanghai – 4 urban districts (Yang-Pu district, Hong-kou district, Jing-An district, and Zha-Bei district) and 2 suburban ones (Feng-Xian district and Bao-Shan district). Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Follow-up of children ages 5-10 from the CCHH study (2011-2012) in Shanghai, China (n=419). China, Children, Homes, Health (CCHH) project. Recruitment: 2011-2012; Follow-up: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via morning urine samples.	Logistic Regression. Confounders adjusted for: gender, age, BMI, breastfeeding time, family smoking exposure, residence area, maternal education, annual household income, history of parental asthma, wall materials in children's bedrooms and floor materials in children's bedrooms..	Lowest exposure concentration for a significant adverse health outcome response: >144.0 ug/g. OR (95% CI) for Q4 vs. Q1: 2.23 (1.08 - 4.62)P-trend = 0.03. Significant positive associations were reported for Q4 MiBP values and the prevalence odds of rhinitis..	Shi et. al 2018 4829218 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Eczema	Health Effect: Skin/Connective Tissue-Eczema-Non-cancer. Outcome measure: Questionnaire	General public. Preschool (3-5), Middle childhood (6-11). China; 6 administrative districts in Shanghai – 4 urban districts (Yang-Pu district, Hong-kou district, Jing-An district, and Zha-Bei district) and 2 suburban ones (Feng-Xian district and Bao-Shan district). Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Follow-up of children ages 5-10 from the CCHH study (2011-2012) in Shanghai, China (n=419). China, Children, Homes, Health (CCHH) project. Recruitment: 2011-2012; Follow-up: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via morning urine samples.	Logistic Regression. Confounders adjusted for: gender, age, BMI, breastfeeding time, family smoking exposure, residence area, maternal education, annual household income, history of parental asthma, wall materials in children's bedrooms and floor materials in children's bedrooms..	Lowest exposure concentration for a significant adverse health outcome response: 79.5-144.0 ug/g. OR (95% CI) for Q3 vs. Q1: 3.70 (1.31 - 10.47)OR (95% CI) for Q4 vs. Q1: 2.96 (1.02 - 8.60)P-trend = 0.01. Significant positive associations were reported for Q3 and Q4 MiBP values and the prevalence odds of eczema..	Shi et. al 2018 4829218 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Wheeze	Health Effect: Lung/Respiratory-Asthma and allergic indicators (wheezing, sneezing, rhinitis)-Non-cancer. Outcome measure: Questionnaire	General public. Preschool (3-5), Middle childhood (6-11). China; 6 administrative districts in Shanghai – 4 urban districts (Yang-Pu district, Hong-kou district, Jing-An district, and Zha-Bei district) and 2 suburban ones (Feng-Xian district and Bao-Shan district). Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Follow-up of children ages 5-10 from the CCHH study (2011-2012) in Shanghai, China (n=419). China, Children, Homes, Health (CCHH) project. Recruitment: 2011-2012; Follow-up: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via morning urine samples.	Logistic Regression. Confounders adjusted for: gender, age, BMI, breastfeeding time, family smoking exposure, residence area, maternal education, annual household income, history of parental asthma, wall materials in children's bedrooms and floor materials in children's bedrooms..	Lowest exposure concentration for a significant adverse health outcome response: >205.7 ug/g. OR (95% CI) for Q4 vs. Q1: 2.27 (1.06 - 4.88). Significant positive associations were reported for Q4 MnBP values and the prevalence odds of wheeze..	Shi et. al 2018 4829218 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Rhinitis	Health Effect: Lung/Respiratory-Asthma and allergic indicators (wheezing, sneezing, rhinitis)-Non-cancer. Outcome measure: Questionnaire	General public. Preschool (3-5), Middle childhood (6-11). China; 6 administrative districts in Shanghai – 4 urban districts (Yang-Pu district, Hong-kou district, Jing-An district, and Zha-Bei district) and 2 suburban ones (Feng-Xian district and Bao-Shan district). Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Follow-up of children ages 5-10 from the CCHH study (2011-2012) in Shanghai, China (n=419). China, Children, Homes, Health (CCHH) project. Recruitment: 2011-2012; Follow-up: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via morning urine samples.	Logistic Regression. Confounders adjusted for: gender, age, BMI, breastfeeding time, family smoking exposure, residence area, maternal education, annual household income, history of parental asthma, wall materials in children's bedrooms and floor materials in children's bedrooms..	Lowest exposure concentration for a significant adverse health outcome response: >205.7 ug/g. OR (95% CI) for Q4 vs. Q1: 2.14 (1.02 - 4.46)P-trend = 0.04. Significant positive associations were reported for Q4 MnBP values and the prevalence odds of rhinitis..	Shi et. al 2018 4829218 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Eczema	Health Effect: Skin/Connective Tissue-Eczema-Non-cancer. Outcome measure: Questionnaire	General public. Preschool (3-5), Middle childhood (6-11). China; 6 administrative districts in Shanghai – 4 urban districts (Yang-Pu district, Hong-kou district, Jing-An district, and Zha-Bei district) and 2 suburban ones (Feng-Xian district and Bao-Shan district). Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Follow-up of children ages 5-10 from the CCHH study (2011-2012) in Shanghai, China (n=419). China, Children, Homes, Health (CCHH) project. Recruitment: 2011-2012; Follow-up: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via morning urine samples.	Logistic Regression. Confounders adjusted for: gender, age, BMI, breastfeeding time, family smoking exposure, residence area, maternal education, annual household income, history of parental asthma, wall materials in children's bedrooms and floor materials in children's bedrooms..	Lowest exposure concentration for a significant adverse health outcome response: >205.7 ug/g. OR (95% CI) for Q4 vs. Q1: 2.98 (1.19 - 7.50)P-trend = 0.01. Significant positive associations were reported for Q4 MnBP values and the prevalence odds of eczema..	Shi et. al 2018 4829218 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Eczema	Health Effect: Skin/Connective Tissue-Eczema-Non-cancer. Outcome measure: Questionnaire	General public. Preschool (3-5), Middle childhood (6-11). China; 6 administrative districts in Shanghai – 4 urban districts (Yang-Pu district, Hong-kou district, Jing-An district, and Zha-Bei district) and 2 suburban ones (Feng-Xian district and Bao-Shan district). Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Follow-up of children ages 5-10 from the CCHH study (2011-2012) in Shanghai, China (n=419). China, Children, Homes, Health (CCHH) project. Recruitment: 2011-2012; Follow-up: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via morning urine samples.	Logistic Regression. Confounders adjusted for: gender, age, BMI, breastfeeding time, family smoking exposure, residence area, maternal education, annual household income, history of parental asthma, wall materials in children's bedrooms and floor materials in children's bedrooms..	Lowest exposure concentration for a significant adverse health outcome response: 41.1-69.5 ug/g. OR (95% CI) for Q3 vs. Q1: 3.89 (1.38 - 10.98)OR (95% CI) for Q4 vs. Q1: 3.10 (1.10 - 8.74)P-trend = 0.02. Significant positive associations were reported for Q3 and Q4 MEHHP values and the prevalence odds of eczema..	Shi et. al 2018 4829218 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Eczema	Health Effect: Skin/Connective Tissue-Eczema-Non-cancer. Outcome measure: Questionnaire	General public. Preschool (3-5), Middle childhood (6-11). China; 6 administrative districts in Shanghai – 4 urban districts (Yang-Pu district, Hong-kou district, Jing-An district, and Zha-Bei district) and 2 suburban ones (Feng-Xian district and Bao-Shan district). Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Follow-up of children ages 5-10 from the CCHH study (2011-2012) in Shanghai, China (n=419). China, Children, Homes, Health (CCHH) project. Recruitment: 2011-2012; Follow-up: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via morning urine samples.	Logistic Regression. Confounders adjusted for: gender, age, BMI, breastfeeding time, family smoking exposure, residence area, maternal education, annual household income, history of parental asthma, wall materials in children's bedrooms and floor materials in children's bedrooms..	Lowest exposure concentration for a significant adverse health outcome response: >38.4 ug/g. OR (95% CI) for Q4 vs. Q1: 2.63 (1.02 - 6.80)P-trend = 0.04. Significant positive associations were reported for Q4 MEOHP values and the prevalence odds of eczema..	Shi et. al 2018 4829218 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Rhinitis	Health Effect: Lung/Respiratory-Asthma and allergic indicators (wheezing, sneezing, rhinitis)-Non-cancer. Outcome measure: Questionnaire	General public. Preschool (3-5), Middle childhood (6-11). China; 6 administrative districts in Shanghai – 4 urban districts (Yang-Pu district, Hong-kou district, Jing-An district, and Zha-Bei district) and 2 suburban ones (Feng-Xian district and Bao-Shan district). Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Follow-up of children ages 5-10 from the CCHH study (2011-2012) in Shanghai, China (n=419). China, Children, Homes, Health (CCHH) project. Recruitment: 2011-2012; Follow-up: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via morning urine samples.	Logistic Regression. Confounders adjusted for: gender, age, BMI, breastfeeding time, family smoking exposure, residence area, maternal education, annual household income, history of parental asthma, wall materials in children's bedrooms and floor materials in children's bedrooms..	Lowest exposure concentration for a significant adverse health outcome response: >1.3 ug/g. OR (95% CI) for Q4 vs. Q1: 2.46 (1.17 - 5.14). Significant positive associations were reported for Q4 MBzP values and the prevalence odds of rhinitis..	Shi et. al 2018 4829218 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Equal to or >2 concomitant symptoms	Health Effect: Lung/Respiratory-Asthma and allergic indicators (wheezing, sneezing, rhinitis)-Non-cancer-Skin/Connective Tissue-Eczema-Non-cancer. Outcome measure: Questionnaire	General public. Preschool (3-5), Middle childhood (6-11). China; 6 administrative districts in Shanghai – 4 urban districts (Yang-Pu district, Hong-kou district, Jing-An district, and Zha-Bei district) and 2 suburban ones (Feng-Xian district and Bao-Shan district). Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Follow-up of children ages 5-10 from the CCHH study (2011-2012) in Shanghai, China (n=419). China, Children, Homes, Health (CCHH) project. Recruitment: 2011-2012; Follow-up: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via morning urine samples.	Logistic Regression. Confounders adjusted for: gender, age, BMI, breastfeeding time, family smoking exposure, residence area, maternal education, annual household income, history of parental asthma, wall materials in children's bedrooms and floor materials in children's bedrooms..	Lowest exposure concentration for a significant adverse health outcome response: >144.0 ug/g. OR (95% CI) for Q4 vs. Q1, p <0.05. Significant positive associations were reported for Q4 MiBP values and the prevalence two or more concomitant symptoms of allergies and/or asthma..	Shi et. al 2018 4829218 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Equal to or >2 concomitant symptoms	Health Effect: Lung/Respiratory-Asthma and allergic indicators (wheezing, sneezing, rhinitis)-Non-cancer-Skin/Connective Tissue-Eczema-Non-cancer. Outcome measure: Questionnaire	General public. Preschool (3-5), Middle childhood (6-11). China; 6 administrative districts in Shanghai – 4 urban districts (Yang-Pu district, Hong-kou district, Jing-An district, and Zha-Bei district) and 2 suburban ones (Feng-Xian district and Bao-Shan district). Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Follow-up of children ages 5-10 from the CCHH study (2011-2012) in Shanghai, China (n=419). China, Children, Homes, Health (CCHH) project. Recruitment: 2011-2012; Follow-up: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Acute (less than 24 hours) Exposure measured via morning urine samples.	Logistic Regression. Confounders adjusted for: gender, age, BMI, breastfeeding time, family smoking exposure, residence area, maternal education, annual household income, history of parental asthma, wall materials in children's bedrooms and floor materials in children's bedrooms..	Lowest exposure concentration for a significant adverse health outcome response: >205.7 ug/g. OR (95% CI) for Q4 vs. Q1, p <0.001. Significant positive associations were reported for Q4 MnBP values and the prevalence two or more concomitant symptoms of allergies and/or asthma..	Shi et. al 2018 4829218 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Equal to or >2 concomitant symptoms	Health Effect: Lung/Respiratory-Asthma and allergic indicators (wheezing, sneezing, rhinitis)-Non-cancer-Skin/Connective Tissue-Eczema-Non-cancer. Outcome measure: Questionnaire	General public. Preschool (3-5), Middle childhood (6-11). China; 6 administrative districts in Shanghai – 4 urban districts (Yang-Pu district, Hong-kou district, Jing-An district, and Zha-Bei district) and 2 suburban ones (Feng-Xian district and Bao-Shan district). Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Follow-up of children ages 5-10 from the CCHH study (2011-2012) in Shanghai, China (n=419). China, Children, Homes, Health (CCHH) project. Recruitment: 2011-2012; Follow-up: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via morning urine samples.	Logistic Regression. Confounders adjusted for: gender, age, BMI, breastfeeding time, family smoking exposure, residence area, maternal education, annual household income, history of parental asthma, wall materials in children's bedrooms and floor materials in children's bedrooms..	Lowest exposure concentration for a significant adverse health outcome response: >69.5 ug/g. OR (95% CI) for Q4 vs. Q1, p <0.05. Significant positive associations were reported for Q4 MEHHP values and the prevalence two or more concomitant symptoms of allergies and/or asthma..	Shi et. al 2018 4829218 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Equal to or >2 concomitant symptoms	Health Effect: Lung/Respiratory-Asthma and allergic indicators (wheezing, sneezing, rhinitis)-Non-cancer-Skin/Connective Tissue-Eczema-Non-cancer. Outcome measure: Questionnaire	General public. Preschool (3-5), Middle childhood (6-11). China; 6 administrative districts in Shanghai – 4 urban districts (Yang-Pu district, Hong-kou district, Jing-An district, and Zha-Bei district) and 2 suburban ones (Feng-Xian district and Bao-Shan district). Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Follow-up of children ages 5-10 from the CCHH study (2011-2012) in Shanghai, China (n=419). China, Children, Homes, Health (CCHH) project. Recruitment: 2011-2012; Follow-up: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via morning urine samples.	Logistic Regression. Confounders adjusted for: gender, age, BMI, breastfeeding time, family smoking exposure, residence area, maternal education, annual household income, history of parental asthma, wall materials in children's bedrooms and floor materials in children's bedrooms..	Lowest exposure concentration for a significant adverse health outcome response: >38.4 ug/g. OR (95% CI) for Q4 vs. Q1, p <0.05. Significant positive associations were reported for Q4 MEOHP values and the prevalence two or more concomitant symptoms of allergies and/or asthma..	Shi et. al 2018 4829218 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Equal to or >2 concomitant symptoms	Health Effect: Lung/Respiratory-Asthma and allergic indicators (wheezing, sneezing, rhinitis)-Non-cancer-Skin/Connective Tissue-Eczema-Non-cancer. Outcome measure: Questionnaire	General public. Preschool (3-5), Middle childhood (6-11). China; 6 administrative districts in Shanghai – 4 urban districts (Yang-Pu district, Hong-kou district, Jing-An district, and Zha-Bei district) and 2 suburban ones (Feng-Xian district and Bao-Shan district). Female, Male. Cross-Sectional. PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Follow-up of children ages 5-10 from the CCHH study (2011-2012) in Shanghai, China (n=419). China, Children, Homes, Health (CCHH) project. Recruitment: 2011-2012; Follow-up: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Acute (less than 24 hours) Exposure measured via morning urine samples.	Logistic Regression. Confounders adjusted for: gender, age, BMI, breastfeeding time, family smoking exposure, residence area, maternal education, annual household income, history of parental asthma, wall materials in children's bedrooms and floor materials in children's bedrooms..	Lowest exposure concentration for a significant adverse health outcome response: >1.3 ug/g. OR (95% CI) for Q4 vs. Q1, p <0.01. Significant positive associations were reported for Q4 MBzP values and the prevalence two or more concomitant symptoms of allergies and/or asthma..	Shi et. al 2018 4829218 Low
Metabolic syndrome (MetS)	Health Effect: Cardiovascular-Metabolic syndrome (MetS)-Non-cancer. Outcome measure: Operational definition: current BP medication use, current anti-diabetic medication use, and body mass index (BMI) >30	General public. Adults (18+), Older Adults (65+). South Korea. Female, Male. Cross-Sectional. PESS: Other Chemical and Non-chemical stressors (ex. exposure to other substances that affect same organ as test chemical). 5251 general population adults in South Korea. Korean National Environmental Health Survey II (KNEHS). 2012-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure was measured via biomonitoring concurrent with outcome assessment.	Logistic Regression. Confounders adjusted for: creatinine, age, sex, education, income, marital status, aspartate aminotransferase, alanine aminotransferase.	Lowest exposure concentration for a significant adverse health outcome response: quartile 2. OR (95% CI) for Q2 vs. Q1: 1.345 (1.001 - 1.808); Q3 vs. Q1: 1.151 (0.854–1.550); Q4 vs. Q1: 1.334 (0.996–1.787). In the models adjusted for confounders, statistically significant positive associations were reported for Q2 vs. Q1. Associations for Q3 and Q4 were positive but not statistically significant. Results were alos significantly positive across all quartiles in the model adjusted only for creatinine..	Shim et. al 2019 5114010 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Metabolic syndrome (MetS)	Health Effect: Cardiovascular-Metabolic syndrome (MetS)-Non-cancer. Outcome measure: Operational definition: current BP medication use, current anti-diabetic medication use, and body mass index (BMI) >30	General public. Adults (18+), Older Adults (65+). South Korea. Female, Male. Cross-Sectional. PESS: Other Chemical and Non-chemical stressors (ex. exposure to other substances that affect same organ as test chemical). 5251 general population adults in South Korea. Korean National Environmental Health Survey II (KNEHS). 2012-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring concurrent with outcome assessment.	Logistic Regression. Confounders adjusted for: creatinine.	Lowest exposure concentration for a significant adverse health outcome response: quartile 2. OR (95% CI) for Q2 vs. Q1: 1.632 (1.231 - 2.166); Q3 vs. Q1: 1.966 (1.494–2.587); Q4 vs. Q1: 2.534 (1.942–3.305). Statistically significant positive associations were reported for all quartiles but only in the models that were adjusted only for creatinine and not the models that adjusted for other potential confounders. Results for the other models were positive but not statistically significant..	Shim et. al 2019 5114010 Medium
Metabolic syndrome (MetS)	Health Effect: Cardiovascular-Metabolic syndrome (MetS)-Non-cancer. Outcome measure: Operational definition: current BP medication use, current anti-diabetic medication use, and body mass index (BMI) >30	General public. Adults (18+), Older Adults (65+). South Korea. Female, Male. Cross-Sectional. PESS: Other Chemical and Non-chemical stressors (ex. exposure to other substances that affect same organ as test chemical). 5251 general population adults in South Korea. Korean National Environmental Health Survey II (KNEHS). 2012-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure was measured via biomonitoring concurrent with outcome assessment.	Logistic Regression. Confounders adjusted for: creatinine.	Lowest exposure concentration for a significant adverse health outcome response: quartile 2. OR (95% CI) for Q2 vs. Q1: 1.691 (1.277 - 2.238); Q3 vs. Q1: 1.870 (1.418–2.465); Q4 vs. Q1: 2.579 (1.978–3.362). Statistically significant positive associations were reported for all quartiles but only in the models that were adjusted only for creatinine and not the models that adjusted for other potential confounders. Results for the other models were positive but not statistically significant..	Shim et. al 2019 5114010 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Metabolic syndrome (MetS)	Health Effect: Cardiovascular-Metabolic syndrome (MetS)-Non-cancer. Outcome measure: Questionnaire	General public. Adults (18+), Older Adults (65+). South Korea. Female, Male. Cross-Sectional. PESS: Other Chemical and Non-chemical stressors (ex. exposure to other substances that affect same organ as test chemical). 5251 general population adults in South Korea. Korean National Environmental Health Survey II (KNEHS). 2012-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure was measured via biomonitoring concurrent with outcome assessment.	Logistic Regression. Confounders adjusted for: creatinine.	Lowest exposure concentration for a significant adverse health outcome response: quartile 3. OR (95% CI) for Q2 vs. Q1: 1.190 (0.918 - 1.542); Q3 vs. Q1: 1.377 (1.069–1.774); Q4 vs. Q1: 1.490 (1.160–1.912). Significant positive associations were reported for Q3 and Q4 vs Q1, but only in the model adjusted only for creatinine. Results from models 2 and 3 were not statistically significant..	Shim et. al 2019 5114010 Medium
Metabolic syndrome (MetS)	Health Effect: Cardiovascular-Metabolic syndrome (MetS)-Non-cancer. Outcome measure: Questionnaire	General public. Adults (18+), Older Adults (65+). South Korea. Female, Male. Cross-Sectional. PESS: Other Chemical and Non-chemical stressors (ex. exposure to other substances that affect same organ as test chemical). 5251 general population adults in South Korea. Korean National Environmental Health Survey II (KNEHS). 2012-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured via biomonitoring concurrent with outcome assessment.	Logistic Regression. Confounders adjusted for: creatinine.	Lowest exposure concentration for a significant adverse health outcome response: quartile 2. OR (95% CI) for Q2 vs. Q1: 1.318 (1.015 - 1.711); Q3 vs. Q1:1.453 (1.124–1.878); Q4 vs. Q1: 1.615 (1.254–2.078). Significant positive associations were reported for all quartiles but only in the models adjusted for creatinine. Results for the other models were positive but not statistically significant..	Shim et. al 2019 5114010 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Autism Spectrum Disorder (ASD)	Health Effect: Neurological/Behavioral-Autism spectrum disorder (ASD), non-typical development (Non-TD)-Non-cancer. Outcome measure: Autism Spectrum Disorder (ASD) and Non-Typical Development (Non-TD) assessed by licensed clinical psychologists using the Autism Diagnostic Observation Schedules (ADOS) and by administration of the Mullen Scales of Early Learning (MSEL).	General public, Pregnant people. Preschool (3-5), Adults (18+). United States; Northern California. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). MARBLES (Markers of Autism Risk in Babies – Learning Early Signs), California, United States, n = 201 (boys = 122, girls = 79). Markers of Autism Risk in Babies – Learning Early Signs (MARBLES). Recruitment: 2006-2014, Follow-up: age 3.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during each trimester of pregnancy.	Logistic Regression. Confounders adjusted for: pre-pregnancy BMI, year of birth (linear and squared terms), and home-ownership.	Lowest exposure concentration for a significant adverse health outcome response: continuous. RRR (95% CI) for the association between MBzP measured in mid-late pregnancy and Non-TD in boys: 1.75 (1.06, 2.88). Significant positive association between MBzP concentrations in mid-late pregnancy and non-typical development (vs. typical development) in boys. Associations in girls, in the entire study population, and in analyses stratified by prenatal vitamin use not significant. Associations with ASD not significant..	Shin et. al 2018 5043457 High

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Significant ADHD-related behavior problems	Health Effect: Neurological/Behavioral-Attention Deficit-Hyperactivity Disorder (ADHD) related behaviors-Non-cancer. Outcome measure: Questionnaire: Parent, teacher and self-reported indices using the Behavior Assessment System for Children (BASC-2) Conners Attention Deficit Scale (CADS) checklists	General public, Fenceline communities. Teens (12-17). United States; New Bedford, MA. Female, Male. Cross-Sectional. PESS: Lifestage , Geography/Site-specifi c (ex. home near exposure source or downstream of release sites). Lifestage PESS: Adolescents (age 11 years through < 21 years). 205 adolescents born in New Bedford, MA near a superfund site. New Bedford Cohort. Age 15-year follow-up visit: 2011-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrently with outcome.	Poisson Regression. Confounders adjusted for: child sex, race/ethnicity, mean test age, specific gravity; maternal age, income, education, marital status, smoking during pregnancy; test indicator.	Lowest exposure concentration for a significant adverse health outcome response: Continuous Median (IQR): ∑DEHP metabolites, umol/L = 0.13 (0.08, 0.19). RR (95% CI) for risk of significant ADHD related behavior problems per unit increase in log2-transformed exposure ∑DEHP: All participants-Combined ADHD = 1.29 (1.07-1.55)-Attention problems = 1.29 (1.03-1.60)-Hyperactivity problems = 1.27 (1.06-1.52)∑DEHP: Combined ADHD -Males = 1.62 (1.38, 1.91)-Females = 1.06 (0.85, 1.33) (sex interaction p<0.05). The sum of DEHP metabolites was associated with significant increases in the risk of having significant ADHD-related behavior problems, particularly in boys..	Shoaff et. al 2020 9419487 Medium
Significant ADHD-related behavior problems	Health Effect: Neurological/Behavioral-Attention Deficit-Hyperactivity Disorder (ADHD) related behaviors-Non-cancer. Outcome measure: Questionnaire: Parent, teacher and self-reported indices using the Behavior Assessment System for Children (BASC-2) Conners Attention Deficit Scale (CADS) checklists	General public, Fenceline communities. Teens (12-17). United States; New Bedford, MA. Female, Male. Cross-Sectional. PESS: Lifestage , Geography/Site-specifi c (ex. home near exposure source or downstream of release sites). Lifestage PESS: Adolescents (age 11 years through < 21 years). 205 adolescents born in New Bedford, MA near a superfund site. New Bedford Cohort. Age 15-year follow-up visit: 2011-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrently with outcome.	Poisson Regression. Confounders adjusted for: child sex, race/ethnicity, mean test age, specific gravity; maternal age, income, education, marital status, smoking during pregnancy; test indicator.	Lowest exposure concentration for a significant adverse health outcome response: Continuous Median (IQR): -MEHHP, ug/L = 10.5 (6.2, 17.4) -MEHP, ug/L = 1.50 (0.70, 3.20) -MEOHP, ug/L = 7.70 (4.80, 11.7) -MECPP, ug/L = 18.5 (11.60, 28.1). RR (95% CI) for risk of significant ADHD related behavior problems per unit increase in log2-transformed exposure -MECPP = 1.27 (1.05, 1.54)-MEHHP = 1.26 (1.06, 1.49)-MEOHP = 1.28 (1.07, 1.53)-MEHP = ns. Several individual DEHP metabolites (MECPP, MEHPP, MEOHP) were positively associated with significant increases in the risk of having significant ADHD-related behavior problems..	Shoaff et. al 2020 9419487 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Significant ADHD-related behavior problems	Health Effect: Neurological/Behavioral-Attention Deficit-Hyperactivity Disorder (ADHD) related behaviors-Non-cancer. Outcome measure: Questionnaire: Parent, teacher and self-reported indices using the Behavior Assessment System for Children (BASC-2) Conners Attention Deficit Scale (CADS) checklists	General public, Fenceline communities. Teens (12-17). United States; New Bedford, MA. Female, Male. Cross-Sectional. PESS: Lifestage , Geography/Site-specifi c (ex. home near exposure source or downstream of release sites). Lifestage PESS: Adolescents (age 11 years through < 21 years). 205 adolescents born in New Bedford, MA near a superfund site. New Bedford Cohort. Age 15-year follow-up visit: 2011-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrently with outcome.	Poisson Regression. Confounders adjusted for: child sex, race/ethnicity, mean test age, specific gravity; maternal age, income, education, marital status, smoking during pregnancy; test indicator.	Lowest exposure concentration for a significant adverse health outcome response: Continuous Median (IQR): -MBP, ug/L = 16.0 (8.5. 24.3) -MHBP, ug/L = 1.50 (0.70, 2.85). RR (95% CI) for risk of significant ADHD related behavior problems per unit increase in log2-transformed exposure -MBP= 1.45 (1.15, 1.84)-MHBP= 1.25 (1.03, 1.51). Two DBP metabolites (MBP and MHBP) were positively associated with significant increases in the risk of having significant ADHD-related behavior problems..	Shoaff et. al 2020 9419487 Medium
Significant ADHD-related behavior problems	Health Effect: Neurological/Behavioral-Attention Deficit-Hyperactivity Disorder (ADHD) related behaviors-Non-cancer. Outcome measure: Questionnaire: Parent, teacher and self-reported indices using the Behavior Assessment System for Children (BASC-2) Conners Attention Deficit Scale (CADS) checklists	General public, Fenceline communities. Teens (12-17). United States; New Bedford, MA. Female, Male. Cross-Sectional. PESS: Lifestage , Geography/Site-specifi c (ex. home near exposure source or downstream of release sites). Lifestage PESS: Adolescents (age 11 years through < 21 years). 205 adolescents born in New Bedford, MA near a superfund site. New Bedford Cohort. Age 15-year follow-up visit: 2011-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrently with outcome.	Poisson Regression. Confounders adjusted for: child sex, race/ethnicity, mean test age, specific gravity; maternal age, income, education, marital status, smoking during pregnancy; test indicator.	Lowest exposure concentration for a significant adverse health outcome response: Continuous Median (IQR): -MiBP, ug/L = 11.5 (6.6, 19.3) -MHiBP, ug/L = 4.0 (2.3, 7.3). RR (95% CI) for risk of significant ADHD related behavior problems per unit increase in log2-transformed exposure -MiBP= 1.32 (1.07, 1.64)-MHiBP= ns. DiBP metabolite MiBP was positively and significantly associated with increased risk of having significant ADHD-related behavior problems. The association with MHiBP was also positive but marginally non-significant..	Shoaff et. al 2020 9419487 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Significant ADHD-related behavior problems	Health Effect: Neurological/Behavioral-Attention Deficit-Hyperactivity Disorder (ADHD) related behaviors-Non-cancer. Outcome measure: Questionnaire: Parent, teacher and self-reported indices using the Behavior Assessment System for Children (BASC-2) Conners Attention Deficit Scale (CADS) checklists	General public, Fenceline communities. Teens (12-17). United States; New Bedford, MA. Female, Male. Cross-Sectional. PESS: Lifestage , Geography/Site-specifi c (ex. home near exposure source or downstream of release sites). Lifestage PESS: Adolescents (age 11 years through < 21 years). 205 adolescents born in New Bedford, MA near a superfund site. New Bedford Cohort. Age 15-year follow-up visit: 2011-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrently with outcome.	Poisson Regression. Confounders adjusted for: child sex, race/ethnicity, mean test age, specific gravity; maternal age, income, education, marital status, smoking during pregnancy; test indicator.	Lowest exposure concentration for a significant adverse health outcome response: Continuous Median (IQR): -MBzP, ug/L = 9.3 (4.5, 17.8). RR (95% CI) for risk of significant ADHD related behavior problems per unit increase in log2-transformed exposure -MBzP= 1.22 (1.05, 1.42). BBP metabolite MBzP was positively and significantly associated with increased risk of having significant ADHD-related behavior problems..	Shoaff et. al 2020 9419487 Medium
Croup	Health Effect: Lung/Respiratory-Croup-Non-cancer. Outcome measure: Maternal report	Pregnant people. Infant (0-1), Adults (18+). Sweden; Varmland. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women recruited during their first visit to a public antenatal care center in Sweden and their infants (n=1,062 mother infant pairs). Swedish Environmental Longitudinal, Mother and Child, Asthma and Allergy study (SELMA). 2007-2010.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during early pregnancy (median gestational age = 10 weeks).	Logistic Regression. Confounders adjusted for: sex, mother's education, mother's age, asthma in the family, smoking, creatinine.	Lowest exposure concentration for a significant adverse health outcome response: Q2 (quartile range not reported). MBP and odds of croup in the first year of life. Girls: OR (95% CI) for Q2 vs. Q1: 0.30 (0.09–0.96)* OR (95% CI) for Q3 vs. Q1: 0.92 (0.37–2.28) OR (95% CI) for Q4 vs. Q1: 0.97 (0.39–2.36) Boys: OR (95% CI) for Q2 vs. Q1: 0.97 (0.46–2.09) OR (95% CI) for Q3 vs. Q1: 0.82 (0.38–1.73) OR (95% CI) for Q4 vs. Q1: 1.04 (0.51–2.12). Significant inverse association with croup or Q2 vs. Q1 of MBP among girls only. No significant associations for Q3 or Q4. No significant associations among boys only or among all study participants in unstratified analysis..	Shu et. al 2018 4728698 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Croup	Health Effect: Lung/Respiratory-Croup-Non-cancer. Outcome measure: Maternal report	Pregnant people. Infant (0-1), Adults (18+). Sweden; Varmland. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women recruited during their first visit to a public antenatal care center in Sweden and their infants (n=1,062 mother infant pairs). Swedish Environmental Longitudinal, Mother and Child, Asthma and Allergy study (SELMA). 2007-2010.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during early pregnancy (median gestational age = 10 weeks).	Logistic Regression. Confounders adjusted for: sex, mother's education, mother's age, asthma in the family, smoking, creatinine.	Lowest exposure concentration for a significant adverse health outcome response: Q4 (quartile range not reported). MBzP and odds of croup in the first year of life. Analysis among all participants: OR (95% CI) for Q2 vs. Q1: 0.83 (0.43–1.63) OR (95% CI) for Q3 vs. Q1: 1.43 (0.78–2.61) OR (95% CI) for Q4 vs. Q1: 1.83 (1.02–3.30)* Analysis among boys only: OR (95% CI) for Q2 vs. Q1: 1.45 (0.61–3.46) OR (95% CI) for Q3 vs. Q1: 2.10 (0.92–4.79) OR (95% CI) for Q4 vs. Q1: 3.35 (1.49–7.54)*. Significant positive associations with croup for Q4 vs. Q1 of MBzP among all study participants and among boys only. Results were positive but not significant for Q3 vs. Q1. No significant associations among girls only..	Shu et. al 2018 4728698 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Croup	Health Effect: Lung/Respiratory-Croup-Non-cancer. Outcome measure: Maternal report	Pregnant people. Infant (0-1), Adults (18+). Sweden; Varmland. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women recruited during their first visit to a public antenatal care center in Sweden and their infants (n=1,062 mother infant pairs). Swedish Environmental Longitudinal, Mother and Child, Asthma and Allergy study (SELMA). 2007-2010.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during early pregnancy (median gestational age = 10 weeks).	Logistic Regression. Confounders adjusted for: sex, mother's education, mother's age, asthma in the family, smoking, creatinine.	Lowest exposure concentration for a significant adverse health outcome response: MEHHP: Q3 (quartile range not reported); MEHP, MEOHP, MECPP, MCMHP: Q4 (quartile ranges not reported). DEHP metabolites and odds of croup in the first year of life. MEHP, analysis among all participants:OR (95% CI) for Q2 vs. Q1: 1.15 (0.61–2.17)OR (95% CI) for Q3 vs. Q1: 1.15 (0.61–2.16)OR (95% CI) for Q4 vs. Q1: 1.96 (1.09–3.54)* MEHHP, analysis among all participants:OR (95% CI) for Q2 vs. Q1: 1.46 (0.73–2.89)OR (95% CI) for Q3 vs. Q1: 1.96 (1.02–3.79)* OR (95% CI) for Q4 vs. Q1: 2.59 (1.37–4.90)* MEHHP, analysis among boys only:OR (95% CI) for Q2 vs. Q1: 1.36 (0.56–3.33)OR (95% CI) for Q3 vs. Q1: 2.36 (1.02–5.45)* OR (95% CI) for Q4 vs. Q1: 3.04 (1.33–6.94)* MEOHP, analysis among all participants:OR (95% CI) for Q2 vs. Q1: 1.29 (0.67–2.50)OR (95% CI) for Q3 vs. Q1: 1.52 (0.80–2.90)OR (95% CI) for Q4 vs. Q1: 2.27 (1.23–4.19)* MEOHP, analysis among boys only:OR (95% CI) for Q2 vs. Q1: 1.23 (0.54–2.83)OR (95% CI) for Q3 vs. Q1: 1.59 (0.71–3.55)OR (95% CI) for Q4 vs. Q1: 2.36 (1.08–5.17)* MECPP, analysis among all participants:OR (95% CI) for Q2 vs. Q1: 1.34 (0.68–2.64)OR (95% CI) for Q3 vs. Q1: 1.71 (0.89–3.26)OR (95% CI) for Q4 vs. Q1: 2.46 (1.32–4.61)* MECPP, analysis among girls only:OR (95% CI) for Q2 vs. Q1: 2.00 (0.58–6.82)OR (95% CI) for Q3 vs. Q1: 2.25 (0.65–7.72)OR (95% CI) for Q4 vs. Q1: 3.93 (1.27–12.18)* MCMHP, analysis among all participants:OR (95% CI) for Q2 vs. Q1: 1.34 (0.69–2.58)OR (95% CI) for Q3 vs. Q1: 1.72 (0.91–3.23)OR (95% CI) for Q4 vs. Q1: 2.02 (1.09–3.76)* MCMHP, analysis among boys only: OR (95% CI) for Q2 vs. Q1: 1.38 (0.57–3.36)OR (95% CI) for Q3 vs. Q1: 2.14 (0.94–4.89)OR (95% CI) for Q4 vs. Q1: 2.40 (1.04–5.55)*. Significant positive associations with odds of croup for Q4 vs. Q1 for all DEHP metabolites for analyses of the entire study population. Associations remained significant in analyses restricted to boys only for MEHP, MEHHP, MEOHP, and MCMHP, but were not significant among girls. For MECPP, associations were significant among girls but not boys. For MEHHP, associations were also significant for Q3 vs. Q1..	Shu et. al 2018 4728698 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Eczema	Health Effect: Immune/Hematological-Eczema-Non-cancer. Outcome measure: ISAAC questionnaire and doctor diagnosis	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Adults (18+). France; Nancy and Poitiers. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). 604 male children in Nancy and Poitiers, France (mothers recruited during pregnancy). EDEN (Etude des Déterminants pré et postnatals du développement de la santé de l'Enfant). Recruitment: 2003-2006; Follow-up: Up to 2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Logistic Regression. Confounders adjusted for: Parental asthma/rhinitis/eczema, maternal smoking, maternal age, maternal BMI, maternal education level, gestational age, number of siblings, recruitment center.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. OR (95% CI) per 1-unit increase in MiBP:Eczema at age 1: 1.78 (0.95, 3.33)Eczema at age 2: 1.15 (0.64, 2.09)Eczema at age 3: 1.81 (0.94, 3.49)Eczema at age 4: 1.68 (1.16, 2.45)Eczema at age 5: 1.63 (1.12, 2.36)Early-onset eczema (0-24 mos): 1.27 (1.00, 1.72)Late-onset eczema (24-60 mos): 1.55 (1.10, 2.18)Ever eczema, sensitized boys: 1.87 (1.01-3.48)Ever eczema, non-sensitized boys: 1.32 (0.86-2.01). Significant positive associations were reported for prenatal MiBP and eczema in preschool boys occurring at ages 4 years and older, with earlier ages nearing statistical significance. Associations with ever eczema through age 5 years and MiBP were significant only in boys with atopy, characterized based on elevated IgE at age 5 years (i.e. sensitized boys)..	Soomro et. al 2018 4728712 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Eczema	Health Effect: Immune/Hematological-Eczema-Non-cancer. Outcome measure: ISAAC questionnaire and doctor diagnosis	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Adults (18+). France; Nancy and Poitiers. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). 604 male children in Nancy and Poitiers, France (mothers recruited during pregnancy). EDEN (Etude des Déterminants pré et postnatals du développement de la santé de l'Enfant). Recruitment: 2003-2006; Follow-up: Up to 2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Logistic Regression. Confounders adjusted for: Parental asthma/rhinitis/eczema, maternal smoking, maternal age, maternal BMI, maternal education level, gestational age, number of siblings, recruitment center.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. OR (95% CI) per 1-unit increase in the prenatal sum of DEHP metabolites and eczema in boys occurring at age 5 years: 1.08 (1.00, 1.18). For individual metabolites, associations were significant for:-MEHP and eczema at age 5 years: 1.38 (1.03, 1.85) -MECPP and eczema at age 5 years: 1.46 ((1.04, 2.06)Ever eczema, sensitized boys: 1.22 (1.07-1.38) Ever eczema, non-sensitized boys: 1.02 (0.93-1.13). A significant positive association was reported for the sum of DEHP metabolites during pregnancy and eczema in preschool boys occurring at age 5 years. Positive associations with p-values <0.10 were reported also at age 4 years and for late-onset (ages 24-60 mos) eczema. Other DEHP metabolites showed significant positive associations at the same ages. Associations with DEHP and ever eczema through age 5 years were significant only in boys with atopy, characterized based on elevated IgE at age 5 years (i.e. sensitized boys)..	Soomro et. al 2018 4728712 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Atopic status	Health Effect: Immune/Hematological-Atopic status (total serum IgE ≥60 IU/mL)-Non-cancer. Outcome measure: Serum IgE ≥60 IU/mL at age 5 years	General public. Infant (0-1), Toddler (2-3), Preschool (3-5). France; Nancy and Poitiers. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years). 604 male children in Nancy and Poitiers, France (mothers recruited during pregnancy). EDEN (Etude des Déterminants pré et postnatals du développement de la santé de l'Enfant). Recruitment: 2003-2006; Follow-up: Up to 2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Logistic Regression. Confounders adjusted for: Parental asthma/rhinitis/eczema, maternal smoking, maternal age, maternal BMI, maternal education level, gestational age, number of siblings, recruitment center.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. p=0.01 for the prenatal sum of DEHP metabolites and elevated total IgE in boys. The text stated that the sum of DEHP and individual DEHP metabolites were significantly associated with boys' total IgE levels at age 5 years. p-values were provided without effect estimates as this was a complementary analysis..	Soomro et. al 2018 4728712 Medium
Respiratory symptoms (asthma, hay fever, rhinitis, and wheeze) in the past 12 months	Health Effect: Lung/Respiratory-Asthma, wheeze, hay fever, rhinitis (symptoms in the past 12 months)-Non-cancer. Outcome measure: Self-reported via questionnaire	General public. Adults (18+). United States. Female, Male. Cross-Sectional. PESS: . 1091 adults enrolled in NHANES 2005-2006 with spot urine samples and dust endotoxin levels reported.. e National Health and Nutrition Examination Survey (NHANES). 2005-2006.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Acute (less than 24 hours) Exposure measured in adults >=18 years of age via spot urine samples.	Logistic Regression. Confounders adjusted for: age, gender, race/ethnicity, BMI, creatinine, and cotinine.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Wheeze: Monobenzyl phthalate (MBzP) aOR (95% CI) with 1-unit increase log10-transformed, medium endotoxin: 1.71 (1.09, 2.70); Monobenzyl phthalate (MBzP) aOR (95% CI) with 1-unit increase log10-transformed, high endotoxin: 1.79 (1.13, 2.81); p-interaction term = 0.05. Asthma: No significant associations were found for MBzP for asthma.. MBzP had significant odds ratios for a one unit change in phthalate concentration for wheeze in the medium and highest category of endotoxin.No significant associations were found for MBzP for asthma. There was no interaction between endotoxin level and any phthalates with rhinitis or hay fever..	Strassle et. al 2018 4728797 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
NNNS Subscale - Attention	Health Effect: Reproductive/Developmental-NICU Network Neurobehavioral Scale (NNNS) components including habituation, attention, handling, non-optimal reflexes, regulation, excitability, quality of movement, stress/abstinence, arousal, lethargy, hypertonicity, hypotonicity, asymmetric reflexes-Non-cancer-Neurological/Behavioral-NICU Network Neurobehavioral Scale (NNNS) components including habituation, attention, handling, non-optimal reflexes, regulation, excitability, quality of movement, stress/abstinence, arousal, lethargy, hypertonicity, hypotonicity, asymmetric reflexes-Non-cancer. Outcome measure: NICU Network Neurobehavioral Scale (NNNS)	Patients in clinics, Pregnant people. Infant (0-1), Adults (18+). United States; New York. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Infants (birth through < 12 months). Very low birth weight infants in the NICU at Mount Sinai Hospital (Enrolled=81, Used in analysis=64). NICU-Hospital Exposures and Long-Term Health Study (NICU-HEALTH). 2011-2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured weekly prior to outcome assessment.	Linear Regression. Confounders adjusted for: infant gender, gestational age at birth, status as small for gestational age, largest base deficit in the first 24-hours, composite score of NICU-based morbidity.	Lowest exposure concentration for a significant adverse health outcome response: continuous (exposure distribution for sum DEHP metabolites not provided). Beta value (95% CI) per 10 ng/mL increase in sum DEHP: 0.22 (0.11, 0.36); Holm-Bonferroni p-value = 0.01. Significant positive relationship between sum of DEHP metabolites and attention summary scale of the NNNS. A positive significant association was also observed for the regulation summary scale (p=0.03), but this association was not significant after correction for multiple comparisons (Holm-Bonferroni p-value=0.18). No other summary scales reported significant results..	Stroustrup et. al 2018 4728711 Medium
coronary heart disease	Health Effect: Cardiovascular-coronary heart disease-Non-cancer. Outcome measure: Cases: not specified, but likely medical records and/or physician diagnosis given recruitment of occurred among hospitalized patients. Controls: self-report of absence of physician-diagnosed coronary heart disease.	General public, Patients in clinics. Adults (18+). Taiwan. Female, Male. Case-Control. PESS: . Patients with coronary heart disease (n=91 cases) and volunteers without coronary heart disease (n=360 controls) (total n=451). 2008-2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured near time of enrollment (for cases, between 3 -14 days after hospital discharge).	Logistic Regression. Confounders adjusted for: age, gender, BMI, diabetes mellitus, hypertension, hypercholesterolemia, use of statins, smoking, alcohol consumption.	Lowest exposure concentration for a significant adverse health outcome response: >=30.31 ug/g creatinine. OR (95% CI) for Q2 vs. Q1: 1.85 (0.83, 4.13)OR (95% CI) for Q3 vs. Q1: 2.90 (1.32, 6.40). Significant positive association between MnBP and coronary heart disease for Q3 vs. Q1 only. There was a positive relationship for Q2 vs. Q1 but was not statistically significant..	Su et. al 2019 5432947 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
coronary heart disease	Health Effect: Cardiovascular-coronary heart disease-Non-cancer. Outcome measure: Cases: not specified, but likely medical records and/or physician diagnosis given recruitment of occurred among hospitalized patients. Controls: self-report of absence of physician-diagnosed coronary heart disease.	General public, Patients in clinics. Adults (18+). Taiwan. Female, Male. Case-Control. PESS: . Patients with coronary heart disease (n=91 cases) and volunteers without coronary heart disease (n=360 controls) (total n=451). 2008-2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured near time of enrollment (for cases, between 3 -14 days after hospital discharge).	Logistic Regression. Confounders adjusted for: age, gender, BMI, diabetes mellitus, hypertension, hypercholesterolemia, use of statins, smoking, alcohol consumption.	Lowest exposure concentration for a significant adverse health outcome response: MEHP: >= 8.25 ug/g creatinine. MEHP:OR (95% CI) for Q2 vs. Q1: 2.18 (0.97, 4.90) OR (95% CI) for Q3 vs. Q1: 2.77 (1.22, 6.28). Significant positive association between MEHP and coronary heart disease for Q3 vs. Q1. There was a positive relationship for Q2 vs. Q1 but was not statistically significant. No statistically significant results for other DEHP metabolites (MEHHP, MEOHP) or for the sum of all three DEHP metabolites..	Su et. al 2019 5432947 Low
coronary heart disease	Health Effect: Cardiovascular-coronary heart disease-Non-cancer. Outcome measure: Cases: not specified, but likely medical records and/or physician diagnosis given recruitment of occurred among hospitalized patients. Controls: self-report of absence of physician-diagnosed coronary heart disease.	General public, Patients in clinics. Adults (18+). Taiwan. Female, Male. Case-Control. PESS: . Patients with coronary heart disease (n=91 cases) and volunteers without coronary heart disease (n=360 controls) (total n=451). 2008-2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured near time of enrollment (for cases, between 3 -14 days after hospital discharge).	Logistic Regression. Confounders adjusted for: age, gender, BMI, diabetes mellitus, hypertension, hypercholesterolemia, use of statins, smoking, alcohol consumption.	Lowest exposure concentration for a significant adverse health outcome response: >=15.66 ug/g creatinine. OR (95% CI) for Q2 vs. Q1: 1.97 (0.87, 4.45)OR (95% CI) for Q3 vs. Q1: 3.19 (1.41, 7.21). Significant positive association between MiBP and coronary heart disease for Q3 vs. Q1. There was a positive relationship for Q2 vs. Q1 but was not statistically significant..	Su et. al 2019 5432947 Low

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
atherothrombotic markers (high-sensitivity C-reactive protein, fibrinogen, D-dimer)	Health Effect: Cardiovascular-atherothrombotic markers (high-sensitivity C-reactive protein, fibrinogen, D-dimer)-Non-cancer. Outcome measure: not specified, but likely medical records and/or physician diagnosis given recruitment of occurred among hospitalized patients	General public, Patients in clinics. Adults (18+). Taiwan. Female, Male. Case-Control. PESS: . Patients with coronary heart disease (n=180 cases). 2008-2011.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured near time of enrollment (for cases, between 3 -14 days after hospital discharge).	Linear Regression. Confounders adjusted for: age, gender, BMI, diabetes mellitus, hypertension, hypercholesterolemia, use of statins, smoking, alcohol consumption.	Lowest exposure concentration for a significant adverse health outcome response: MEHP: >=11.8 ug/g creatinine for hs-CRP and Dimer outcomes; MEHHP: >=31.1 ug/g creatinine for hs-CRP, fibrinogen and D-dimer outcomes; MEOHP: >=19.8 ug/g creatinine for hs-CRP, fibrinogen and D-dimer outcomes; Sum of DEHP metabolites (MEHP, MEHHP, MEOHP): >=0.22 mmol/g creatinine hs-CRP, fibrinogen and D-dimer outcomes. Quantitative results below are estimated mean values (95% CI) of the outcomes for each quartile of each DEHP metabolite. Quartiles that were statistically significantly different from Q1 are indicated with an asterisk (*). Only pairs of exposures and outcomes with statistically significant results for at least one quartile are extracted.MEHP and high sensitivity C-reactive protein:Q1: 5.39(3.96,6.82) mg/LQ2: 6.67(4.76,8.57) mg/LQ3: 9.84(7.98,11.70) mg/LQ4: 13.41(10.82,16.00)* mg/LMEHP and D-dimer:Q1: 0.72(0.58,0.86) mg/LQ2: 0.67(0.59,0.75) mg/LQ3: 1.14(0.92,1.36) mg/LQ4: 2.22(1.97,2.47)* mg/LMEHHP and high sensitivity C-reactive protein:Q1: 6.11(4.99,7.22) mg/LQ2: 8.65(6.54,10.75) mg/LQ3: 6.05(4.61,7.48) mg/LQ4: 16.04(13.02,19.06)* mg/LMEHHP and fibrinogen:Q1: 9.54(9.17,9.92) mmol/LQ2: 10.43(9.66,11.21) mmol/LQ3: 10.11(9.51,10.72) mmol/LQ4: 11.54(10.96,12.13)* mmol/LMEHHP and D-dimer:Q1: 0.60(0.55,0.65) mg/LQ2: 0.82(0.67,0.97) mg/LQ3: 1.09(0.83,1.35) mg/LQ4: 2.50(2.25,2.75)* mg/LMEOHP and high sensitivity C-reactive protein:Q1: 5.25(3.96,6.54) mg/LQ2: 8.13(6.99,9.26) mg/LQ3: 6.81(5.21,8.40) mg/LQ4: 16.10(13.31,18.89)* mg/LMEOHP and fibrinogen:Q1: 9.62(9.17,10.08) mmol/LQ2: 9.52(9.00,10.04) mmol/LQ3: 10.20(9.61,10.79) mmol/LQ4: 11.86(11.27,12.45)* mmol/LMEOHP and D-dimer:Q1: 0.60(0.56,0.64) mg/LQ2: 0.75(0.60,0.90) mg/LQ3: 1.06(0.80,1.32) mg/LQ4: 2.49(2.25,2.74)* mg/LSum DEHP metabolites and high sensitivity C-reactive protein:Q1: 0.49(0.33,0.65) mg/LQ2: 0.81(0.66,0.95) mg/LQ3: 0.76(0.63,0.89) mg/LQ4: 1.55(1.27,1.84)* mg/LSum DEHP metabolites and fibrinogen:Q1: 9.38(8.84,9.92) mmol/LQ2: 10.05(9.35,10.76) mmol/LQ3: 10.50(10.07,10.93) mmol/LQ4: 11.41(10.83,12.0)* mmol/L Sum DEHP metabolites and D-dimer:Q1: 0.59(0.53,0.65) mg/LQ2: 0.64(0.54,0.74) mg/LQ3: 1.19(0.94,1.44) mg/LQ4: 11.41(10.83,12.0)* mg/L. Significant associations for Q4 vs. Q1 for high sensitivity C-reactive protein and D-dimer and all DEHP	Su et. al 2019 5432947 Low

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Carotid intima-media thickness (CIMT)	Health Effect: Cardiovascular-Subclinical atherosclerosis (carotid intima-media thickness (CIMT))-Non-cancer. Outcome measure: High-resolution B-mode ultrasonography	General public. Teens (12-17), Adults (18+). Taiwan; Taipei. Female, Male. Cross-Sectional. PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Adolescents (age 11 years through < 21 years). Adolescents and young adults in Taipei (n=787) recruited in 2006-2008. 38% of had a history of elevated childhood blood pressure in a survey conducted in 1992-2000.. YOung TAiwanese Cohort (YOTA). Recruitment 2006-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrent with outcome.	Linear Regression. Confounders adjusted for: Age, sex, BMI, hs-CRP, fasting glucose, LDL-C, triglycerides, hypertension, childhood elevated blood pressure group, smoking, alcohol drinking, regular exercise, and household income.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (SE), p-values for log MEHP and mean IMT (mm) at:-Common carotid artery (CCA) = 0.0043 ± 0.0007, p<0.001 -Carotid bulb = 0.3248 ± 0.027, p<0.001 -Internal carotid artery (ICA) = 0.0016 ± 0.0008, p<0.05 -Mean CIMT = 0.0034 ± 0.0007, p<0.001 Beta (SE), p-values for log ∑DEHP and mean IMT (mm) at:-Common carotid artery (CCA) = 0.0062 ± 0.0019, p<0.01 -Carotid bulb = 0.0049 ± 0.0032, ns-Internal carotid artery (ICA) = 0.0042 ± 0.0022, ns-Mean CIMT = 0.0052 ± 0.0018, p<0.01Beta (SE), p-values for log MEHHP and mean IMT (mm) at:-Internal carotid artery (ICA) = 0.0054 ± 0.0021, p<0.05-Other associations nsBeta (SE), p-values for log MEOHP and mean IMT (mm) at:-Internal carotid artery (ICA) = 0.0055 ± 0.0022, p<0.05-Other associations ns. MEHP was associated with significantly higher mean CIMT for all four measures analyzed in this study: the common carotid artery (CCA) proximal to the carotid bifurcation, internal carotid artery (ICA), the carotid bulb, and overall mean IMT. ∑DEHP was associated with significant increases in two of these measures (CCA and overall mean CIMT), while MEHHP and MEOHP were associated with significant increases in ICA thickness..	Su et. al 2019 5494915 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Carotid intima-media thickness (CIMT)	Health Effect: Cardiovascular-Subclinical atherosclerosis (carotid intima-media thickness (CIMT))-Non-cancer. Outcome measure: High-resolution B-mode ultra-sonography	General public. Teens (12-17), Adults (18+). Taiwan; Taipei. Female, Male. Cross-Sectional. PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Adolescents (age 11 years through < 21 years). Adolescents and young adults in Taipei (n=787) recruited in 2006-2008. 38% of had a history of elevated childhood blood pressure in a survey conducted in 1992-2000.. YOung TAiwanese Cohort (YOTA). Recruitment 2006-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrent with outcome.	Logistic Regression. Confounders adjusted for: Age, sex, BMI, hs-CRP, fasting glucose, LDL-C, triglycerides, hypertension, smoking, alcohol drinking, and household income.	Lowest exposure concentration for a significant adverse health outcome response: MEHP: 1.89-12.76 ug/g creatinine; ∑DEHP: 0.21-0.38 umol/g creatinine. Odds ratio (95% CI), for MEHP quartiles and elevated mean IMT (above the 75th percentile):Q2 vs Q1 = 2.13 (1.18,3.84)Q3 vs Q1 = 4.02 (2.26,7.15)Q4 vs Q1 = 7.39 (4.16,13.12)Odds ratio (95% CI), for ∑DEHP quartiles and elevated mean IMT (above the 75th percentile):Q2 vs Q1 = 1.28 (0.74, 2.20Q3 vs Q1 = 2.75 (1.65, 4.57)Q4 vs Q1 = 2.46 (1.46, 4.14). MEHP and ∑DEHP were both associated with significantly higher odds of elevated CIMT.	Su et. al 2019 5494915 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Carotid intima-media thickness (CIMT)	Health Effect: Cardiovascular-Subclinical atherosclerosis (carotid intima-media thickness (CIMT))-Non-cancer. Outcome measure: High-resolution B-mode ultrasonography	General public. Teens (12-17), Adults (18+). Taiwan; Taipei. Female, Male. Cross-Sectional. PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Adolescents (age 11 years through < 21 years). Adolescents and young adults in Taipei (n=787) recruited in 2006-2008. 38% of had a history of elevated childhood blood pressure in a survey conducted in 1992-2000.. YOung TAiwanese Cohort (YOTA). Recruitment 2006-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrent with outcome.	Linear Regression. Confounders adjusted for: Age, sex, BMI, hs-CRP, fasting glucose, LDL-C, triglycerides, hypertension, childhood elevated blood pressure group, smoking, alcohol drinking, regular exercise, and household income.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Beta (SE), p-values for log MnBP and mean IMT (mm) at:-Common carotid artery (CCA) = 0.0058 $\pm$ 0.002, $p<0.01$ -Carotid bulb = 0.008 $\pm$ 0.0032, $p<0.05$ -Internal carotid artery (ICA) = -0.0011 $\pm$ 0.0022, ns -Mean CIMT = 0.0045 $\pm$ 0.0018, $p<0.05$. MnBP was associated with significantly higher mean CIMT for three of four measures analyzed in this study: the common carotid artery (CCA) proximal to the carotid bifurcation, the carotid bulb, and overall mean IMT..	Su et. al 2019 5494915 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Carotid intima-media thickness (CIMT)	Health Effect: Cardiovascular-Subclinical atherosclerosis (carotid intima-media thickness (CIMT))-Non-cancer. Outcome measure: High-resolution B-mode ultrasonography	General public. Teens (12-17), Adults (18+). Taiwan; Taipei. Female, Male. Cross-Sectional. PESS: Lifestage , Pre-existing Disease (ex. altered metabolism, behaviors, treatments related to condition). Lifestage PESS: Adolescents (age 11 years through < 21 years). Adolescents and young adults in Taipei (n=787) recruited in 2006-2008. 38% of had a history of elevated childhood blood pressure in a survey conducted in 1992-2000.. YOung TAiwanese Cohort (YOTA). Recruitment 2006-2008.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured concurrent with outcome.	Logistic Regression. Confounders adjusted for: Age, sex, BMI, hs-CRP, fasting glucose, LDL-C, triglycerides, hypertension, smoking, alcohol drinking, and household income.	Lowest exposure concentration for a significant adverse health outcome response: 37.49-63.91 ug/g creatinine. Odds ratio (95% CI), for MnBP quartiles and elevated mean IMT (above the 75th percentile):Q2 vs Q1 = 1.09 (0.62,1.92)Q3 vs Q1 = 1.84 (1.08,3.15)Q4 vs Q1 = 2.80 (1.65,4.75). The highest two quartiles of MnBP were associated with significantly higher odds of elevated CIMT..	Su et. al 2019 5494915 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
IQ at age 7	Health Effect: Neurological/Behavioral-full scale IQ-Non-cancer. Outcome measure: Wechsler Intelligence Scale for Children, 4th edition (WISC-IV)	General public, Pregnant people. Middle childhood (6-11). Sweden; Varmland county. Female, Male. Cohort (Prospective). PESS: Lifestage , Other Chemical and Non-chemical stressors (ex. exposure to other substances that affect same organ as test chemical). Lifestage PESS: Children (age 1 year through < 11 years). Swedish Environmental Longitudinal Mother and Child, Asthma and Allergy (SELMA) study: 718 mother-child pairs from Varmland county, Sweden recruited during first trimester. Swedish Environmental Longitudinal Mother and Child, Asthma and Allergy (SELMA). Recruitment: 2007-2010; Follow-up: child age 7.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Weighted quantile sum regression. Confounders adjusted for: child sex, parity, maternal age, maternal weight, maternal education, maternal IQ (RAVEN), maternal smoking.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) for an IQR change in the chemical mixture in the full sample explanatory approach: -2.2 (-3.4, -1.0); weight of MBzP in this model: 6%. Weight of MBzP in WQS regression for the chemical mixture was 6% (above the threshold of concern), suggesting MBzP is a key chemical of concern driving the observed negative association with IQ.	Tanner et. al 2020 5933606 Medium
androstenedione (ASD) levels	Health Effect: Reproductive/Developmental-androstenedione (ASD) and testosterone levels-Non-cancer. Outcome measure: urinary analysis	General public. Adults (18+). China; Xiamen. Male. Cross-Sectional. PESS: Studies focusing on reproductive parameters. 84 healthy reproductive age men. Not Reported.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure was measured concurrently with the outcome assessment.	Linear Regression. Confounders adjusted for: age, BMI, smoking, alcohol intake, and plastic usage.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Continuous: Beta (95% CI) for sum DEHP: 0.55 (0.31, 0.79); Tertiles: There were elevated levels of ASD in 2nd and 3rd tertiles compared to first tertile of sum (DEHP) (p-trend<0.001).. There was a statistically significant positive association between DEHP levels and androstenedione (ASD) levels..	Tian et. al 2018 4728602 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
testosterone levels	Health Effect: Reproductive/Developmental-androstenedione (ASD) and testosterone levels-Non-cancer. Outcome measure: urinary analysis	General public. Adults (18+). China; Xiamen. Male. Cross-Sectional. PESS: Studies focusing on reproductive parameters. 84 healthy reproductive age men. Not Reported.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure was measured via biomonitoring concurrently with the outcome assessment.	Linear Regression. Confounders adjusted for: age, BMI, smoking, alcohol intake and plastic usage.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Continuous: Beta (95% CI) for sum DEHP: 0.46 (0.18, 0.74); Tertiles: There were statistically significantly elevated levels of testosterone in 2nd and 3rd tertiles compared to first tertile of sum (DEHP) (p-trend<0.001).. There was a statistically significant positive association between DEHP levels and testosterone levels..	Tian et. al 2018 4728602 Medium
androstenedione (ASD) levels	Health Effect: Reproductive/Developmental-androstenedione (ASD) and testosterone levels-Non-cancer. Outcome measure: urinary analysis	General public. Adults (18+). China; Xiamen. Male. Cross-Sectional. PESS: Studies focusing on reproductive parameters. 84 healthy reproductive age men. Not Reported.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure was measured via biomonitoring concurrently with the outcome assessment.	Linear Regression. Confounders adjusted for: age, BMI, smoking, alcohol intake and plastic usage.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Continuous: Beta (95% CI) for MBP: 0.35 (0.11, 0.60); Tertiles: There were statistically significant elevated levels of ASD in the third tertile only compared to the first tertile of MBP (p-trend = 0.001).. There was a statistically significant positive association between MBP levels and androstenedione levels. No statistically singificant association was found between MBP and testosterone levels..	Tian et. al 2018 4728602 Medium
All-cause mortality	Health Effect: Mortality-All-cause mortality, CVD mortality-Non-cancer. Outcome measure: National Death Index	General public. Adults (18+). United States. Female, Male. Cohort (Prospective). PESS: . General population of NHANES adults aged 40 years and older (n=5,303). NHANES. Recruitment: 2001-2010; Follow-up: Through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at enrollment and prior to outcome.	Cox Proportional Hazards Model. Confounders adjusted for: age, race/ethnicity, urinary creatinine, education levels, family income status, smoking, alcohol use, physical activity, total energy intake, HEI2010 score, survey year and BMI..	Lowest exposure concentration for a significant adverse health outcome response: T2. HR (95 CI) for association between MnBP and all-cause mortality in analysis with survey weights:Continuous (per ln-unit MnBP): 1.10 (1.03, 1.19)Tertile 2 vs. Tertile 1: 1.31 (1.03, 1.66)Tertile 3 vs. Tertile 1: 1.21 (0.94, 1.54). A significant positive association was observed for continuous MnBP and the 2nd Tertile of MnBP and all-cause mortality when accounting for survey weights. In unweighted analysis, continuous MnBP, T2, and T3 of MnBP had significant positive associations with all-cause mortality..	Trasande et. al 2021 9495379 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
All-cause mortality	Health Effect: Mortality-All-cause mortality, CVD mortality-Non-cancer. Outcome measure: National Death Index	General public. Adults (18+). United States. Female, Male. Cohort (Prospective). PESS: . General population of NHANES adults aged 40 years and older (n=5,303). NHANES. Recruitment: 2001-2010; Follow-up: Through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at enrollment and prior to outcome.	Cox Proportional Hazards Model. Confounders adjusted for: age, race/ethnicity, urinary creatinine, education levels, family income status, smoking, alcohol use, physical activity, total energy intake, HEI2010 score, survey year and BMI..	Lowest exposure concentration for a significant adverse health outcome response: Continuous. HR (95 CI) for association between MBzP and all-cause mortality in analysis with survey weights:Continuous (per ln-unit MBzP): 1.11 (1.04, 1.19)Tertile 2 vs. Tertile 1: 1.13 (0.92, 1.40) Tertile 3 vs. Tertile 1: 1.20 (0.96, 1.50). A significant positive association was observed for continuous MBzP and all-cause mortality when accounting for survey weights. In unweighted analysis, the continuous association maintained significance and a significant positive association was reported for T3..	Trasande et. al 2021 9495379 Medium
All-cause mortality	Health Effect: Mortality-All-cause mortality, CVD mortality-Non-cancer. Outcome measure: National Death Index	General public. Adults (18+). United States. Female, Male. Cohort (Prospective). PESS: . General population of NHANES adults aged 40 years and older (n=5,303). NHANES. Recruitment: 2001-2010; Follow-up: Through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at enrollment and prior to outcome.	Cox Proportional Hazards Model. Confounders adjusted for: age, race/ethnicity, urinary creatinine, education levels, family income status, smoking, alcohol use, physical activity, total energy intake, HEI2010 score, survey year and BMI..	Lowest exposure concentration for a significant adverse health outcome response: T3. HR (95 CI) for sum of DEHP metabolites and all-cause mortality in analysis with survey weights (Sum DEHP metabolites):Continuous: 1.10 (1.03, 1.19)Tertile 2 vs. Tertile 1: 1.18 (0.97, 1.45)Tertile 3 vs. Tertile 1: 1.42 (1.13, 1.78)HR (95 CI) for analysis with survey weights significant in females only (Sum DEHP metabolites):Continuous: 1.16 (1.03, 1.30)Tertile 2 vs. Tertile 1: 1.17 (0.85, 1.60) Tertile 3 vs. Tertile 1: 1.55 (1.14, 2.11)HR (95 CI) for analysis with survey weights significant in white participants only (Sum DEHP metabolites):Continuous: 1.12 (1.03, 1.22)Tertile 2 vs. Tertile 1: 1.31 (1.02, 1.68) Tertile 3 vs. Tertile 1: 1.43 (1.09, 1.87). Significant positive associations were reported for continuous, T2, and T3 of the sum of DEHP metabolites and all-cause mortality. Supplemental materials stratified results by sex reported significant positive associations for females but not males (p-interaction=0.18), and significant positive associations for white participants but not non-white participants (p-interaction=0.29)..	Trasande et. al 2021 9495379 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
All-cause mortality	Health Effect: Mortality-All-cause mortality, CVD mortality-Non-cancer. Outcome measure: National Death Index	General public. Adults (18+). United States. Female, Male. Cohort (Prospective). PESS: . General population of NHANES adults aged 40 years and older (n=5,303). NHANES. Recruitment: 2001-2010; Follow-up: Through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at enrollment and prior to outcome.	Cox Proportional Hazards Model. Confounders adjusted for: age, race/ethnicity, urinary creatinine, education levels, family income status, smoking, alcohol use, physical activity, total energy intake, HEI2010 score, survey year and BMI..	Lowest exposure concentration for a significant adverse health outcome response: T3. HR (95 CI) for associations with all-cause mortality in analysis with survey weights (MEHHP):Continuous: 1.09 (1.02, 1.17)Tertile 2 vs. Tertile 1: 1.01 (0.84, 1.21)Tertile 3 vs. Tertile 1: 1.27 (1.01, 1.59)HR (95 CI) for analysis with survey weights (MEOHP):Continuous: 1.09 (1.02-1.17)Tertile 2 vs. Tertile 1: 1.07 (0.89, 1.28)Tertile 3 vs. Tertile 1: 1.32 (1.08, 1.62)HR (95 CI) for analysis with survey weights (MECCP):Continuous: 1.09 (0.997, 1.18)Tertile 2 vs. Tertile 1: 1.13 (0.92, 1.39)Tertile 3 vs. Tertile 1: 1.31 (1.04, 1.64). Significant positive associations were reported with T3 for MEHHP, MEOHP, MECPP, but not MEHP in weighted analysis and unweighted analyses. Unweighted analyses also reported significant positive associations for continuous MEHHP, MEOHP, and MECCP...	Trasande et. al 2021 9495379 Medium
CVD mortality	Health Effect: Mortality-All-cause mortality, CVD mortality-Non-cancer-Cardiovascular-CVD mortality-Non-cancer. Outcome measure: ICD-10 codes I00-I09, I11, I13, I20-I151, I60-I69	General public. Adults (18+). United States. Female, Male. Cohort (Prospective). PESS: . General population of NHANES adults aged 40 years and older (n=5,303). NHANES. Recruitment: 2001-2010; Follow-up: Through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at enrollment and prior to outcome.	Cox Proportional Hazards Model. Confounders adjusted for: age, race/ethnicity, urinary creatinine, education levels, family income status, smoking, alcohol use, physical activity, total energy intake, HEI2010 score, survey year and BMI..	Lowest exposure concentration for a significant adverse health outcome response: T3. HR (95 CI) for association with CVD mortality in analysis with survey weights (MEOHP):Continuous: 1.18 (1.04, 1.35)Tertile 2 vs. Tertile 1: 1.39 (0.96, 2.03)Tertile 3 vs. Tertile 1: 1.74 (1.05, 2.88). Significant positive associations were reported for continuous measures and T3 for MECPP, but no other individual DEHP metabolites in weighted analyses. In unweighted analyses, significant positive associations were reported for each DEHP metabolite, including MEHP (continuous, T2), MEOHP (continuous, T2 and T3), and MECPP (continuous, T2 and T3)..	Trasande et. al 2021 9495379 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Cancer mortality	Health Effect: Mortality-Cancer mortality-Cancer-Cancer/Carcinogenesis-Cancer mortality-Cancer. Outcome measure: ICD-10 codes C00-C97	General public. Adults (18+). United States. Female, Male. Cohort (Prospective). PESS: . General population of NHANES adults aged 40 years and older (n=5,303). NHANES. Recruitment: 2001-2010; Follow-up: Through 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured at enrollment and prior to outcome.	Cox Proportional Hazards Model. Confounders adjusted for: age, race/ethnicity, urinary creatinine, education levels, family income status, smoking, alcohol use, physical activity, total energy intake, HEI2010 score, survey year and BMI..	Lowest exposure concentration for a significant adverse health outcome response: T3. HR (95 CI) for MBzP association with cancer mortality in analysis with survey weights:Continuous (per ln MBzP): 1.19 (1.04, 1.36)Tertile 2 vs. Tertile 1: 1.17 (0.72, 1.92)Tertile 3 vs. Tertile 1: 1.25 (0.76, 2.05). Significant positive associations were reported for continuous MBzP and cancer mortality in weighted and unweighted analyses..	Trasande et. al 2021 9495379 Medium
Total cholesterol	Health Effect: Cardiovascular-Systolic blood pressure, diastolic blood pressure, total cholesterol, HDL-C, LDL-C-Non-cancer. Outcome measure: Standard enzymatic methods	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). Greece; Heraklion, Crete. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Mother-child pairs from the Rhea study who became pregnant within one year from February 2007 (Enrolled n=260 mothers and 500 children; Used in analysis n=202). Rhea Study. Within one year beginning February 2007.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Acute (less than 24 hours) Exposure measured concurrently with outcome.	Linear Regression. Confounders adjusted for: child sex, exact age at examination, maternal characteristics (age at delivery, parity, education, pre-pregnancy BMI, smoking in pregnancy).	Lowest exposure concentration for a significant adverse health outcome response: Continuous [geometric mean (SD) child sum DEHP = 0.3 (2.1) nmol/g creatinine]. Beta value (95% CI) for total cholesterol per 10-fold increase child sum DEHP:-in girls = 7.1 (0.5, 14.1). Significant positive association between 10-fold increase in child sum DEHP and total cholesterol in girls. Findings were positive non-significant for all participants and negative non-significant for boys. p for sex interaction = 0.075. No other significant findings for child sum DEHP and other cardiovascular outcomes..	Vafeiadi et. al 2018 5041285 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Diastolic blood pressure z-score	Health Effect: Cardiovascular-Systolic blood pressure, diastolic blood pressure, total cholesterol, HDL-C, LDL-C-Non-cancer. Outcome measure: Measured using an automatic oscillometric device	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). Greece; Heraklion, Crete. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Mother-child pairs from the Rhea study who became pregnant within one year from February 2007 (Enrolled n=260 mothers and 500 children; Used in analysis n=202). Rhea Study. Within one year beginning February 2007.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Acute (less than 24 hours) Exposure measured during pregnancy.	Linear Regression. Confounders adjusted for: child sex, exact age at examination, maternal characteristics (age at delivery, parity, education, pre-pregnancy BMI, smoking in pregnancy).	Lowest exposure concentration for a significant adverse health outcome response: Continuous [geometric mean (SD) prenatal MiBP = 33.5 (3.1) ug/g creatinine]. Beta value (95% CI) for DBP z-score per 10-fold increase prenatal MiBP:-in all participants = -0.2 (-0.37, -0.03)-in boys = -0.26 (-0.48, -0.04). Significant negative association between 10-fold increase in prenatal MiBP and diastolic DBP z-score. Negative, non-significant for girls. p-sex interaction=0.266. No significant findings for prenatal MiBP and other cardiovascular outcomes..	Vafeiadi et. al 2018 5041285 Medium
Total cholesterol	Health Effect: Cardiovascular-Systolic blood pressure, diastolic blood pressure, total cholesterol, HDL-C, LDL-C-Non-cancer. Outcome measure: Standard enzymatic methods	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). Greece; Heraklion, Crete. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Mother-child pairs from the Rhea study who became pregnant within one year from February 2007 (Enrolled n=260 mothers and 500 children; Used in analysis n=202). Rhea Study. Within one year beginning February 2007.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Acute (less than 24 hours) Exposure measured concurrently with outcome.	Linear Regression. Confounders adjusted for: child sex, exact age at examination, maternal characteristics (age at delivery, parity, education, pre-pregnancy BMI, smoking in pregnancy).	Lowest exposure concentration for a significant adverse health outcome response: Continuous [geometric mean (SD) child MiBP = 41.1 (3.3) ug/g creatinine]. Beta value (95% CI) for total cholesterol per 10-fold increase child MiBP:-in all participants = 4.4 (0.2, 8.7)-in girls = 7.6 (1.1, 14.6). Significant positive association between 10-fold increase in child MiBP and total cholesterol. Positive, non-significant for girls. p-sex interaction=0.248. No significant findings for other cardiovascular outcomes and child MiBP..	Vafeiadi et. al 2018 5041285 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Weight-for-height ratio	Health Effect: Reproductive/Developmental-Body mass index (BMI), BMI z-score, overweight, obesity, waist circumference, sum of skinfolds, weight to height ratio-Non-cancer-Nutritional/Metabolic-Body mass index (BMI), BMI z-score, overweight, obesity, waist circumference, sum of skinfolds, weight to height ratio-Non-cancer. Outcome measure: Direct measurement	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). Greece; Heraklion, Crete. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Mother-child pairs from the Rhea study who became pregnant within one year from February 2007 (Enrolled n=260 mothers and 500 children; Used in analysis n=202). Rhea Study. Within one year beginning February 2007.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Acute (less than 24 hours) Exposure measured during pregnancy.	Linear Regression. Confounders adjusted for: child sex, exact age at examination, maternal characteristics (age at delivery, parity, education, pre-pregnancy BMI, smoking in pregnancy).	Lowest exposure concentration for a significant adverse health outcome response: Continuous [geometric mean (SD) prenatal MnBP = 37.1 (2.4) ug/g creatinine]. Beta value (95% CI) for weight-for-height ratio per 10-fold increase prenatal MnBP:-in all participants = 0.1 (0.05, 0.14)-in boys = 0.19 (0.11, 0.27). Significant positive association between 10-fold increase in prenatal MnBP and weight-for-height ratio. Positive, non-significant for girls. p-sex interaction < 0.001 No significant findings for other metabolic outcomes and prenatal MnBP..	Vafeiadi et. al 2018 5041285 Medium
Diastolic blood pressure z-score	Health Effect: Cardiovascular-Systolic blood pressure, diastolic blood pressure, total cholesterol, HDL-C, LDL-C-Non-cancer. Outcome measure: Measured using an automatic oscillometric device	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). Greece; Heraklion, Crete. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Mother-child pairs from the Rhea study who became pregnant within one year from February 2007 (Enrolled n=260 mothers and 500 children; Used in analysis n=202). Rhea Study. Within one year beginning February 2007.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Acute (less than 24 hours) Exposure measured concurrently with outcome.	Linear Regression. Confounders adjusted for: child sex, exact age at examination, maternal characteristics (age at delivery, parity, education, pre-pregnancy BMI, smoking in pregnancy).	Lowest exposure concentration for a significant adverse health outcome response: Continuous [geometric mean (SD) child MBzP = 7.4 (3.2) ug/g creatinine]. Beta value (95% CI) for DBP z-score per 10-fold increase child MBzP:-in all participants = -0.11 (-0.21, -0.01). Significant negative association between 10-fold increase in child MBzP and DBP z-score. No significant findings when stratified by sex. No significant findings for other cardiovascular outcomes and child MBzP..	Vafeiadi et. al 2018 5041285 Medium

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Diastolic blood pressure z-score	Health Effect: Cardiovascular-Systolic blood pressure, diastolic blood pressure, total cholesterol, HDL-C, LDL-C-Non-cancer. Outcome measure: Measured using an automatic oscillometric device	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). Greece; Heraklion, Crete. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Mother-child pairs from the Rhea study who became pregnant within one year from February 2007 (Enrolled n=260 mothers and 500 children; Used in analysis n=202). Rhea Study. Within one year beginning February 2007.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Acute (less than 24 hours) Exposure measured concurrently with outcome.	Linear Regression. Confounders adjusted for: child sex, exact age at examination, maternal characteristics (age at delivery, parity, education, pre-pregnancy BMI, smoking in pregnancy).	Lowest exposure concentration for a significant adverse health outcome response: Continuous [geometric mean (SD) child MnBP = 21.7 (4.6) ug/g creatinine]. Beta value (95% CI) for DBP z-score per 10-fold increase child MnBP:-in all participants = -0.13 (-0.23, -0.04)-in boys = -0.16 (-0.29. -0.02). Significant negative association between 10-fold increase in child MnBP and DBP z-score. Negative, non-significant for girls. p-sex interaction=0.977. No significant findings for other cardiovascular outcomes and child MnBP..	Vafeiadi et. al 2018 5041285 Medium
BMI z-score, weight-for-height ratio, sum of skinfolds, waist circumference	Health Effect: Reproductive/Developmental-Body mass index (BMI), BMI z-score, overweight, obesity, waist circumference, sum of skinfolds, weight to height ratio-Non-cancer-Nutritional/Metabolic-Body mass index (BMI), BMI z-score, overweight, obesity, waist circumference, sum of skinfolds, weight to height ratio-Non-cancer. Outcome measure: Direct measurement	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). Greece; Heraklion, Crete. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Mother-child pairs from the Rhea study who became pregnant within one year from February 2007 (Enrolled n=260 mothers and 500 children; Used in analysis n=202). Rhea Study. Within one year beginning February 2007.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Acute (less than 24 hours) Exposure measured concurrently with outcome.	Linear Regression. Confounders adjusted for: child sex, exact age at examination, maternal characteristics (age at delivery, parity, education, pre-pregnancy BMI, smoking in pregnancy).	Lowest exposure concentration for a significant adverse health outcome response: Continuous [geometric mean (SD) child MnBP = 21.7 (4.6) ug/g creatinine]. Beta value (95% CI) for BMI z-score per 10-fold increase child MnBP:-in girls = 0.39 (0.11, 0.66), p-sex interaction = 0.010Beta value (95% CI) for waist circumference per 10-fold increase child MnBP:-in girls = 1.85 (0.18, 3.52), p-sex interaction = 0.011Beta value (95% CI) for sum of skinfolds per 10-fold increase child MnBP:-in girls = 5.04 (0.77, 9.3), p-sex interaction = 0.727Beta value (95% CI) for waist-to-height ratio per 10-fold increase child MnBP:-in girls = 0.02 (0.01, 0.03), p-sex interaction = 0.001. Significant positive association between 10-fold increase in child MnBP and all metabolic outcomes in girls. Results were inconsistent for all outcomes in all participants and boys only, and significant sex interactions were observed for every outcome except sum of skinfolds..	Vafeiadi et. al 2018 5041285 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
BMI z-score, weight-for-height ratio, sum of skinfolds, waist circumference	Health Effect: Reproductive/Developmental-Body mass index (BMI), BMI z-score, overweight, obesity, waist circumference, sum of skinfolds, weight to height ratio-Non-cancer-Nutritional/Metabolic-Body mass index (BMI), BMI z-score, overweight, obesity, waist circumference, sum of skinfolds, weight to height ratio-Non-cancer. Outcome measure: Direct measurement	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). Greece; Heraklion, Crete. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Mother-child pairs from the Rhea study who became pregnant within one year from February 2007 (Enrolled n=260 mothers and 500 children; Used in analysis n=202). Rhea Study. Within one year beginning February 2007.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Acute (less than 24 hours) Exposure measured concurrently with outcome.	Linear Regression. Confounders adjusted for: child sex, exact age at examination, maternal characteristics (age at delivery, parity, education, pre-pregnancy BMI, smoking in pregnancy).	Lowest exposure concentration for a significant adverse health outcome response: Continuous [geometric mean (SD) child MiBP = 41.1 (3.3) ug/g creatinine]. Beta value (95% CI) for BMI z-score per 10-fold increase child MiBP:-in boys = -0.31 (-0.6, -0.02)-in girls = 0.74 (0.37, 1.1)p-sex interaction = 0.000Beta value (95% CI) for waist circumference per 10-fold increase child MiBP:-in boys = -2.04 (-4, -0.09)-in girls = 3.17 (0.92, 5.42)p-sex interaction = 0.000Beta value (95% CI) for sum of skinfolds per 10-fold increase child MiBP:-in girls = 10.6 (4.96, 16.24), p-sex interaction = 0.227Beta value (95% CI) for waist-to-height ratio per 10-fold increase child MiBP:-in girls = 0.04 (0.02, 0.05), p-sex interaction = 0.000. Significant positive association between 10-fold increase in child MiBP and all metabolic outcomes in girls, while BMI z-score and waist circumference were inverse and significant for boys. Results were inconsistent for all outcomes in all participants combined, and significant sex interactions were observed for every outcome except sum of skinfolds..	Vafeiadi et. al 2018 5041285 Medium
BMI z-score, weight-for-height ratio, sum of skinfolds, waist circumference	Health Effect: Reproductive/Developmental-Body mass index (BMI), BMI z-score, overweight, obesity, waist circumference, sum of skinfolds, weight to height ratio-Non-cancer-Nutritional/Metabolic-Body mass index (BMI), BMI z-score, overweight, obesity, waist circumference, sum of skinfolds, weight to height ratio-Non-cancer. Outcome measure: Direct measurement	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). Greece; Heraklion, Crete. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Mother-child pairs from the Rhea study who became pregnant within one year from February 2007 (Enrolled n=260 mothers and 500 children; Used in analysis n=202). Rhea Study. Within one year beginning February 2007.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Acute (less than 24 hours) Exposure measured concurrently with outcome.	Linear Regression. Confounders adjusted for: child sex, exact age at examination, maternal characteristics (age at delivery, parity, education, pre-pregnancy BMI, smoking in pregnancy).	Lowest exposure concentration for a significant adverse health outcome response: Continuous [geometric mean (SD) child MBzP = 7.4 (3.2) ug/g creatinine]. Beta value (95% CI) for BMI z-score per 10-fold increase child MBzP:-in girls = 0.42 (0.14, 0.7), p-sex interaction = 0.015Beta value (95% CI) for waist circumference per 10-fold increase child MBzP:-in girls = 2.6 (0.91, 4.3), p-sex interaction = 0.013Beta value (95% CI) for sum of skinfolds per 10-fold increase child MBzP:-in all participants = 7.43 (1.95, 12.9)-in girls = 8.37 (4.03, 12.72)-p-sex interaction = 0.727Beta value (95% CI) for waist-to-height ratio per 10-fold increase child MBzP:-in girls = 0.03 (0.02, 0.04), p-sex interaction = 0.002. Significant positive association between 10-fold increase in child MBzP and all metabolic outcomes in girls. Results were inconsistent for all outcomes in all participants and boys only, except for a significant positive association for sum of skinfolds in all participants. Significant sex interactions were observed for every outcome except sum of skinfolds..	Vafeiadi et. al 2018 5041285 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
BMI z-score, weight-for-height ratio, sum of skinfolds, waist circumference	Health Effect: Reproductive/Developmental-Body mass index (BMI), BMI z-score, overweight, obesity, waist circumference, sum of skinfolds, weight to height ratio-Non-cancer-Nutritional/Metabolic-Body mass index (BMI), BMI z-score, overweight, obesity, waist circumference, sum of skinfolds, weight to height ratio-Non-cancer. Outcome measure: Direct measurement	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). Greece; Heraklion, Crete. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Mother-child pairs from the Rhea study who became pregnant within one year from February 2007 (Enrolled n=260 mothers and 500 children; Used in analysis n=202). Rhea Study. Within one year beginning February 2007.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Acute (less than 24 hours) Exposure measured concurrently with outcome.	Linear Regression. Confounders adjusted for: child sex, exact age at examination, maternal characteristics (age at delivery, parity, education, pre-pregnancy BMI, smoking in pregnancy).	Lowest exposure concentration for a significant adverse health outcome response: Continuous [geometric mean (SD) child sum DEHP = 0.3 (2.1) nmol/g creatinine]. Beta value (95% CI) for waist circumference per 10-fold increase child sum DEHP:-in boys = -2.6 (-4.72, -0.48), p-sex interaction = 0.003Beta value (95% CI) for sum of skinfolds per 10-fold increase child sum DEHP:-in girls = 7.55 (1.64, 13.46), p-sex interaction = 0.696Beta value (95% CI) for waist-to-height ratio per 10-fold increase child sum DEHP:-in girls = 0.02 (0.01, 0.04), p-sex interaction = 0.006. Significant positive associations between child sum DEHP and sum of skinfolds and weight-height-ratio in girls. An inverse significant association was also reported for waist circumference in boys and sum DEHP. Significant sex interaction terms were reported for all outcomes other than sum of skinfolds..	Vafeiadi et. al 2018 5041285 Medium
Serum Total T3, T3/T4 ratio	Health Effect: Thyroid-serum thyroid hormones (TSH, total T3, total T4, T3/T4 ratio)-Non-cancer. Outcome measure: Chemiluminescent immunoassay	General public, Occupational workers. Adults (18+). China; Hunan Province. Female, Male. Cross-Sectional. PESS: Occupational, Geography/Site-specifi c (ex. home near exposure source or downstream of release sites). 317 adults from the Hunan Province, China (n=165 in the exposed group, n=152 in the unexposed group).. Unclear, prior to 2018.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured concurrently with outcome.	Linear Regression. Confounders adjusted for: age, gender, smoking status, alcohol use, BMI and years of local residence.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Regression coefficient (95% CI) for T3/T4 ratio per 1-unit increase in MEHP in all participants:0.043 (0.002, 0.083)Regression coefficient (95% CI) for total T3 per 1-unit increase in MEHHP in all participants:0.049 (0.017, 0.081)Regression coefficient (95% CI) for T3/T4 ratio per 1-unit increase in MEHHP in all participants:0.053 (0.019, 0.087)Regression coefficient (95% CI) for T3/T4 ratio per 1-unit increase in MEOHP in all participants:0.038 (0.000, 0.077). Slight but positive negative associations were observed between DEHP metabolites and thyroid hormone levels (T3, T3/T4 ratio). In dose-response analysis, significant linear and non-linear associations were found between:MEHP and Total T3, MEHP and T3/T4 ratio, MEHHP and Total T3, MEHHP and T3/T4 ratio, MEOHP and T3/T4..	Wang et. al 2018 4728615 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Serum Total T3, T3/T4 ratio	Health Effect: Thyroid-serum thyroid hormones (TSH, total T3, total T4, T3/T4 ratio)-Non-cancer. Outcome measure: Chemiluminescent immunoassay	General public, Occupational workers. Adults (18+). China; Hunan Province. Female, Male. Cross-Sectional. PESS: Occupational, Geography/Site-specifi c (ex. home near exposure source or downstream of release sites). 317 adults from the Hunan Province, China (n=165 in the exposed group, n=152 in the unexposed group).. Unclear, prior to 2018.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured concurrently with outcome.	Linear Regression. Confounders adjusted for: age, gender, smoking status, alcohol use, BMI and years of local residence.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. Regression coefficient (95% CI) for Total T3 per 1-unit increase in MBP in all participants:0.025 (0.003, 0.047)Regression coefficient (95% CI) for T3/T4 ratio per 1-unit increase in MBP in all participants:0.028 (0.004, 0.051). Slight but positive negative associations were observed between MBP and thyroid hormone levels (T3, T3/T4 ratio). No dose-response relationships were observed..	Wang et. al 2018 4728615 Medium
Percentage changes in serum thyroid hormones TSH, FT3, and FT4	Health Effect: Thyroid-Changes in serum thyroid hormones TSH, FT3, FT4-Non-cancer-Reproductive/Developmental-Semen quality parameters (volume, concentration, progressive motility, total motility, total count, and percentage of normal morphology)-Non-cancer. Outcome measure: TSH, FT3, and FT4 were measured in serum using electrochemistry immunity analytical method	Patients in clinics. Adults (18+). China; Wuhan. Male. Cross-Sectional. PESS: Studies focusing on reproductive parameters. 509 males recruited from a single reproductive hospital center in Wuhan, China. 2013.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured simultaneously with outcome measures.	Linear Regression. Confounders adjusted for: urinary creatinine, BMI, smoking status, daily cigarette consumption.	Lowest exposure concentration for a significant adverse health outcome response: Fourth quartile. Percent change in TSH (95% CI) for Q4 vs. Q1: -15% (-27%, -1.4%). Significant dose-dependent relationships were found for %MEHP quartiles with decreasing TSH for the 4th vs 1st quartiles as well as for trend (p=0.03)..	Wang et. al 2018 4728614 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
CPT-3 and CPT-II scores for attention	Health Effect: Neurological/Behavioral-Conners' Continuous Performance Test, Second Edition (CPT-II) at age 6-11 years and an updated version of the Conners' CPT (CPT-3) at age 9-18 years-Non-cancer-Reproductive/Developmental-Conners' Continuous Performance Test, Second Edition (CPT-II) at age 6-11 years and an updated version of the Conners' CPT (CPT-3) at age 9-18 years-Non-cancer. Outcome measure: CPT-3 computer assessment	General public. Middle childhood (6-11), Teens (12-17), Adults (18+). Mexico; Mexico City. Female, Male. Cohort (Prospective), Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Mother-child pairs from the ELEMENT cohort (n = 491 in cross-sectional analysis). Early Life Exposure in Mexico to Environmental Toxicants (ELEMENT) cohort study. Recruitment: 1997-2004; Follow-up at child age 6-11 years and 9-18 years..	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during pregnancy and during adolescence (ages 9-18).	Linear Regression. Confounders adjusted for: child age at second follow-up visit, sex, years in school, maternal education, urinary specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: continuous; GM (GSD) sum DEHP among adolescents = 0.31 (2.63) umol/L. Percent change (95% CI) in CPT-3 scores per IQR increase in adolescent Sum DEHP: HRT - variability: 1.7 (0.3, 3.1)HRT-SD: 2.4 (0.8, 4.1)HRT ISI Change: 1.9 (0.1, 3.6)Variability: 2.3 (0.6, 4.0). Significant positive associations for the sum of DEHP metabolites at adolescence and several attention scores from the CPT-3. Other indices positive but not significant. No significant results for maternal sum DEHP and any outcome measures, and results were not presented for specific DEHP metabolites..	Watkins et. al 2021 8348423 Medium

Continued on next page ...

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
CPT-3 and CPT-II scores for attention	Health Effect: Neurological/Behavioral-Conners' Continuous Performance Test, Second Edition (CPT-II) at age 6-11 years and an updated version of the Conners' CPT (CPT-3) at age 9-18 years-Non-cancer-Reproductive/Developmental-Conners' Continuous Performance Test, Second Edition (CPT-II) at age 6-11 years and an updated version of the Conners' CPT (CPT-3) at age 9-18 years-Non-cancer. Outcome measure: CPT-3 computer assessment	General public. Middle childhood (6-11), Teens (12-17), Adults (18+). Mexico; Mexico City. Female, Male. Cohort (Prospective), Cross-Sectional. PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Mother-child pairs from the ELEMENT cohort (n = 491 in cross-sectional analysis). Early Life Exposure in Mexico to Environmental Toxicants (ELEMENT) cohort study. Recruitment: 1997-2004; Follow-up at child age 6-11 years and 9-18 years..	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during pregnancy and during adolescence (ages 9-18).	Linear Regression. Confounders adjusted for: child age at second follow-up visit, sex, years in school, maternal education, urinary specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: continuous; GM (GSD) MBzP among adolescents = 3.49 (2.74) ug/L. No descriptive data for prenatal phthalate measures.. Percent change (95% CI) in CPT-3 scores per IQR increase in prenatal MBzP: Omissions: 4.2 (0.3, 8.2)Percent change (95% CI) in CPT-3 scores per IQR increase in first trimester prenatal MBzP: HRT block change: 3.0 (0.6, 5.5). Significant positive associations for Omissions CPT-3 scores at adolescence in analyses with maternal urinary MBzP. When results were stratified by trimester-specific MBzP, direction of effect was maintained by results were not significant for Omissions. However, first-trimester MBzP was positive associated with HRT block change scores in aodlescence (positive but not significant when all trimesters were combined). Other indices were not significant..	Watkins et. al 2021 8348423 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
CPT-3 Response Style and Omissions scores at ages 9-18 years	Health Effect: Neurological/Behavioral-Conners' Continuous Performance Test, Second Edition (CPT-II) at age 6-11 years and an updated version of the Conners' CPT (CPT-3) at age 9-18 years-Non-cancer-Reproductive/Developmental-Conners' Continuous Performance Test, Second Edition (CPT-II) at age 6-11 years and an updated version of the Conners' CPT (CPT-3) at age 9-18 years-Non-cancer. Outcome measure: CPT-3 and CPT-II scores for attention	General public. Middle childhood (6-11), Teens (12-17), Adults (18+). Mexico; Mexico City. Female, Male. Cohort (Prospective), Cross-Sectional. PESS: Lifestage , Other PESS category specified in the reference. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Mother-child pairs from the ELEMENT cohort (n = 491 in cross-sectional analysis). Early Life Exposure in Mexico to Environmental Toxicants (ELEMENT) cohort study. Recruitment: 1997-2004; Follow-up at child age 6-11 years and 9-18 years..	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during pregnancy and during adolescence (ages 9-18).	Linear Regression. Confounders adjusted for: child age at second follow-up visit, sex, years in school, maternal education, urinary specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: continuous; GM (GSD) MBP among adolescents = 124 (2.79) ug/L. No descriptive data for prenatal phthalate measures.. Percent change (95% CI) in CPT-3 scores per IQR increase in prenatal MBP: Response style: 3.7 (0.1, 7.3)Omissions: 4.5 (0.3, 8.8)Percent change (95% CI) in CPT-3 scores per IQR increase in prenatal first trimester MBP: HRT SD: 3.8 (0.7, 7)Variability: 4.5 (1.1, 8). Significant positive associations for Omissions and Response Style CPT-3 scores in analyses with maternal urinary MBP levels. When results were stratified by trimester-specific phthalate concentrations, both indices were positive but not significant. First-trimester MBP was also positively associated with HRT SD and variability CPT-3 scores. Other indices positive but not significant..	Watkins et. al 2021 8348423 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
CPT-3 and CPT-II scores for attention	Health Effect: Neurological/Behavioral-Conners' Continuous Performance Test, Second Edition (CPT-II) at age 6-11 years and an updated version of the Conners' CPT (CPT-3) at age 9-18 years-Non-cancer-Reproductive/Developmental-Conners' Continuous Performance Test, Second Edition (CPT-II) at age 6-11 years and an updated version of the Conners' CPT (CPT-3) at age 9-18 years-Non-cancer. Outcome measure: CPT-3 computer assessment	General public. Middle childhood (6-11), Teens (12-17), Adults (18+). Mexico; Mexico City. Female, Male. Cohort (Prospective), Cross-Sectional. PESS: Lifestage , Other PESS category specified in the reference. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). Mother-child pairs from the ELEMENT cohort (n = 491 in cross-sectional analysis). Early Life Exposure in Mexico to Environmental Toxicants (ELEMENT) cohort study. Recruitment: 1997-2004; Follow-up at child age 6-11 years and 9-18 years..	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during pregnancy and during adolescence (ages 9-18).	Linear Regression. Confounders adjusted for: child age at second follow-up visit, sex, years in school, maternal education, urinary specific gravity.	Lowest exposure concentration for a significant adverse health outcome response: continuous; GM (GSD) MiBP among adolescents = 10.4 (2.63) ug/L. No descriptive data for prenatal phthalate measures.. Percent change (95% CI) in CPT-3 scores per IQR increase in prenatal MiBP: HRT ISI Change: 5.4 (0.7, 10)Variability: 5.5 (0.4, 10.9)Percent change (95% CI) in CPT-3 scores per IQR increase in prenatal first trimester MiBP: Variability: 5.2 (1, 9.6). Significant positive associations for ISI Change and Variability CPT-3 scores in analyses with maternal urinary MiBP. WHen stratified by trimester-specific phthalate concentrations, direction of effect but not significance was maintained for all indices other than variability, which maintained significance. Other indices positive but not significant..	Watkins et. al 2021 8348423 Medium
resting state fMRI measures [mean fractional amplitude of low-frequency fluctuation (mfALFF) and mean regional homogeneity (mReHo)]	Health Effect: Neurological/Behavioral-Resting state fMRI measures: mean fractional amplitude of low-frequency fluctuation (mfALFF) and mean regional homogeneity (mReHo) in multiple brain regions.-Non-cancer. Outcome measure: functional MRI imaging collected in the resting state	General public. Teens (12-17). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Adolescents (age 11 years through < 21 years). 59 teenagers (33 boys, 26 girls) from Taiwan, mean age 13.95 years. The Taiwan Maternal and Infant Cohort Study (TMICS). Recruitment 2000 to 2001; Follow-up 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Linear Regression. Confounders adjusted for: Family income, gender.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. MBP association with:-lower mfALFF in right middle frontal gyrus and right superior frontal gyrus in both sexes combined (p=0.025)-higher mReHo in the left inferior temporal gyrus and left middle temporal gyrus in both sexes combined (p=0.015). Higher maternal 3rd trimester MBP concentrations were associated with lower activity in the superior frontal gyrus and middle frontal gyrus, and with higher homogeneity in the middle temporal gyrus and inferior temporal gyrus..	Weng et. al 2020 6718530 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
resting state fMRI measures [mean fractional amplitude of low-frequency fluctuation (mfALFF) and mean regional homogeneity (mReHo)]	Health Effect: Neurological/Behavioral-Resting state fMRI measures: mean fractional amplitude of low-frequency fluctuation (mfALFF) and mean regional homogeneity (mReHo) in multiple brain regions.-Non-cancer. Outcome measure: functional MRI imaging collected in the resting state	General public. Teens (12-17). Taiwan. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Adolescents (age 11 years through < 21 years). 59 teenagers (33 boys, 26 girls) from Taiwan, mean age 13.95 years. The Taiwan Maternal and Infant Cohort Study (TMICS). Recruitment 2000 to 2001; Follow-up 2015.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Linear Regression. Confounders adjusted for: Family income, gender.	Lowest exposure concentration for a significant adverse health outcome response: Continuous. MBzP association with:-lower mfALFF in left and right anterior cingulum gyrus in girls ($p<0.025$) -lower mReHo in the right insula in girls ($p<0.04$). Higher maternal 3rd trimester MBzP concentrations were associated with lower activity in the left and right anterior cingulum gyrus in girls, and with lower homogeneity in right insula in girls..	Weng et. al 2020 6718530 Medium
Anopenile distance (APD), Anoclitoral distance (ACD)	Health Effect: Reproductive/Developmental-anopenile distance (APD), anoscrotal distance (ASD), anoclitoral distance (ACD), anofourchette distance (AFD)-Non-cancer. Outcome measure: Clinical measurement taken at birth	General public, Pregnant people. Infant (0-1), Adults (18+). United States; Charleston, South Carolina. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). 380 infants in Charleston, South Carolina with maternal urinary phthalate metabolite measures (n = 222 males; n = 158 females). Recruitment: 2011-2014; follow-up at birth.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy (18-22 weeks).	Linear Regression. Confounders adjusted for: maternal age, education, cigarette smoking, weigh percentile (z-scroe).	Lowest exposure concentration for a significant adverse health outcome response: Tertiles of MBP [Specific ranges not provided; mean (SD) ng/mL in all infants = 27.5 (73.5)]. Beta (95% CI) for anopenile distance:2nd tertile vs. 1st tertile of MBP = -2.30 (-4.30, -0.31)3rd tertile vs. 1st tertile of MBP= -2.61 (-4.77, -0.44)2nd tertile vs. 1st tertile of MBP (white infants only) = -2.77 (-5.45, -0.10)3rd tertile vs. 1st tertile of MBP (white infants only)= -3.66 (-7.16, -0.15)Beta (95% CI) for anoclitoral distance:3rd tertile vs. 1st tertile of MBP (African-American infants only)= -2.57 (-4.82, -0.32). Significant negative associations between prenatal MBP and anopenile distance in all infants, and in white infants only, by tertiles of MBP. Results for African American infants are mildly negative but not significant. A significant negative association was also reported for prenatal MBP and anoclitoral distance in African-American infants only, for the 3rd tertile compared to the 1st (2nd tertile negative but not significant). No significant results for other AGD measures..	Wenzel et. al 2018 4728953 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Anopenile distance (APD)	Health Effect: Reproductive/Developmental-anopenile distance (APD), anoscrotal distance (ASD), anoclitoral distance (ACD), anofourchette distance (AFD)-Non-cancer. Outcome measure: Clinically measured at birth	General public, Pregnant people. Infant (0-1), Adults (18+). United States; Charleston, South Carolina. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). 380 infants in Charleston, South Carolina with maternal urinary phthalate metabolite measures (n = 222 males; n = 158 females). Recruitment: 2011-2014; follow-up at birth.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy (18-22 weeks).	Linear Regression. Confounders adjusted for: maternal age, race education, cigarette smoking, weight percentile (Z-score).	Lowest exposure concentration for a significant adverse health outcome response: Tertiles of sum DEHP [Specific ranges not provided; mean (SD) nmol/L in all infants = 206 (478)]. Beta (95% CI) for anopenile distance:3rd vs. 1st tertile of sum DEHP: -2.65 (-4.73, -0.56). Significant decrease in APD for the 3rd tertile of sum DEHP compared to the 1st tertile. 2nd tertile analysis also had a non-significant decrease. No significant findings when stratified by race, or for other anogenital distance measures..	Wenzel et. al 2018 4728953 Medium

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Anopenile distance (APD); Anoclitoral distance (ACD); Anofourhcette distance (AFD); Anogential distance (AGD)	Health Effect: Reproductive/Developmental-anopenile distance (APD), anoscrotal distance (ASD), anoclitoral distance (ACD), anofourchette distance (AFD)-Non-cancer. Outcome measure: Clinically measured at birth	General public, Pregnant people. Infant (0-1), Adults (18+). United States; Charleston, South Carolina. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). 380 infants in Charleston, South Carolina with maternal urinary phthalate metabolite measures (n = 222 males; n = 158 females). Recruitment: 2011-2014; follow-up at birth.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy (18-22 weeks).	Linear Regression. Confounders adjusted for: maternal age, race education, cigarette smoking, weight percentile (Z-score).	Lowest exposure concentration for a significant adverse health outcome response: Continuous MEHP [mean (SD) ng/mL in all infants = 5.9 (13.6)]. Beta (95% CI) for anopenile distance:per ln-ng/mL increase in MEHP: -1.57 (-2.93, -0.20)Beta (95% CI) for anogenital distance:per ln-ng/mL increase in MEHP (African-American infants only): -2.07 (-4.05, -0.08)Beta (95% CI) for anoclitoral distance:3rd vs. 1st tertile of MEHP: -2.45 (-4.42, -0.48)Beta (95% CI) for anofourchette distance:2nd vs. 1st tertile of MEHP: -1.16 (-2.30, -0.01). Significant decrease in APD per increase in MEHP, and significant decreases in ACD and AFD by specific tertiles of MEHP. Non-significant tertiles showed similar directions of effect. No significant results for other AGD measures..	Wenzel et. al 2018 4728953 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Anopenile distance (APD)	Health Effect: Reproductive/Developmental-anopenile distance (APD), anoscrotal distance (ASD), anoclitoral distance (ACD), anofourchette distance (AFD)-Non-cancer. Outcome measure: Clinically measured at birth	General public, Pregnant people. Infant (0-1), Adults (18+). United States; Charleston, South Carolina. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). 380 infants in Charleston, South Carolina with maternal urinary phthalate metabolite measures (n = 222 males; n = 158 females). Recruitment: 2011-2014; follow-up at birth.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy (18-22 weeks).	Linear Regression. Confounders adjusted for: maternal age, race education, cigarette smoking, weight percentile (Z-score).	Lowest exposure concentration for a significant adverse health outcome response: Tertiles of MEOHP [Specific ranges not provided; mean (SD) ng/mL in all infants = 9.6 (27.6)]. Beta (95% CI) for anopenile distance:2nd vs. 1st tertile of MEOHP: -2.55 (-4.62, -0.47)3rd vs. 1st tertile of MEOHP: -2.82 (-4.82, -0.82)3rd vs. 1st tertile of MEOHP (white infants only): -3.37 (-6.51, -0.22)3rd vs. 1st tertile of MEOHP (African-American infants only): -2.70 (-5.33, -0.06). Significant decrease in APD per tertiles of MEOHP. Results were maintained for the 3rd. vs. 1st tertile when stratified by infant race. No significant results for other AGD measures..	Wenzel et. al 2018 4728953 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Anopenile distance (APD)	Health Effect: Reproductive/Developmental-anopenile distance (APD), anoscrotal distance (ASD), anoclitoral distance (ACD), anofourchette distance (AFD)-Non-cancer. Outcome measure: Clinically measured at birth	General public, Pregnant people. Infant (0-1), Adults (18+). United States; Charleston, South Carolina. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters, Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). 380 infants in Charleston, South Carolina with maternal urinary phthalate metabolite measures (n = 222 males; n = 158 females). Recruitment: 2011-2014; follow-up at birth.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy (18-22 weeks).	Linear Regression. Confounders adjusted for: maternal age, race education, cigarette smoking, weight percentile (Z-score).	Lowest exposure concentration for a significant adverse health outcome response: Tertiles of MEHHP [Specific ranges not provided; mean (SD) ng/mL in all infants = 12.4 (32.3)]. Beta (95% CI) for anopenile distance:2nd vs. 1st tertile of MEHHP: -2.31 (-4.37, -0.25)3rd vs. 1st tertile of MEHHP: -2.69 (-4.76, -0.63)3rd vs. 1st tertile of MEHHP (white infants only): -3.45(-6.75, -0.15). Significant decrease in APD per tertiles of MEHHP. Results were maintained for the 3rd. vs. 1st tertile in white infants only. No significant results for other AGD measures..	Wenzel et. al 2018 4728953 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Body mass index trajectory	Health Effect: Nutritional/Metabolic-Body Mass Index trajectory-Non-cancer. Outcome measure: Measured by research personnel	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Mexico; Mexico City. Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). ELEMENT birth cohort (n=239) of moderate-to-low income residents of Mexico City. Early Life in Mexico to Environmental Toxicants (ELEMENT). Recruitment: 1997 - 2005; Follow-up: 2006-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Mixed effects models. Confounders adjusted for: maternal years of education, maternal BMI 1-month postpartum.	Lowest exposure concentration for a significant adverse health outcome response: Tertiles of MECPP [specific range per tertile not provided; GM (SD) in males = 31.9 (2.6) ng/mL; GM (SD) in females = 30.9 (2.9) ng/mL]. Likelihood ratio test results (-2LL using full model) for MECPP in females: 3749.6, p=0.005. Likelihood ratio test showed better fit for models in girls that included MECPP. There were not extreme differences in trajectory by prenatal MECPP tertile, but ”the third tertile of MECPP predicted the highest BMI trajectory by age 14, although prior to age 9 the highest level of exposure predicted the lowest BMI trajectory.” Sensitivity was reduced in ages past 5..	Yang et. al 2018 4728873 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Body mass index trajectory	Health Effect: Nutritional/Metabolic-Body Mass Index trajectory-Non-cancer. Outcome measure: Measured by research personnel	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Mexico; Mexico City. Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). ELEMENT birth cohort (n=239) of moderate-to-low income residents of Mexico City. Early Life in Mexico to Environmental Toxicants (ELEMENT). Recruitment: 1997 - 2005; Follow-up: 2006-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Mixed effects models. Confounders adjusted for: maternal years of education, maternal BMI 1-month postpartum.	Lowest exposure concentration for a significant adverse health outcome response: Tertiles of MiBP [specific range per tertile not provided; GM (SD) in males = 1.8 (2.7) ng/mL; GM (SD) in females = 2.0 (2.9) ng/mL]. Likelihood ratio test results (-2LL using full model) for MiBP in males: 3373.3, p=0.004. Likelihood ratio test showed better fit for models in boys that included MiBP. The study reported that ”exposure to the first tertile of MiBP...predicted the lowest BMI trajectory in earlychildhood but crossed over to predict the highest BMI by age 14.” Sensitivity was reduced in ages past 5..	Yang et. al 2018 4728873 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Body mass index trajectory	Health Effect: Nutritional/Metabolic-Body Mass Index trajectory-Non-cancer. Outcome measure: Measured by research personnel	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Mexico; Mexico City. Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). ELEMENT birth cohort (n=239) of moderate-to-low income residents of Mexico City. Early Life in Mexico to Environmental Toxicants (ELEMENT). Recruitment: 1997 - 2005; Follow-up: 2006-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Mixed effects models. Confounders adjusted for: maternal years of education, maternal BMI 1-month postpartum.	Lowest exposure concentration for a significant adverse health outcome response: Tertiles of MBzP [specific range per tertile not provided; GM (SD) in males = 4.3 (2.5) ng/mL; GM (SD) in females = 4.1 (2.7) ng/mL]. Likelihood ratio test results (-2LL using full model) for MBzP in males: 3372.6, p=0.003. Likelihood ratio test showed better fit for models in boys that included MBzP. There were not extreme differences in trajectory by prenatal MBzP tertile, but "Exposure to the first tertile of....MBzP predicted the lowest BMI trajectory in early childhood but crossed over to predict the highest BMI by age 14." Sensitivity was reduced for ages past 5..	Yang et. al 2018 4728873 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Body mass index trajectory	Health Effect: Nutritional/Metabolic-Body Mass Index trajectory-Non-cancer. Outcome measure: Measured by research personnel	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Mexico; Mexico City. Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). ELEMENT birth cohort (n=239) of moderate-to-low income residents of Mexico City. Early Life in Mexico to Environmental Toxicants (ELEMENT). Recruitment: 1997 - 2005; Follow-up: 2006-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Mixed effects models. Confounders adjusted for: maternal years of education, maternal BMI 1-month postpartum.	Lowest exposure concentration for a significant adverse health outcome response: Tertiles of MEHP [specific range per tertile not provided; GM (SD) in males = 5.0 (3.5) ng/mL; GM (SD) in females = 5.2 (2.6) ng/mL]. Likelihood ratio test results (-2LL using full model) for MEHP in males: 3370.5, p=0.002. Likelihood ratio test showed better fit for models in boys that included MEHP. There were not extreme differences in trajectory by prenatal MEHP tertile, but ”the second tertile of exposure was consistently predictive of the highest BMItrajectory from early childhood on.” Sensitivity was reduced in ages past 5..	Yang et. al 2018 4728873 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Body mass index trajectory	Health Effect: Nutritional/Metabolic-Body Mass Index trajectory-Non-cancer. Outcome measure: Measured by research personnel	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11), Teens (12-17), Adults (18+). Mexico; Mexico City. Male. Cohort (Prospective). PESS: Lifestage , Sociodemographic Status (ex. race/ethnicity, socioeconomic). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years), Adolescents (age 11 years through < 21 years). ELEMENT birth cohort (n=239) of moderate-to-low income residents of Mexico City. Early Life in Mexico to Environmental Toxicants (ELEMENT). Recruitment: 1997 - 2005; Follow-up: 2006-2012.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Mixed effects models. Confounders adjusted for: maternal years of education, maternal BMI 1-month postpartum.	Lowest exposure concentration for a significant adverse health outcome response: Tertiles of MEHHP [specific range per tertile not provided; GM (SD) in males = 19.4 (3.6) ng/mL; GM (SD) in females = 19.1 (4.7) ng/mL]. Likelihood ratio test results (-2LL using full model) for MEHHP in males: 3372.8, p=0.004. Likelihood ratio test showed better fit for models in boys that included MEHHP. There were not extreme differences in trajectory by prenatal MEHHP tertile, but ”the second tertile of exposure was consistently predictive of the highest BMItrajectory from early childhood on.” Sensitivity was reduced in ages past 5..	Yang et. al 2018 4728873 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Birth weight	Health Effect: Reproductive/Developmental-Birth weight, low birth weight, high birth weight-Non-cancer. Outcome measure: Delivery records	General public, Pregnant people. Infant (0-1), Adults (18+). China; Ma'anshan, Anhui, China. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women recruited from Ma'anshan Women and Children's Health Care Hospital and their infants (Enrolled n=3,474, Used in analysis n=3,103. May 2013-September 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure during the three trimesters of pregnancy.	Linear mixed model. Confounders adjusted for: Pre-BMI, gestational weight gain, pregnancy complication, education level and urinary creatinine concentration.	Lowest exposure concentration for a significant adverse health outcome response: continuous; mean MEOHP (ng/mL) in 1st, 2nd, and 3rd trimesters = 2.01, 1.98, 1.54. Regression coefficient (95% CI) per 1-ln unit increase in MEOHP among low birth weight infants: -63.224 (-109.463, -16.985)Regression coefficient (95% CI) per 1-ln unit increase in MEOHP among low birth weight male infants: -111.206 (-188.298, -34.115). Increased MEOHP was associated with decreased birth weights among low birth weight infants, overall and in males..	Zhang et. al 2018 4728493 Medium
Birth weight	Health Effect: Reproductive/Developmental-Birth weight, low birth weight, high birth weight-Non-cancer. Outcome measure: Delivery records	General public, Pregnant people. Infant (0-1), Adults (18+). China; Ma'anshan, Anhui, China. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women recruited from Ma'anshan Women and Children's Health Care Hospital and their infants (Enrolled n=3,474, Used in analysis n=3,103. May 2013-September 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure during the three trimesters of pregnancy.	Linear mixed model. Confounders adjusted for: Pre-BMI, gestational weight gain, pregnancy complication, education level and urinary creatinine concentration.	Lowest exposure concentration for a significant adverse health outcome response: continuous; mean MBP (ng/mL) in 1st, 2nd, and 3rd trimesters = 3.96, 3,73, and 3.43. Regression coefficient (95% CI) per 1-ln unit increase in MBP among normal birth weight males: 10.438 (0.502, 20.374). Increased MBP was associated with increased birth weight among male infants who had "normal" birth weights. A significant sex interaction was reported for MBP and birth weight of infants. However, no significant findings were negative, non-significant for all infants, females, and when stratified by low or high birth weight status..	Zhang et. al 2018 4728493 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Birth weight	Health Effect: Reproductive/Developmental-Birth weight, low birth weight, high birth weight-Non-cancer. Outcome measure: Delivery records	General public, Pregnant people. Infant (0-1), Adults (18+). China; Ma'anshan, Anhui, China. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women recruited from Ma'anshan Women and Children's Health Care Hospital and their infants (Enrolled n=3,474, Used in analysis n=3,103. May 2013-September 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure during the three trimesters of pregnancy.	Linear mixed model. Confounders adjusted for: Pre-BMI, gestational weight gain, pregnancy complication, education level and urinary creatinine concentration.	Lowest exposure concentration for a significant adverse health outcome response: continuous; mean sum DEHP (ng/mL) in 1st, 2nd, and 3rd trimesters = 2.85, 2.94, 2.47. Regression coefficient (95% CI) per 1-ln unit increase in sum DEHP among low birth weight infants: -69.700 (-116.131, -23.867)Regression coefficient (95% CI) per 1-ln unit increase in sum DEHP among low birth weight male infants: -108.348 (-180.006, -36.691)Regression coefficient (95% CI) per 1-ln unit increase in sum DEHP among low birth weight female infants: –52.267 (-103.783, -0.751)Regression coefficient (95% CI) per 1-ln unit increase in sum DEHP among high birth weight female infants: -33.590 (-61.858, -5.323). Increased sum DEHP metabolites was associated with decreased birth weights among low birth weight infants, overall and stratified by sex. A significant negative association was also observed among high birth weight females..	Zhang et. al 2018 4728493 Medium
Birth weight	Health Effect: Reproductive/Developmental-Birth weight, low birth weight, high birth weight-Non-cancer. Outcome measure: Delivery records	General public, Pregnant people. Infant (0-1), Adults (18+). China; Ma'anshan, Anhui, China. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women recruited from Ma'anshan Women and Children's Health Care Hospital and their infants (Enrolled n=3,474, Used in analysis n=3,103. May 2013-September 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure during the three trimesters of pregnancy.	Linear mixed model. Confounders adjusted for: Pre-BMI, gestational weight gain, pregnancy complication, education level and urinary creatinine concentration.	Lowest exposure concentration for a significant adverse health outcome response: continuous; mean MEHP (ng/mL) in 1st, 2nd, and 3rd trimesters = 0.98, 1.40, 0.93. Regression coefficient (95% CI) per 1-ln unit increase in MEHP among low birth weight infants: -42.348 (-81.618, -3.079)Regression coefficient (95% CI) per 1-ln unit increase in MEHP among low birth weight male infants: -82.856 (-148.059, -17.654)Regression coefficient (95% CI) per 1-ln unit increase in MEHP among normal birth weight male infants: 13.223 (2.386, 24.061)Regression coefficient (95% CI) per 1-ln unit increase in MEHP among high birth weight infants: -16.580 (-31.892, -1.268). Increased MEHP was associated with decreased birth weights among low birth weight infants, overall and in males, and among all high birth weight infants. A significant positive association was also observed among normal birth weight males..	Zhang et. al 2018 4728493 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Birth weight	Health Effect: Reproductive/Developmental-Birth weight, low birth weight, high birth weight-Non-cancer. Outcome measure: Delivery records	General public, Pregnant people. Infant (0-1), Adults (18+). China; Ma'anshan, Anhui, China. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months). Pregnant women recruited from Ma'anshan Women and Children's Health Care Hospital and their infants (Enrolled n=3,474, Used in analysis n=3,103. May 2013-September 2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure during the three trimesters of pregnancy.	Linear mixed model. Confounders adjusted for: Pre-BMI, gestational weight gain, pregnancy complication, education level and urinary creatinine concentration.	Lowest exposure concentration for a significant adverse health outcome response: continuous; mean MEHHP (ng/mL) in 1st, 2nd, and 3rd trimesters = 1.71, 1.85, 1.38. Regression coefficient (95% CI) per 1-ln unit increase in MEHHP among low birth weight infants: -50.485 (-86.258, -14.712)Regression coefficient (95% CI) per 1-ln unit increase in MEHHP among low birth weight male infants: -110.055 (-171.952, -48.139)Regression coefficient (95% CI) per 1-ln unit increase in MEHHP among high birth weight female infants: -28.701 (-54.490, -2.813). Increased MEHHP was associated with decreased birth weights among low birth weight infants, overall and in males, and among high birth weight female infants..	Zhang et. al 2018 4728493 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Wechsler Preschool and Primary Scale of Intelligence (Chinese version) scores: 5 subscales: verbal comprehension index, visual space index, fluid reasoning index, working memory index, processing speed index.	Health Effect: Neurological/Behavioral-Intelligent quotient (IQ) scores-Non-cancer-Reproductive/Developmental-Intelligent quotient (IQ) scores-Non-cancer. Outcome measure: 2 examiners trained by licensed clinical psychologist administered Wechsler IQ test. Raw data submitted to blinded researcher for calculation of each participant's IQ scores.	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11). China; Ma'anshan. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Pregnant women from Ma'anshan Birth Cohort recruited during pregnancy (n=2128). Ma'anshan Birth Cohort (MABC). Recruitment: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during pregnancy. Infant exposure measured at 42 days, 3 months, 6 months, 9 months, and 12 months. Children followed up continuously from age 1.5 every 6 months until age 6..	Linear mixed model. Confounders adjusted for: maternal age, maternal IQ, pre-pregnancy BMI, parity, household income, sunscreen use, pregnancy willingness, breastfeeding duration, urinary creatinine concentration.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) per 1 ln-transformed unit increase for following subscales. Maternal MBP (Total), VCI: -0.30 (-0.60, 0.0), p=0.05; VSI: -0.32 (-0.62, -0.01), p=0.04; FSIQ: -0.31 (-0.57, -0.04), p=0.02. Maternal MBP (boys), VSI: -0.56 (-1.01, -0.12), p=0.01; FSIQ: -0.38 (-0.76, 0.0), p=0.05. Maternal MBP (first trimester), VCI: -0.56 (-1.09, -0.02), p=0.04; VSI: -0.60 (-1.15, -0.05), p=0.03; FSIQ: -0.49 (-0.97, -0.01), p=0.04.. Every ln-unit increase in maternal MBP (total) was associated with a 0.30 point decrease in VCI, VSI, and FSIQ. Every ln-unit increase in maternal MBP among boys was associated with a 0.56 point decrease in VSI and a 0.38 point decrease in FSIQ. Every ln-unit increase in maternal MBP for the first trimester is associated with a 0.56 point decrease in VCI, a 0.60 point decrease in VSI, and a 0.49 point decrease in FSIQ..	Zhu et. al 2020 9644525 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Wechsler Preschool and Primary Scale of Intelligence (Chinese version) scores: 5 subscales: verbal comprehension index, visual space index, fluid reasoning index, working memory index, processing speed index.	Health Effect: Neurological/Behavioral-Intelligent quotient (IQ) scores-Non-cancer-Reproductive/Developmental-Intelligent quotient (IQ) scores-Non-cancer. Outcome measure: 2 examiners trained by licensed clinical psychologist administered Wechsler IQ test. Raw data submitted to blinded researcher for calculation of each participant's IQ scores.	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11). China; Ma'anshan. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Pregnant women from Ma'anshan Birth Cohort recruited during pregnancy (n=2128). Ma'anshan Birth Cohort (MABC). Recruitment: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during pregnancy. Infant exposure measured at 42 days, 3 months, 6 months, 9 months, and 12 months. Children followed up continuously from age 1.5 every 6 months until age 6..	Linear mixed model. Confounders adjusted for: maternal age, maternal IQ, pre-pregnancy BMI, parity, household income, sunscreen use, pregnancy willingness, breastfeeding duration, urinary creatinine concentration.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) per 1 ln-transformed unit increase for following subscales. Maternal MBzP (Total), VCI: 0.23 (0.01, 0.44), p=0.04. Maternal MBzP (boys), VCI: 0.45 (0.14, 0.076), p<0.01. Maternal MBzP (third trimester), VCI: 0.48 (0.03, 0.92), p=0.04.. Every ln-unit increase in maternal MBzP (total) was associated with a 0.23 point increase in VCI. Every ln-unit increase in maternal MBzP among boys was associated with a 0.45 point increase in VCI. Every ln-unit increase in maternal MBzP for the third trimester is associated with a 0.48 point increase in VCI..	Zhu et. al 2020 9644525 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Wechsler Preschool and Primary Scale of Intelligence (Chinese version) scores: 5 subscales: verbal comprehension index, visual space index, fluid reasoning index, working memory index, processing speed index.	Health Effect: Neurological/Behavioral-Intelligent quotient (IQ) scores-Non-cancer-Reproductive/Developmental-Intelligent quotient (IQ) scores-Non-cancer. Outcome measure: 2 examiners trained by licensed clinical psychologist administered Wechsler IQ test. Raw data submitted to blinded researcher for calculation of each participant's IQ scores.	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11). China; Ma'anshan. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Pregnant women from Ma'anshan Birth Cohort recruited during pregnancy (n=2128). Ma'anshan Birth Cohort (MABC). Recruitment: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during pregnancy. Infant exposure measured at 42 days, 3 months, 6 months, 9 months, and 12 months. Children followed up continuously from age 1.5 every 6 months until age 6..	Linear mixed model. Confounders adjusted for: maternal age, maternal IQ, pre-pregnancy BMI, parity, household income, sunscreen use, pregnancy willingness, breastfeeding duration, urinary creatinine concentration.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) per 1 ln-transformed unit increase for following subscales. Maternal MEHP (Total), FSIQ: 0.31 (0.04, 0.57), p=0.03. Maternal MEHP (boys), FSIQ: 0.51 (0.1, 0.92), p=0.01.. Every ln-unit increase in maternal MEHP (total) was associated with a 0.31 point increase in FSIQ. Every ln-unit increase in maternal MEHP among boys was associated with a 0.51 point increase in FSIQ..	Zhu et. al 2020 9644525 Medium

. . . Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Wechsler Preschool and Primary Scale of Intelligence (Chinese version) scores: 5 subscales: verbal comprehension index, visual space index, fluid reasoning index, working memory index, processing speed index.	Health Effect: Neurological/Behavioral-Intelligent quotient (IQ) scores-Non-cancer-Reproductive/Developmental-Intelligent quotient (IQ) scores-Non-cancer. Outcome measure: 2 examiners trained by licensed clinical psychologist administered Wechsler IQ test. Raw data submitted to blinded researcher for calculation of each participant's IQ scores.	General public, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Middle childhood (6-11). China; Ma'anshan. Female, Male. Cohort (Prospective). PESS: Lifestage , Studies focusing on reproductive parameters. Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). Pregnant women from Ma'anshan Birth Cohort recruited during pregnancy (n=2128). Ma'anshan Birth Cohort (MABC). Recruitment: 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Chronic (more than 28 days) Exposure measured during pregnancy. Infant exposure measured at 42 days, 3 months, 6 months, 9 months, and 12 months. Children followed up continuously from age 1.5 every 6 months until age 6..	Linear mixed model. Confounders adjusted for: maternal age, maternal IQ, pre-pregnancy BMI, parity, household income, sunscreen use, pregnancy willingness, breastfeeding duration, urinary creatinine concentration.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Regression coefficient (95% CI) per 1 ln-transformed unit increase for following subscales. Maternal MEOHP (Total), WMI: 0.39 (0.01, 0.77), p=0.05.. Every ln-unit increase in maternal MEOHP (total) was associated with a 0.39 point increase in WMI..	Zhu et. al 2020 9644525 Medium
hemoglobin levels	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women from Ma'anshan Birth Cohort (n = 3269). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured throughout pregnancy.	Linear mixed model. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. beta (95% CI) per 1 ln MBP and Hb: -0.55 (-0.74, -0.35). Significant inverse relationship in repeated measures model, where 1 ln unit increase in MBP was associated with a decrease in maternal hemoglobin. The magnitude of association was stronger in boys..	Zhu et. al 2018 4829283 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
hemoglobin levels	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women from Ma'anshan Birth Cohort (n = 3269). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured throughout pregnancy.	Linear mixed model. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. beta (95% CI) per 1 ln MBzP and Hb: -0.19 (-0.33, -0.05). Significant inverse relationship in repeated measures model, where 1 ln unit increase in MBzP was associated with a decrease in maternal hemoglobin. The magnitude of association was stronger in boys, non-significant in girls..	Zhu et. al 2018 4829283 Medium
hemoglobin levels	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women from Ma'anshan Birth Cohort (n = 3269). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured throughout pregnancy.	Linear mixed model. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. beta (95% CI) per 1 ln MEHP and Hb: -0.57 (-0.77, -0.37). Significant inverse relationship in repeated measures model, where 1 ln unit increase in MEHP was associated with a decrease in maternal hemoglobin. The magnitude of association was stronger in boys..	Zhu et. al 2018 4829283 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
hemoglobin levels	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women from Ma'anshan Birth Cohort (n = 3269). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured throughout pregnancy.	Linear mixed model. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. beta (95% CI) per 1 ln MEHHP and Hb: -0.54 (-0.77, -0.30). Significant inverse relationship in repeated measures model, where 1 ln unit increase in MEHHP was associated with a decrease in maternal hemoglobin. The magnitude of association was stronger in boys, non-significant in girls..	Zhu et. al 2018 4829283 Medium
hemoglobin levels	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women from Ma'anshan Birth Cohort (n = 3269). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured throughout pregnancy.	Linear mixed model. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. beta (95% CI) per 1 ln MEOHP and Hb: -0.49 (-0.75, -0.23). Significant inverse relationship in repeated measures model, where 1 ln unit increase in MEOHP was associated with a decrease in maternal hemoglobin. The magnitude of association was stronger in boys, non-significant in girls..	Zhu et. al 2018 4829283 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
anemia	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women from Ma'anshan Birth Cohort (n = 3269). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured throughout pregnancy.	Generalized linear mixed model. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) MBP and anemia: 1.21 (1.15, 1.27). Significant association between MBP and anemia in repeated measures model, where 1 ln unit increase in MBP increased the risk of anemia. The magnitude of association was stronger in boys..	Zhu et. al 2018 4829283 Medium
anemia	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women from Ma'anshan Birth Cohort (n = 3269). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured throughout pregnancy.	Generalized linear mixed model. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) MEHP and anemia: 1.20 (1.14, 1.26). Significant association between MEHP and anemia in repeated measures model, where higher MEHP increased the odds of anemia. The magnitude of association was stronger in boys..	Zhu et. al 2018 4829283 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
anemia	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women from Ma'anshan Birth Cohort (n = 3269). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured throughout pregnancy.	Generalized linear mixed model. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) MEHHP and anemia: 1.16 (1.09, 1.22). Significant association between MEHHP and anemia in repeated measures model, where exposure to MEHHP increased the odds of anemia. The magnitude of association was stronger in boys..	Zhu et. al 2018 4829283 Medium
anemia	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women from Ma'anshan Birth Cohort (n = 3269). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured throughout pregnancy.	Generalized linear mixed model. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) MEOHP and anemia: 1.13 (1.05, 1.20). Significant association between MEOHP and anemia in repeated measures model, where exposure to MEOHP increased the odds of anemia. The magnitude of association was stronger in boys..	Zhu et. al 2018 4829283 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
hemoglobin levels	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women with male fetus' from Ma'anshan Birth Cohort (n = 1667). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in each trimester of pregnancy.	Linear Regression. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. beta (95% CI) per 1 ln MBP and Hb: -1.04 (-1.41, -0.66). Significant association between phthalate metabolite and decreased hemoglobin levels in the third trimester. Associations significant in the first trimester, and in both sexes..	Zhu et. al 2018 4829283 Medium
hemoglobin levels	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women with male fetus' from Ma'anshan Birth Cohort (n = 1667). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in each trimester of pregnancy.	Linear Regression. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. beta (95% CI) per 1 ln MBzP and Hb: -0.35 (-0.65, -0.06). Significant association between phthalate metabolite and decreased hemoglobin levels in the third trimester. Association significant in boys, and in the second trimester..	Zhu et. al 2018 4829283 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
hemoglobin levels	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women with male fetus' from Ma'anshan Birth Cohort (n = 1667). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in each trimester of pregnancy.	Linear Regression. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. beta (95% CI) per 1 ln MEHP and Hb: -0.90 (-1.27, -0.54). Significant association between phthalate metabolite and decreased hemoglobin levels in the third trimester. Association significant in both sexes, and in other trimesters overall and/or in boys..	Zhu et. al 2018 4829283 Medium
hemoglobin levels	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women with male fetus' from Ma'anshan Birth Cohort (n = 1667). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in each trimester of pregnancy.	Linear Regression. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. beta (95% CI) per 1 ln MEHHP and Hb: -0.69 (-1.16, -0.22). Significant association between phthalate metabolite and decreased hemoglobin levels in the third trimester. Association significant in boys, and in other trimesters overall. Significant only in boys in the 2nd trimester..	Zhu et. al 2018 4829283 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
hemoglobin levels	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women with male fetus' from Ma'anshan Birth Cohort (n = 1667). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in each trimester of pregnancy.	Linear Regression. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. beta (95% CI) per 1 ln MEOHP and Hb: -0.80 (-1.34, -0.26). Significant association between phthalate metabolite and decreased hemoglobin levels in the third trimester. Association significant in boys, and in other trimesters overall and in both sexes. Significant only overall and in boys in other trimesters..	Zhu et. al 2018 4829283 Medium
hemoglobin levels	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women with female fetus' from Ma'anshan Birth Cohort (n = 1596). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in each trimester of pregnancy.	Linear Regression. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. beta (95% CI) per 1 ln MEHP and Hb: -0.90 (-1.27, -0.54). Significant association between phthalate metabolite and decreased hemoglobin levels in the third trimester overall and in both sexes. Association significant in other trimesters overall..	Zhu et. al 2018 4829283 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
anemia	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women with male fetus' from Ma'anshan Birth Cohort (n = 1667). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in each trimester of pregnancy.	Logistic Regression. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for MBP and anemia: 1.18 (1.09,1.28). Significant association between phthalate metabolite and increased risk for anemia in the third trimester overall and in both sexes. Significant in other trimesters; in the second trimester significant only in boys..	Zhu et. al 2018 4829283 Medium
anemia	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women with male fetus' from Ma'anshan Birth Cohort (n = 1667). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in each trimester of pregnancy.	Logistic Regression. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for MBzP and anemia: 1.09 (1.01,1.16). Significant association between phthalate metabolite and increased risk for anemia in the third trimester overall and in boys. Also significant in the first trimester, overall and in boys..	Zhu et. al 2018 4829283 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
anemia	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women with male fetus' from Ma'anshan Birth Cohort (n = 1667). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in each trimester of pregnancy.	Logistic Regression. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) MEHP and anemia: 1.20 (1.10, 1.29). Significant association between phthalate metabolite and increased risk for anemia in the third trimester overall and in both sexes. Also significant in the first trimester, overall and in both sexes..	Zhu et. al 2018 4829283 Medium
anemia	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women with male fetus' from Ma'anshan Birth Cohort (n = 1667). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in each trimester of pregnancy.	Logistic Regression. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) MEHHP and anemia: 1.27 (1.15, 1.38). Significant association between phthalate metabolite and increased risk for anemia in the third trimester overall and in both sexes. Also significant in other trimesters, in the second trimester only in boys..	Zhu et. al 2018 4829283 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
anemia	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women with male fetus' from Ma'anshan Birth Cohort (n = 1667). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured in each trimester of pregnancy.	Logistic Regression. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) MEOHP and anemia: 1.30 (1.17, 1.44). Significant association between phthalate metabolite and increased risk for anemia in the third trimester overall and in both sexes. Also significant in other trimesters, in the second trimester only in boys..	Zhu et. al 2018 4829283 Medium
anemia	Health Effect: Immune/Hematological-Hemoglobin (Hb) concentrations, anemia-Non-cancer. Outcome measure: Medical Records	Pregnant people. Adults (18+). China; Ma'anshan. Female. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth). Chinese pregnant women from Ma'anshan Birth Cohort (n = 3269). Ma'anshan Birth Cohort Study (MABC). 2013-2014.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured throughout pregnancy.	Generalized linear mixed model. Confounders adjusted for: maternal age, gestational age, prepregnant BMI, education, occupation, smoking, serum iron concentration, nutritional supplements (folic acid, vitamins, iron) before conception and pregnancy, creatinine..	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) MBzP and anemia: 1.08 (1.01, 1.14). Significant association between MBzP and anemia in repeated measures model, where 1 ln unit increase in MBzP increased the risk of anemia in boys. The association was not significant overall or in girls..	Zhu et. al 2018 4829283 Medium

Continued on next page ...

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Uterine volume, uterine volume greater than or equal to the median	Health Effect: Reproductive/Developmental-uterine volume-Non-cancer. Outcome measure: Uterine size data was obtained through MRI within 12 months of surgery (n=35), ultrasound (n=20) and surgical pathology (n=1) reports.	General public. Adults (18+). United States of America; Washington, D.C.. Female. Cross-Sectional. PESS: Studies focusing on reproductive parameters. Women within the Fibroids Observational Research on Genes and the Environment (FORGE) study presenting to the George Washington University (GWU) gynecology clinic for evaluation for symptomatic fibroid tumors and surgical management were recruited 2014-2017. Eligible women were non-pregnant, premenopausal, English speaking, 18 years old or older, and intending to have their surgery at the GWU hospital. Ninety percent (n=61) of the n=68 women initially approached consented to participate. Final analysis was limited to the women (n=57) with urinary phthalate metabolite data.. Fibroids Observational Research on Genes and the Environment (FORGE) study. Recruitment: 2014-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prior to surgery and up to 5 months after surgery..	Logistic Regression. Confounders adjusted for: Final models for all analyses were adjusted for age, body mass index, and race/ethnicity..	Lowest exposure concentration for a significant adverse health outcome response: continuous. Uterine volume greater than or equal to the median– MEHP AOR (95% CI):)3.4 (1.2–9.5). Phthalate concentrations were positively associated with uterine volume greater than or equal to the median for MEHP..	Zota et. al 2019 5043589 Medium

Continued on next page . . .

Butyl benzyl phthalate **. . . continued from previous page** Metabolite: Mono-benzyl phthalate (MBzP)

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Uterine volume, uterine volume greater than or equal to the median	Health Effect: Reproductive/Developmental-uterine volume-Non-cancer. Outcome measure: Uterine size data was obtained through MRI within 12 months of surgery (n=35), ultrasound (n=20) and surgical pathology (n=1) reports.	General public. Adults (18+). United States of America; Washington, D.C.. Female. Cross-Sectional. PESS: Studies focusing on reproductive parameters. Women within the Fibroids Observational Research on Genes and the Environment (FORGE) study presenting to the George Washington University (GWU) gynecology clinic for evaluation for symptomatic fibroid tumors and surgical management were recruited 2014-2017. Eligible women were non-pregnant, premenopausal, English speaking, 18 years old or older, and intending to have their surgery at the GWU hospital. Ninety percent (n=61) of the n=68 women initially approached consented to participate. Final analysis was limited to the women (n=57) with urinary phthalate metabolite data.. Fibroids Observational Research on Genes and the Environment (FORGE) study. Recruitment: 2014-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prior to surgery and up to 5 months after surgery..	Logistic Regression. Confounders adjusted for: Final models for all analyses were adjusted for age, body mass index, and race/ethnicity..	Lowest exposure concentration for a significant adverse health outcome response: continuous. Uterine volume greater than or equal to the median–MEHHP AOR (95% CI):4.3 (1.5–12.3). Phthalate concentrations were positively associated with uterine volume greater than or equal to the median for MEHHP..	Zota et. al 2019 5043589 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Uterine volume, uterine volume greater than or equal to the median	Health Effect: Reproductive/Developmental-uterine volume-Non-cancer. Outcome measure: Uterine size data was obtained through MRI within 12 months of surgery (n=35), ultrasound (n=20) and surgical pathology (n=1) reports.	General public. Adults (18+). United States of America; Washington, D.C.. Female. Cross-Sectional. PESS: Studies focusing on reproductive parameters. Women within the Fibroids Observational Research on Genes and the Environment (FORGE) study presenting to the George Washington University (GWU) gynecology clinic for evaluation for symptomatic fibroid tumors and surgical management were recruited 2014-2017. Eligible women were non-pregnant, premenopausal, English speaking, 18 years old or older, and intending to have their surgery at the GWU hospital. Ninety percent (n=61) of the n=68 women initially approached consented to participate. Final analysis was limited to the women (n=57) with urinary phthalate metabolite data.. Fibroids Observational Research on Genes and the Environment (FORGE) study. Recruitment: 2014-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prior to surgery and up to 5 months after surgery..	Logistic Regression. Confounders adjusted for: Final models for all analyses were adjusted for age, body mass index, and race/ethnicity..	Lowest exposure concentration for a significant adverse health outcome response: continuous. Uterine volume greater than or equal to the median–MEOHP AOR (95% CI):4.5 (1.5–13.4). Phthalate concentrations were positively associated with uterine volume greater than or equal to the median for MEOHP..	Zota et. al 2019 5043589 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Uterine volume, uterine volume greater than or equal to the median	Health Effect: Reproductive/Developmental-uterine volume-Non-cancer. Outcome measure: Uterine size data was obtained through MRI within 12 months of surgery (n=35), ultrasound (n=20) and surgical pathology (n=1) reports.	General public. Adults (18+). United States of America; Washington, D.C.. Female. Cross-Sectional. PESS: Studies focusing on reproductive parameters. Women within the Fibroids Observational Research on Genes and the Environment (FORGE) study presenting to the George Washington University (GWU) gynecology clinic for evaluation for symptomatic fibroid tumors and surgical management were recruited 2014-2017. Eligible women were non-pregnant, premenopausal, English speaking, 18 years old or older, and intending to have their surgery at the GWU hospital. Ninety percent (n=61) of the n=68 women initially approached consented to participate. Final analysis was limited to the women (n=57) with urinary phthalate metabolite data.. Fibroids Observational Research on Genes and the Environment (FORGE) study. Recruitment: 2014-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prior to surgery and up to 5 months after surgery..	Logistic Regression. Confounders adjusted for: Final models for all analyses were adjusted for age, body mass index, and race/ethnicity..	Lowest exposure concentration for a significant adverse health outcome response: continuous. Uterine volume greater than or equal to the median– MECPP AOR (95% CI):5.3 (1.8–15.9). Phthalate concentrations were positively associated with uterine volume greater than or equal to the median for MECPP..	Zota et. al 2019 5043589 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Uterine volume, uterine volume greater than or equal to the median	Health Effect: Reproductive/Developmental-uterine volume-Non-cancer. Outcome measure: Uterine size data was obtained through MRI within 12 months of surgery (n=35), ultrasound (n=20) and surgical pathology (n=1) reports.	General public. Adults (18+). United States of America; Washington, D.C.. Female. Cross-Sectional. PESS: Studies focusing on reproductive parameters. Women within the Fibroids Observational Research on Genes and the Environment (FORGE) study presenting to the George Washington University (GWU) gynecology clinic for evaluation for symptomatic fibroid tumors and surgical management were recruited 2014-2017. Eligible women were non-pregnant, premenopausal, English speaking, 18 years old or older, and intending to have their surgery at the GWU hospital. Ninety percent (n=61) of the n=68 women initially approached consented to participate. Final analysis was limited to the women (n=57) with urinary phthalate metabolite data.. Fibroids Observational Research on Genes and the Environment (FORGE) study. Recruitment: 2014-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prior to surgery and up to 5 months after surgery..	Logistic Regression. Confounders adjusted for: Final models for all analyses were adjusted for age, body mass index, and race/ethnicity..	Lowest exposure concentration for a significant adverse health outcome response: continuous. Uterine volume greater than or equal to the median-MHiBP AOR (95% CI): 2.6 (1.0-6.4). No significant associations were noted between MiBP and odds of uterine volume greater than or equal to the median.. Phthalate concentrations were positively associated with odds of uterine volume greater than the median for MHiBP. No significant associations were noted between MiBP and odds of uterine volume greater than the median..	Zota et. al 2019 5043589 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Uterine volume, percent difference in uterine volume	Health Effect: Reproductive/Developmental-uterine volume-Non-cancer. Outcome measure: Uterine size data was obtained through MRI within 12 months of surgery (n=35), ultrasound (n=20) and surgical pathology (n=1) reports.	General public. Adults (18+). United States of America; Washington, D.C.. Female. Cross-Sectional. PESS: Studies focusing on reproductive parameters. Women within the Fibroids Observational Research on Genes and the Environment (FORGE) study presenting to the George Washington University (GWU) gynecology clinic for evaluation for symptomatic fibroid tumors and surgical management were recruited 2014-2017. Eligible women were non-pregnant, premenopausal, English speaking, 18 years old or older, and intending to have their surgery at the GWU hospital. Ninety percent (n=61) of the n=68 women initially approached consented to participate. Final analysis was limited to the women (n=57) with urinary phthalate metabolite data.. Fibroids Observational Research on Genes and the Environment (FORGE) study. Recruitment: 2014-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prior to surgery and up to 5 months after surgery..	Linear Regression. Confounders adjusted for: Final models for all analyses were adjusted for age, body mass index, and race/ethnicity..	Lowest exposure concentration for a significant adverse health outcome response: continuous. Uterine volume percent difference–MEHHP % difference (95% CI): 26.2 (3.1, 54.6), MEOHP % difference (95% CI): 27.1 (4.7, 54.3), MECPP % difference (95% CI): 31.6 (5.9, 63.5). Phthalate concentrations were not significantly associated with percent difference in uterine volume for MEHP.. Phthalate concentrations were positively associated with percent difference in uterine volume for MEHHP, MEOHP and MECPP. Phthalate concentrations were not significantly associated with percent difference in uterine volume for MEHP..	Zota et. al 2019 5043589 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Uterine volume, percent difference in uterine volume	Health Effect: Reproductive/Developmental-uterine volume-Non-cancer. Outcome measure: Uterine size data was obtained through MRI within 12 months of surgery (n=35), ultrasound (n=20) and surgical pathology (n=1) reports.	General public. Adults (18+). United States of America; Washington, D.C.. Female. Cross-Sectional. PESS: Studies focusing on reproductive parameters. Women within the Fibroids Observational Research on Genes and the Environment (FORGE) study presenting to the George Washington University (GWU) gynecology clinic for evaluation for symptomatic fibroid tumors and surgical management were recruited 2014-2017. Eligible women were non-pregnant, premenopausal, English speaking, 18 years old or older, and intending to have their surgery at the GWU hospital. Ninety percent (n=61) of the n=68 women initially approached consented to participate. Final analysis was limited to the women (n=57) with urinary phthalate metabolite data.. Fibroids Observational Research on Genes and the Environment (FORGE) study. Recruitment: 2014-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prior to surgery and up to 5 months after surgery..	Linear Regression. Confounders adjusted for: Final models for all analyses were adjusted for age, body mass index, and race/ethnicity..	Lowest exposure concentration for a significant adverse health outcome response: continuous. Uterine volume percent difference–MEOHP % difference (95% CI): 27.1 (4.7, 54.3).. Phthalate concentrations were positively associated with percent difference in uterine volume forMEOHP..	Zota et. al 2019 5043589 Medium

Continued on next page . . .

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Uterine volume, percent difference in uterine volume	Health Effect: Reproductive/Developmental-uterine volume-Non-cancer. Outcome measure: Uterine size data was obtained through MRI within 12 months of surgery (n=35), ultrasound (n=20) and surgical pathology (n=1) reports.	General public. Adults (18+). United States of America; Washington, D.C.. Female. Cross-Sectional. PESS: Studies focusing on reproductive parameters. Women within the Fibroids Observational Research on Genes and the Environment (FORGE) study presenting to the George Washington University (GWU) gynecology clinic for evaluation for symptomatic fibroid tumors and surgical management were recruited 2014-2017. Eligible women were non-pregnant, premenopausal, English speaking, 18 years old or older, and intending to have their surgery at the GWU hospital. Ninety percent (n=61) of the n=68 women initially approached consented to participate. Final analysis was limited to the women (n=57) with urinary phthalate metabolite data.. Fibroids Observational Research on Genes and the Environment (FORGE) study. Recruitment: 2014-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured prior to surgery and up to 5 months after surgery..	Linear Regression. Confounders adjusted for: Final models for all analyses were adjusted for age, body mass index, and race/ethnicity..	Lowest exposure concentration for a significant adverse health outcome response: continuous. Uterine volume percent difference–MECPP % difference (95% CI): 31.6 (5.9, 63.5).. Phthalate concentrations were positively associated with percent difference in uterine volume for MECPP..	Zota et. al 2019 5043589 Medium

Human Health Hazard Epidemology Extraction

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Asthma, atopy	Health Effect: Lung/Respiratory-Asthma-Non-cancer-Immune/Hematological-Immunoglobulin E (IgE) levels to inhalant allergens-Non-cancer. Outcome measure: Asthma: physician diagnosis; atopy: immunoglobulin E levels against inhalant allergens	General public, Pregnant people. Preschool (3-5), Middle childhood (6-11), Adults (18+). Germany; Leipzig. Female, Male. Cohort (Prospective). PESS: Lifestage . Lifestage PESS: Children (age 1 year through < 11 years). Mother-child pairs in Leipzig, Germany (n=371 pairs). Lifestyle and Environmental Factors and Their Influence on Newborns Allergy Risk (LINA) cohort. Recruitment: during pregnancy 2006-2008; Follow-up: through child age 6.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Logistic Regression. Confounders adjusted for: child gender, siblings, smoking during pregnancy, environmental tobacco smoke after birth, cat keeping, parental history of atopy, parental education level.	Lowest exposure concentration for a significant adverse health outcome response: continuous. OR (95% CI) for a 100 ng/mg unit increase of MnBP: Asthma: 1.24 (1.02, 1.50)Atopy: 1.21 (1.04, 1.41). Significant positive associations between MnBP and both asthma and atopy. No significant associations with MBzP..	Jahreis et. al 2018 5490441 Medium

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Internalizing problems	Health Effect: Neurological/Behavioral-Behavioral problems–Child Behavior Checklist (CBCL) Internalizing problems, Externalizing problems)-Non-cancer. Outcome measure: Child Behavior Checklist (CBCL) questionnaire	Patients in clinics, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage , Aggregate Exposures (ex. multiple air exposure sources). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). 76 mother-child pairs recruited from the APrON study (Enrolled n=84; Used in analysis n = 76). Alberta Pregnancy Outcomes and Nutrition (APrON) Study. Follow-up: 2013-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Multivariate Regression. Confounders adjusted for: child age.	Lowest exposure concentration for a significant adverse health outcome response: continuous. sum (HMWP) and Internalizing Problems with mediator MD of the right IFO: Beta (95% CI)= 0.09 (0.02, 0.20); sum (HMWP) and Internalizing Problems with mediator MD of the right pyramidal fibers: Beta (95% CI) = 0.11 (0.01, 0.23). Diffusion tensor imaging (DTI) mean diffusivity (MD) of the right inferior fronto-occipital fasciculus (IFO) was a significant mediator of sum(HMWP) prenatal exposure on age 3-5 Child Behavior Checklist (CBCL) Internalizing Problems. DTI MD of the right pyramidal fibers was a significant mediator of sum(HMWP) prenatal exposure on age 3-5 CBCL Internalizing Problems..	England-Mason et. al 2020 6958936 Medium

Continued on next page . . .

Butyl benzyl phthalate

. . . continued from previous page

Metabolite: Monobenzyl phthalate (MBzP); as part of molar sum of High molecular weight phthalates

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Externaliz-ing problems	Health Effect: Neurological/Behavioral-Behavioral problems–Child Behavior Checklist (CBCL) Internalizing problems, Externalizing problems)-Non-cancer. Outcome measure: Child Behavior Checklist (CBCL) questionnaire	Patients in clinics, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage , Aggregate Exposures (ex. multiple air exposure sources). Lifestage PESS: Pregnant people (parent) or em-bryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). 76 mother-child pairs re-cruited from the APrON study (Enrolled n=84; Used in analysis n = 76). Alberta Pregnancy Outcomes and Nutrition (APrON) Study. Follow-up: 2013-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Un-clear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Multivariate Regression. Confounders adjusted for: child age.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Sum (HMWP) and Externalizing Problems with mediator MD of the right IFO: Beta (95% CI)= 0.09 (0.01, 0.19); Sum (HMWP) and Externalizing Problems with mediator MD of the right pyramidal fibers: Beta (95% CI) = 0.07 (-0.01, 0.20).. Diffusion tensor imaging (DTI) mean diffusivity (MD) of the right inferior fronto-occipital fasciculus (IFO) was a significant mediator of sum(HMWP) prenatal exposure on age 3-5 Child Behavior Check-list (CBCL) Externalizing Problems. DTI MD of the right pyramidal fibers was not a significant mediator of sum(HMWP) prenatal exposure on age 3-5 CBCL Externalizing Problems..	England-Mason et. al 2020 6958936 Medium

Continued on next page . . .

Butyl benzyl phthalate

…continued from previous page

Metabolite: Monobenzyl phthalate (MBzP); as part of molar sum of High molecular weight phthalates

Human Health Hazard Epidemiology Extraction Table:

Author Reported Outcome	Measured Effect/ Endpoints	Study Population	Exposure	Method	Results	Citation, HERO ID, and OQD*
Internalizing problems	Health Effect: Neurological/Behavioral-Behavioral problems–Child Behavior Checklist (CBCL) Internalizing problems, Externalizing problems)-Non-cancer. Outcome measure: Child Behavior Checklist (CBCL) questionnaire	Patients in clinics, Pregnant people. Infant (0-1), Toddler (2-3), Preschool (3-5), Adults (18+). Canada; Alberta. Female, Male. Cohort (Prospective). PESS: Lifestage , Aggregate Exposures (ex. multiple air exposure sources). Lifestage PESS: Pregnant people (parent) or embryo/fetus (developmental) (conception through birth), Infants (birth through < 12 months), Children (age 1 year through < 11 years). 76 mother-child pairs recruited from the APrON study (Enrolled n=84; Used in analysis n = 76). Alberta Pregnancy Outcomes and Nutrition (APrON) Study. Follow-up: 2013-2017.	Biomonitoring Biomonitoring matrix: Urine Exposure Route: Unclear/Uncertain (dust, biomarker without indication of exposure route, etc.) Unclear Exposure measured during pregnancy.	Multivariate Regression. Confounders adjusted for: child age.	Lowest exposure concentration for a significant adverse health outcome response: continuous. Sum (LMWP) and Internalizing Problems with mediator FA of the left ILF: Beta (95% CI) = 0.09 (-0.01, 0.21). Diffusion tensor imaging (DTI) fractional anisotopy (FA) of the left inferior longitudinal fasciculus (ILF) was not a significant mediator of sum(LMWP) prenatal exposure on age 3-5 Child Behavior Checklist (CBCL) Internalizing Problems..	England-Mason et. al 2020 6958936 Medium