United States
Environmental Protection Agency

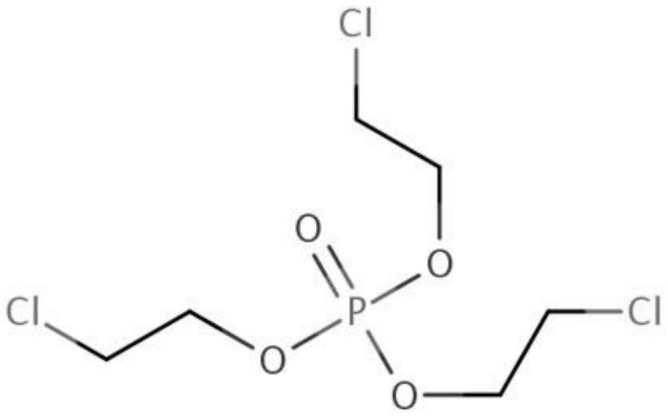
December 2023
Office of Chemical Safety and
Pollution Prevention

Draft Risk Evaluation for Tris(2-chloroethyl) phosphate (TCEP)

Systematic Review Supplemental File:

Data Extraction Information for
Environmental Hazard and Human Health Hazard Animal Toxicology and Epidemiology

CASRN: 115-96-8



December 2023

This supplemental file contains information regarding the data extraction results for data sources that met the PECO screening criteria for the *Draft Risk Evaluation for Tris(2-chloroethyl) Phosphate (TCEP)*. 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 '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 *Draft Risk Evaluation for Tris(2-chloroethyl) Phosphate (TCEP) - 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 met the PECO screening criteria during full text screening and underwent data quality evaluation; these study details are available in the table below. Furthermore, the study details and respective endpoints are organized by first the relevant habitat (*i.e.*, aquatic vs. terrestrial), then taxa categories (*e.g.*, vertebrates, invertebrates, vegetation) followed by 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 TCEP, toxicity data gaps were identified for mammalian wildlife relevant to the terrestrial compartment of the environmental hazard assessment. This table includes rodent data 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: All references that met PECO screening criteria and were categorized as a "human health relevant animal model" were extracted as detailed in Section 6.4 of the *Draft Systematic Review Protocol Supporting TSCA Risk Evaluations for Chemical Substances*. If a point of departure (POD) was reported by study authors, those were extracted. When the study author does not report a POD, EPA reviewers selected the lowest POD. As well as the target organ, any co-critical effects were reported along with the overall quality determination (OQD) for the health outcome. In some cases, a POD could not be determined due to deficits in the reference, and the reviewer wrote "Uninformative - not suitable for POD determination" in the POD field. 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 references that met PECO screening criteria and were categorized as "human health epidemiology" were extracted as detailed in Section 6.4 of the *Draft Systematic Review Protocol Supporting TSCA Risk Evaluations for Chemical Substances*. The data extracted include the measured effect or health 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.

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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
115-96-8	1.5 Hour(s), (2.5 Hour(s))	*Danio rerio* (Zebra Danio), Larva, 6 Days post fertilization, Not Reported, Laboratory (AQUATIC RESEARCH ORGANISMS, HAMPTON, NH AND EKKWILL WATERLIFE RESOURCES, RUSKIN, FL)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Unmeasured	0 uM /0 uM /0 uM /12.0 uM /21.0 uM /37.6 uM /67.2 uM /120.0 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	LOEL (12.0 uM)	Behavioral	High	4180931
115-96-8	148.233-152.233 Hour(s), (150-154 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, Not Reported, Laboratory (AQUATIC RESEARCH ORGANISMS, HAMPTON, NH AND EKKWILL WATERLIFE RESOURCES, RUSKIN, FL)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 uM /0 uM /0 uM /12.0 uM /21.0 uM /37.6 uM /67.2 uM /120.0 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	LOEL (12.0 uM)	Behavioral	High	4180931
115-96-8	3 Hour(s), (3 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 48-54 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Static, 20 Organism	Unmeasured	0 uM /1 uM /3 uM /10 uM /30 uM /100 uM	Physiology (Physiology-Relative bradycardia, Response Site: Not reported)	NOEC (100 uM)	Cardiovascular	High	5164137
115-96-8	3 Hour(s), (3 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 48-54 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Static, 20 Organism	Unmeasured	0 uM /1 uM /3 uM /10 uM /30 uM /100 uM	Physiology (Physiology-Heart rate, Response Site: Not reported)	NOEC (100 uM)	Cardiovascular	High	5164137

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115-96-8	3 Hour(s), (3 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 48-54 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Static, 20 Organism	Unmeasured	0 uM /1 uM /3 uM /10 uM /30 uM /100 uM	Physiology (Physiology-Abnormal ECG (electrocardiogram), Response Site: Not reported)	NOEC (100 uM)	Cardiovascular	High	5164137
115-96-8	3 Hour(s), (3 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 48-54 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Static, 20 Organism	Unmeasured	0 uM /1 uM /3 uM /10 uM /30 uM /100 uM	Physiology (Physiology-Abnormal ECG (electrocardiogram), Response Site: Not reported)	NOEC (100 uM)	Cardiovascular	High	5164137
115-96-8	3 Hour(s), (3 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 48-54 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Static, 20 Organism	Unmeasured	0 uM /1 uM /3 uM /10 uM /30 uM /100 uM	Physiology (Physiology-Relative bradycardia, Response Site: Not reported)	NOEC (100 uM)	Cardiovascular	High	5164137
115-96-8	44 Hour(s), (92 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Renewal, 10 Organism	Unmeasured	0 uM /100 uM /150 uM /200 uM /300 uM /400 uM /600 uM /800 uM /1000 uM	Growth (Development-Abnormal, Response Site: Not reported)	NOEC (400 uM); LOEC (600 uM)	Development/ Growth	High	5164137
115-96-8	44 Hour(s), (92 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 uM /100 uM /150 uM /200 uM /300 uM /400 uM /600 uM /800 uM /1000 uM	Growth (Development-Abnormal, Response Site: Not reported)	EC50 (521.2 (462.8-587.0) uM)	Development/ Growth	High	5164137
115-96-8	44 Hour(s), (92 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 uM /100 uM /150 uM /200 uM /300 uM /400 uM /600 uM /800 uM /1000 uM	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (>1000 uM)	Mortality	High	5164137

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115-96-8	44 Hour(s), (92 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Renewal, 15 Organism	Unmeasured	0 uM /10 uM /15 uM /30 uM /60 uM /100 uM	Growth (Development-Abnormal, Response Site: Not reported)	NOEC (>100 uM)	Development/ Growth	High	5164137
115-96-8	2920 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Cellular (Histology-Degeneration, Response Site: Liver)	NOEC (1000 uM)	Hepatic/Liver	High	5164137
115-96-8	2892 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (300 uM); LOEC (1000 uM)	Behavioral	High	5164137
115-96-8	2898 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (300 uM); LOEC (1000 uM)	Behavioral	High	5164137
115-96-8	2896 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	LOEC (1000 uM); NOEC (300 uM)	Behavioral	High	5164137
115-96-8	2916 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (300 uM); LOEC (1000 uM)	Behavioral	High	5164137

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115-96-8	2914 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (300 uM); LOEC (1000 uM)	Behavioral	High	5164137
115-96-8	2908 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NR (10-1000 uM)	Behavioral	High	5164137
115-96-8	2906 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NR (10-1000 uM)	Behavioral	High	5164137
115-96-8	2904 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (1000 uM)	Behavioral	High	5164137
115-96-8	2902 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (1000 uM)	Behavioral	High	5164137
115-96-8	2894 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (300 uM); LOEC (1000 uM)	Behavioral	High	5164137

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115-96-8	2920 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /15 uM /30 uM /60 uM /100 uM	Cellular (Histology-Degeneration, Response Site: Liver)	NOEC (100 uM)	Hepatic/Liver	High	5164137
115-96-8	2912 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (300 uM); LOEC (1000 uM)	Behavioral	High	5164137
115-96-8	2886 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (300 uM); LOEC (1000 uM)	Behavioral	High	5164137
115-96-8	2884 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (1000 uM)	Behavioral	High	5164137
115-96-8	2910 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NR (10-1000 uM)	Behavioral	High	5164137
115-96-8	2882 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (10 uM); LOEC (30 uM)	Behavioral	High	5164137

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115-96-8	2900 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NR (10-1000 uM)	Behavioral	High	5164137
115-96-8	2888 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (300 uM); LOEC (1000 uM)	Behavioral	High	5164137
115-96-8	2890 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (100 uM); LOEC (300 uM)	Behavioral	High	5164137
115-96-8	2920 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (300 uM); LOEC (1000 uM); NOEC (300 uM); LOEC (1000 uM)	Behavioral	High	5164137
115-96-8	2918 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /30 uM /100 uM /300 uM /1000 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (300 uM); LOEC (1000 uM)	Behavioral	High	5164137
115-96-8	2920 Minute(s), (2920 Minute(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Days post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Not reported, 16 Organism	Unmeasured	0 uM /10 uM /15 uM /30 uM /60 uM /100 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (100 uM)	Behavioral	High	5164137

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115-96-8	92 Hour(s), (92 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Renewal, 15 Organism	Unmeasured	0 uM /10 uM /15 uM /30 uM /60 uM /100 uM	Growth (Development-Abnormal, Response Site: Not reported)	NOEC (>100 uM)	Development/ Growth	High	5164137
115-96-8	92 Hour(s), (92 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Renewal, 10 Organism	Unmeasured	0 uM /100 uM /150 uM /200 uM /300 uM /400 uM /600 uM /800 uM /1000 uM	Accumulation (Accumulation-Residue, Response Site: Not reported)	NR (600 uM)	ADME (biotransformation)	High	5164137
115-96-8	92 Hour(s), (92 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 uM /100 uM /150 uM /200 uM /300 uM /400 uM /600 uM /800 uM /1000 uM	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (977.6 uM)	Mortality	High	5164137
115-96-8	92 Hour(s), (92 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 uM /100 uM /150 uM /200 uM /300 uM /400 uM /600 uM /800 uM /1000 uM	Growth (Development-Abnormal, Response Site: Not reported)	EC50 (415.2 uM)	Development/ Growth	High	5164137
115-96-8	92 Hour(s), (92 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 4 Hours post fertilization, Not Reported, Laboratory	Culture, Aqueous (aquatic habitat), Renewal, 10 Organism	Unmeasured	0 uM /100 uM /150 uM /200 uM /300 uM /400 uM /600 uM /800 uM /1000 uM	Growth (Development-Abnormal, Response Site: Not reported)	NOEC (400 uM); LOEC (600 uM)	Development/ Growth	High	5164137

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115-96-8	18 Hour(s), (114 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (SINNHUBER AQUATIC RESEARCH LABORATORY, OREGON STATE UNIVERSITY. CORVALLIS OREGON.)	Culture, Aqueous (aquatic habitat), Static, 32 Embryo	Unmeasured	0 uM /0.0064 uM /0.064 uM /0.64 uM /6.4 uM /64 uM	Growth (Development-Deformation, Response Site: Not reported)	NOEC (64 uM)	Development/ Growth	High	2953504
115-96-8	18 Hour(s), (114 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (SINNHUBER AQUATIC RESEARCH LABORATORY, OREGON STATE UNIVERSITY. CORVALLIS OREGON.)	Culture, Aqueous (aquatic habitat), Static, 31 Embryo	Unmeasured	0 uM /0.0064 uM /0.064 uM /0.64 uM /6.4 uM /64 uM	Behavior (Behavior-Phototactic response, Response Site: Not reported)	NOEC (64 uM); NOEC (64 uM); NOEC (64 uM)	Behavioral	High	2953504
115-96-8	18 Hour(s), (114 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (SINNHUBER AQUATIC RESEARCH LABORATORY, OREGON STATE UNIVERSITY. CORVALLIS OREGON.)	Culture, Aqueous (aquatic habitat), Static, 29-32 Embryo	Unmeasured	0 uM /0.0064 uM /0.064 uM /0.64 uM /6.4 uM /64 uM	Behavior (Behavior-Phototactic response, Response Site: Not reported)	NR (0.0064-64 uM)	Behavioral	High	2953504

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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
115-96-8	18 Hour(s), (114 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (SINNHUBER AQUATIC RESEARCH LABORATORY, OREGON STATE UNIVERSITY. CORVALLIS OREGON.)	Culture, Aqueous (aquatic habitat), Static, 32 Embryo	Unmeasured	0 uM /0.0064 uM /0.064 uM /0.64 uM /6.4 uM /64 uM	Growth (Development-Slowed, Retarded, Delayed or Non-development, Response Site: Not reported)	NOEC (64 uM)	Development/ Growth	High	2953504
115-96-8	18 Hour(s), (114 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (SINNHUBER AQUATIC RESEARCH LABORATORY, OREGON STATE UNIVERSITY. CORVALLIS OREGON.)	Culture, Aqueous (aquatic habitat), Static, 32 Embryo	Unmeasured	0 uM /0.0064 uM /0.064 uM /0.64 uM /6.4 uM /64 uM	Behavior (Behavior-Movements, number of, Response Site: Not reported)	NOEC (64 uM)	Behavioral	High	2953504
115-96-8	18 Hour(s), (114 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (SINNHUBER AQUATIC RESEARCH LABORATORY, OREGON STATE UNIVERSITY. CORVALLIS OREGON.)	Culture, Aqueous (aquatic habitat), Static, 32 Embryo	Unmeasured	0 uM /0.0064 uM /0.064 uM /0.64 uM /6.4 uM /64 uM	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (64 uM)	Mortality	High	2953504

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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
115-96-8	114 Hour(s), (114 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (SINNHUBER AQUATIC RESEARCH LABORATORY, OREGON STATE UNIVERSITY. CORVALLIS OREGON.)	Culture, Aqueous (aquatic habitat), Static, 32 Embryo	Unmeasured	0 uM /0.0064 uM /0.064 uM /0.64 uM /6.4 uM /64 uM	Behavior (Behavior-Mechanical stimulus response, Response Site: Not reported)	NOEC (64 uM)	Behavioral	High	2953504
115-96-8	114 Hour(s), (114 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization (Measured in: Larvae), Not Reported, Laboratory (SINNHUBER AQUATIC RESEARCH LABORATORY, OREGON STATE UNIVERSITY. CORVALLIS OREGON.)	Culture, Aqueous (aquatic habitat), Static, 31 Larvae	Unmeasured	0 uM /0.0064 uM /0.064 uM /0.64 uM /6.4 uM /64 uM	Behavior (Behavior-Phototactic response, Response Site: Not reported)	NOEC (6.4 uM); NOEC (6.4 uM); NOEC (6.4 uM)	Behavioral	High	2953504

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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
115-96-8	114 Hour(s), (114 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization (Measured in: Larvae), Not Reported, Laboratory (SINNHUBER AQUATIC RESEARCH LABORATORY, OREGON STATE UNIVERSITY. CORVALLIS OREGON.)	Culture, Aqueous (aquatic habitat), Static, 30 Larvae	Unmeasured	0 uM /0.0064 uM /0.064 uM /0.64 uM /6.4 uM /64 uM	Behavior (Behavior-Phototactic response, Response Site: Not reported)	LOEC (64 uM); LOEC (64 uM); LOEC (64 uM); NOEC (64 uM)	Behavioral	High	2953504
115-96-8	114 Hour(s), (114 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (SINNHUBER AQUATIC RESEARCH LABORATORY, OREGON STATE UNIVERSITY. CORVALLIS OREGON.)	Culture, Aqueous (aquatic habitat), Static, 32 Embryo	Unmeasured	0 uM /0.0064 uM /0.064 uM /0.64 uM /6.4 uM /64 uM	Growth (Development-Deformation, Response Site: Not reported)	NOEC (64 uM); NOEC (64 uM); NOEC (64 uM); NOEC (64 uM); NOEC (64 uM); NOEC (64 uM); NOEC (64 uM); NOEC (64 uM); NOEC (64 uM); NOEC (64 uM); NOEC (64 uM); NOEC (64 uM)	Development/ Growth	High	2953504

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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
115-96-8	114 Hour(s), (114 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (SINNHUBER AQUATIC RESEARCH LABORATORY, OREGON STATE UNIVERSITY. CORVALLIS OREGON.)	Culture, Aqueous (aquatic habitat), Static, 32 Embryo	Unmeasured	0 uM /0.0064 uM /0.064 uM /0.64 uM /6.4 uM /64 uM	Growth (Development-Slowed, Retarded, Delayed or Non-development, Response Site: Not reported)	NOEC (64 uM)	Development/ Growth	High	2953504
115-96-8	114 Hour(s), (114 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (SINNHUBER AQUATIC RESEARCH LABORATORY, OREGON STATE UNIVERSITY. CORVALLIS OREGON.)	Culture, Aqueous (aquatic habitat), Static, 32 Embryo	Unmeasured	0 uM /0.0064 uM /0.064 uM /0.64 uM /6.4 uM /64 uM	Physiology (Physiology-Swim bladder inflation, Response Site: Not reported)	NOEC (64 uM)	Development/ Growth	High	2953504
115-96-8	114 Hour(s), (114 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (SINNHUBER AQUATIC RESEARCH LABORATORY, OREGON STATE UNIVERSITY. CORVALLIS OREGON.)	Culture, Aqueous (aquatic habitat), Static, 32 Embryo	Unmeasured	0 uM /0.0064 uM /0.064 uM /0.64 uM /6.4 uM /64 uM	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (64 uM)	Mortality	High	2953504

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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
115-96-8	114 Hour(s), (114 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (SINNHUBER AQUATIC RESEARCH LABORATORY, OREGON STATE UNIVERSITY. CORVALLIS OREGON.)	Culture, Aqueous (aquatic habitat), Static, 32 Embryo	Unmeasured	0 uM /0.0064 uM /0.064 uM /0.64 uM /6.4 uM /64 uM	Cellular (Histology-Edema, Response Site: Yolk sac)	NOEC (64 uM)	Development/ Growth	High	2953504
115-96-8	114 Hour(s), (114 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 6 Hours post fertilization, Not Reported, Laboratory (SINNHUBER AQUATIC RESEARCH LABORATORY, OREGON STATE UNIVERSITY. CORVALLIS OREGON.)	Culture, Aqueous (aquatic habitat), Static, 32 Embryo	Unmeasured	0 uM /0.0064 uM /0.064 uM /0.64 uM /6.4 uM /64 uM	Cellular (Histology-Edema, Response Site: Pericardium)	NOEC (64 uM)	Development/ Growth	High	2953504
115-96-8	24 Hour(s), (24 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 72 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM /1 uM /3 uM /10 uM /30 uM	Multiple (Multiple-Multiple effects reported as one result, Response Site: Not reported)	NOEC (30 uM)	Mortality	High	7274629
115-96-8	24 Hour(s), (24 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 72 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM /1 uM /3 uM /10 uM /30 uM	Multiple (Multiple-Multiple effects reported as one result, Response Site: Not reported)	NOEC (30 uM)	Cardiovascular	High	7274629

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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
115-96-8	24 Hour(s), (24 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 72 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM /1 uM /3 uM /10 uM /30 uM	Multiple (Multiple-Multiple effects reported as one result, Response Site: Not reported)	NOEC (30 uM)	Development/ Growth	High	7274629
115-96-8	69 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Histology-Edema, Response Site: Not reported)	LOEC (28500 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	69 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Growth (Development-Deformation, Response Site: Not reported)	LOEC (28500 ug/L)	Development/ Growth	High	5469243

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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
115-96-8	69 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (3748.46 ug/L); LOEC (28.5 ug/L)	Mortality	High	5469243
115-96-8	93 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Histology-Edema, Response Site: Not reported)	LOEC (28500 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Peroxisome proliferator-activated receptor alpha a mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Ryanodine receptor 2a (cardiac) mRNA, Response Site: Not reported)	NR (2.85-285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Peroxisome proliferator-activated receptor gamma, coactivator 1 beta mRNA, Response Site: Not reported)	NOEC (28.5 ug/L); LOEC (285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Ryanodine receptor 1a (skeletal) mRNA, Response Site: Not reported)	NR (2.85-285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Retinoid X receptor, beta b mRNA, Response Site: Not reported)	LOEC (28.5 ug/L); NOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Ryanodine receptor 2b (cardiac) mRNA, Response Site: Not reported)	NR (2.85-285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Ryanodine receptor 1b (skeletal) mRNA, Response Site: Not reported)	NOEC (28.5 ug/L)	Mechanistic: Cell signaling/ function; Computation toxicology and data integration	High	5469243

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115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Histology-Edema, Response Site: Not reported)	LOEC (28500 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Ryanodine receptor 3 mRNA, Response Site: Not reported)	NOEC (285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Homeobox B5a mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Retinoid X receptor, alpha b mRNA, Response Site: Not reported)	NOEC (285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Retinoid X Receptor alpha mRNA, Response Site: Not reported)	NR (2.85-285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Retinoid X Receptor beta mRNA, Response Site: Not reported)	NOEC (285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Homeobox B5b mRNA, Response Site: Not reported)	LOEC (285 ug/L); NOEC (28.5 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Retinoic acid receptor gamma b mRNA, Response Site: Not reported)	NOEC (28.5 ug/L); LOEC (285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Retinoic acid receptor alpha-A mRNA, Response Site: Not reported)	NOEC (285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Retinoid X Receptor gamma mRNA, Response Site: Not reported)	NOEC (285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Dehydrogenase/ reductase (SDR family) member 3a mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Homeobox B1b mRNA, Response Site: Not reported)	NR (2.85-285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Pregnane X receptor mRNA, Response Site: Not reported)	LOEC (285 ug/L); NOEC (28.5 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Cytochrome P450, family 3, subfamily A, polypeptide 65 mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Retinoic acid receptor, alpha b mRNA, Response Site: Not reported)	NR (2.85-285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-UGT1a1 mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Hepatocyte nuclear factor 4 alpha mRN, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-POU class 1 homeobox 1 mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-ATP-binding cassette sub-family F member 2 mRNA, Response Site: Not reported)	NR (2.85-285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Cytochrome P450 family 24 subfamily A member 1 mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Peroxisome proliferator-activated receptor gamma mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Ubiquitin-conjugating enzyme E2Ib mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Transforming growth factor beta-1 mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-V-rel avian reticuloendotheliosis viral oncogene homolog A mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetic Heparanases-mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Heat shock protein 90 alpha mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Vitellogenin 2 mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Retinoic acid receptor RXR gamma B mRNA, Response Site: Not reported)	NR (2.85-285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Progesterone receptor mRNA, Response Site: Not reported)	2.85-285 ug/L	Mechanistic: Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Peroxisome proliferator activated receptor gamma coactivator 1 alpha mRNA, Response Site: Not reported)	NR (2.85-285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Vitellogenin 1 mRNA, Response Site: Not reported)	2.85-285 ug/L	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Computation toxicology and data integration	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Vitellogenin 4 mRNA, Response Site: Not reported)	2.85-285 ug/L	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Interleukin 6 mRNA, Response Site: Not reported)	NOEC (285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Cyclin D1 mRNA, Response Site: Not reported)	NOEC (285 ug/L)	Mechanistic: Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Nuclear receptor coactivator 2 mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Death associated protein 3 mRNA, Response Site: Not reported)	NOEC (2.85 ug/L); LOEC (28.5 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Estrogen receptor alpha mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Accumulation (Accumulation-Residue, Response Site: Not reported)	NR (2.85-28500 ug/L)	Other (please specify below)	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Nuclear receptor coactivator 1 mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Retinoic acid receptor RXR-gamma-A mRNA, Response Site: Not reported)	NR (2.85-285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Nuclear receptor coactivator 3 mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Estrogen receptor beta2 protein mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Estrogen receptor alpha 2 mRNA, Response Site: Not reported)	NOEC (2.85 ug/L); LOEC (28.5 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Catenin beta 1 mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-egfr mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-CYP19b mRNA, Response Site: Not reported)	NOEC (285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Cytochrome P450 26A1 mRNA, Response Site: Not reported)	NR (2.85-285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Glucocorticoid receptor mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Lipoprotein lipase mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Deoxyuridine triphosphatase mRNA, Response Site: Not reported)	NOEC (285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Interleukin 8 mRNA, Response Site: Not reported)	NR (2.85-285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Adrenoceptor beta 2, surface b mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Growth (Development-Deformation, Response Site: Not reported)	LOEC (28500 ug/L)	Development/ Growth	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Mineralocorticoid receptor mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Proliferation-associated 2G4, b mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Nuclear receptor coactivator 4 mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Proliferation-associated 2G4, a mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Androgen receptor mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Thyroid hormone receptor alpha-A mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Nuclear receptor corepressor 2 mRNA, Response Site: Not reported)	NOEC (2.85 ug/L); LOEC (28.5 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Histone deacetylase 3 mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Cloudy mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Adrenoceptor beta 2, surface a mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Ryanodine receptor 1b (skeletal) mRNA, Response Site: Not reported)	LOEC (285 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-Nuclear receptor co-repressor mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-FUS RNA binding protein mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243

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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
115-96-8	117 Hour(s), (117 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 3 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Chemical analysis reported	0 ug/L /2.85 ug/L /28.5 ug/L /285 ug/L /14250 ug/L /28500 ug/L	Cellular (Genetics-11beta-Hydroxysteroid dehydrogenase mRNA, Response Site: Not reported)	LOEC (2.85 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function	High	5469243
115-96-8	90.75 Hour(s), (90.75 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 5.25 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM /0.05-50 uM	Growth (Development-Slowed, Retarded, Delayed or Non-development, Response Site: Not reported)	NR (0.05-50 uM)	Development/ Growth	High	1449080
115-96-8	90.75 Hour(s), (90.75 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 5.25 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM /0.05-50 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NR (0.05-50 uM)	Behavioral	High	1449080
115-96-8	90.75 Hour(s), (90.75 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 5.25 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM /0.05-50 uM	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (50 uM)	Mortality	High	1449080
115-96-8	90.75 Hour(s), (90.75 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 5.25 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM /0.05-50 uM	Growth (Development-Deformation, Response Site: Not reported)	NR (0.05-50 uM)	Development/ Growth	High	1449080

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115-96-8	90.75 Hour(s), (90.75 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 5.25 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM /50 uM	Growth (Development-Abnormal, Response Site: Not reported)	NR (50 uM)	Development/ Growth	High	1449080
115-96-8	90.75 Hour(s), (90.75 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 5.25 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM /0.05-50 uM	Growth (Morphology-General morphological changes, Response Site: Nervous tissue)	NR (0.05-50 uM)	Development/ Growth	High	1449080
115-96-8	90.75 Hour(s), (90.75 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 5.25 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM /0.05-50 uM	Biochemical (Enzyme(s)-Acetylcholinesterase, Response Site: Whole organism)	NR (0.05-50 uM)	Mechanistic: Biomarkers (exposure and effect)	Uninformative	1449080
115-96-8	95.25 Hour(s), (95.25 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, 0.75 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 uM /50 uM	Growth (Development-Abnormal, Response Site: Not reported)	NR (50 uM)	Development/ Growth	High	1449080
115-96-8	96 Hour(s), (96 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, <2 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	Not Coded	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (202 mg/L)	Mortality	Uninformative	4290535

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115-96-8	96 Hour(s), (96 Hour(s))	*Danio rerio* (Zebra Danio), Embryo, <2 Hours post fertilization, Not Reported, Laboratory (INSTITUTE OF HYDROBIOLOGY, CHINESE ACADEMY OF SCIENCES, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	Not Coded	Cellular (Histology-Edema, Response Site: Pericardium)	EC50 (179 mg/L)	Cardiovascular	Uninformative	4290535
115-96-8	96 Hour(s), (96 Hour(s))	*Danio rerio* (Zebra Danio), Not reported, Not reported, Not reported (NR)	Fresh water, Aqueous (aquatic habitat), Not reported, Not reported	Unmeasured	Not coded	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (151.4 mg/L)	Mortality	Uninformative	5166352
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Biochemical (Biochemistry-Choline, Response Site: Not reported)	NOEC (2486.76 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469290
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Biochemical (Enzyme(s)-Acetylcholinesterase, Response Site: Not reported)	NOEC (2486.76 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469290
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Cellular (Genetics-Myelin basic protein A mRNA, Response Site: Not reported)	NOEC (114.2 ug/L); LOEC (520.37 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469290

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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
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Cellular (Genetics-Synapsin IIa mRNA, Response Site: Not reported)	NOEC (114.2 ug/L); LOEC (520.37 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469290
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Cellular (Genetics-Tubulin alpha chain mRNA, Response Site: Not reported)	NOEC (520.37 ug/L); LOEC (2486.76 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469290
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Cellular (Genetics-Growth associated protein 43 mRNA, Response Site: Not reported)	NOEC (520.37 ug/L); LOEC (2486.76 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469290
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Biochemical (Biochemistry-Myelin, Response Site: Not reported)	NOEC (114.2 ug/L); LOEC (520.37 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469290
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEC (2486.76 ug/L)	Mortality	High	5469290
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Growth (Development-Abnormal, Response Site: Not reported)	NOEC (2486.76 ug/L)	Development/ Growth	High	5469290

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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
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Reproduction (Reproduction-Hatch, Response Site: Not reported)	NOEC (2486.76 ug/L)	Reproductive/ Teratogenic	High	5469290
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Biochemical (Biochemistry-Synapsin IIa, Response Site: Not reported)	LOEC (114.2 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469290
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Biochemical (Biochemistry-Acetylcholine, Response Site: Not reported)	NOEC (2486.76 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469290
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Cellular (Genetics-Acetylcholinesterase mRNA, Response Site: Not reported)	NOEC (2486.76 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469290
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Biochemical (Biochemistry-alpha-Tubulin, Response Site: Not reported)	LOEC (520.37 ug/L); NOEC (114.2 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469290
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Cellular (Genetics-Glial fibrillary acidic protein mRNA, Response Site: Not reported)	NOEC (520.37 ug/L); LOEC (2486.76 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469290

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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
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Biochemical (Hormone(s)-Serotonin, Response Site: Not reported)	NOEC (2486.76 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469290
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Cellular (Genetics-Sonic hedgehog a mRNA, Response Site: Not reported)	NOEC (520.37 ug/L); LOEC (2486.76 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469290
115-96-8	118 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Biochemical (Hormone(s)-Dopamine, Response Site: Not reported)	NOEC (2486.76 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469290
115-96-8	118.083 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Behavior (Behavior-Swimming, Response Site: Not reported)	NOEC (520.37 ug/L); LOEC (2486.76 ug/L)	Behavioral	High	5469290
115-96-8	118.167 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Behavior (Behavior-Swimming, Response Site: Not reported)	NOEC (2486.76 ug/L)	Behavioral	High	5469290
115-96-8	118.25 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Behavior (Behavior-Swimming, Response Site: Not reported)	NOEC (520.37 ug/L); LOEC (2486.76 ug/L)	Behavioral	High	5469290

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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
115-96-8	118.33 Hour(s), (118.33 Hour(s))	*Danio rerio* (Zebra Danio), Blastula, 2 Hours post fertilization, Not Reported, Laboratory	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Measured	0 ug/L /0 ug/L /114.2 ug/L /520.37 ug/L /2486.76 ug/L	Behavior (Behavior-Swimming, Response Site: Not reported)	NOEC (2486.76 ug/L)	Behavioral	High	5469290
115-96-8	5 Day(s), (5 Day(s))	*Danio rerio* (Zebra Danio), Embryo, <2 Hours post fertilization, Not Reported, Laboratory (FROM THE INSTITUTE OF HYDROBIOLOGY OF THE CHINESE ACADEMY OF SCIENCE, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-Synapsin IIa mRNA, Response Site: Not reported)	NR (50-6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469203
115-96-8	5 Day(s), (5 Day(s))	*Danio rerio* (Zebra Danio), Embryo, <2 Hours post fertilization, Not Reported, Laboratory (FROM THE INSTITUTE OF HYDROBIOLOGY OF THE CHINESE ACADEMY OF SCIENCE, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-Glial fibrillary acidic protein mRNA, Response Site: Not reported)	NOEC (250 ug/L); LOEC (1250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469203

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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
115-96-8	5 Day(s), (5 Day(s))	*Danio rerio* (Zebra Danio), Embryo, <2 Hours post fertilization, Not Reported, Laboratory (FROM THE INSTITUTE OF HYDROBIOLOGY OF THE CHINESE ACADEMY OF SCIENCE, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-Sonic hedgehog a mRNA, Response Site: Not reported)	NR (50-6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469203
115-96-8	5 Day(s), (5 Day(s))	*Danio rerio* (Zebra Danio), Embryo, <2 Hours post fertilization, Not Reported, Laboratory (FROM THE INSTITUTE OF HYDROBIOLOGY OF THE CHINESE ACADEMY OF SCIENCE, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-Growth associated protein 43 mRNA, Response Site: Not reported)	NOEC (6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469203
115-96-8	5 Day(s), (5 Day(s))	*Danio rerio* (Zebra Danio), Embryo, <2 Hours post fertilization, Not Reported, Laboratory (FROM THE INSTITUTE OF HYDROBIOLOGY OF THE CHINESE ACADEMY OF SCIENCE, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Behavior (Behavior-Swimming, Response Site: Not reported)	LOEC (6250 ug/L); NOEC (1250 ug/L); NOEC (1250 ug/L); LOEC (6250 ug/L); NOEC (1250 ug/L); LOEC (6250 ug/L); NOEC (1250 ug/L); LOEC (6250 ug/L)	Behavioral	High	5469203

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115-96-8	5 Day(s), (5 Day(s))	*Danio rerio* (Zebra Danio), Embryo, <2 Hours post fertilization, Not Reported, Laboratory (FROM THE INSTITUTE OF HYDROBIOLOGY OF THE CHINESE ACADEMY OF SCIENCE, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-Myelin basic protein A mRNA, Response Site: Not reported)	NR (50-6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469203
115-96-8	5 Day(s), (5 Day(s))	*Danio rerio* (Zebra Danio), Embryo, <2 Hours post fertilization, Not Reported, Laboratory (FROM THE INSTITUTE OF HYDROBIOLOGY OF THE CHINESE ACADEMY OF SCIENCE, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-Tubulin alpha-1A chain mRNA, Response Site: Not reported)	NOEC (6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469203
115-96-8	5 Day(s), (5 Day(s))	*Danio rerio* (Zebra Danio), Embryo, <2 Hours post fertilization, Not Reported, Laboratory (FROM THE INSTITUTE OF HYDROBIOLOGY OF THE CHINESE ACADEMY OF SCIENCE, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-Acetylcholinesterase mRNA, Response Site: Not reported)	NOEC (6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469203

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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
115-96-8	5 Day(s), (5 Day(s))	*Danio rerio* (Zebra Danio), Embryo, <2 Hours post fertilization, Not Reported, Laboratory (FROM THE INSTITUTE OF HYDROBIOLOGY OF THE CHINESE ACADEMY OF SCIENCE, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-ELAV like neuron-specific RNA binding protein 3 mRNA, Response Site: Not reported)	NOEC (6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469203
115-96-8	5 Day(s), (5 Day(s))	*Danio rerio* (Zebra Danio), Embryo, <2 Hours post fertilization, Not Reported, Laboratory (FROM THE INSTITUTE OF HYDROBIOLOGY OF THE CHINESE ACADEMY OF SCIENCE, WUHAN, CHINA)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Biochemical (Enzyme(s)-Acetylcholinesterase, Response Site: Not reported)	NOEC (6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	5469203
115-96-8	1-5 Day(s), (5 Day(s))	*Danio rerio* (Zebra Danio), Embryo, 6-8 Hours post fertilization, Not Reported, Not reported	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Unmeasured	0 uM /1 uM	Accumulation (Accumulation-Residue, Response Site: Not reported)	NR (1 uM)	Nutritional and Metabolic	Uninformative	3014520
115-96-8	6 Day(s), (6 Day(s))	*Danio rerio* (Zebra Danio), Embryo, 0 Days post fertilization, Not Reported, Not reported	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 uM /0.033 uM / 0.1 uM />0.3-<0.4 uM / 1 uM /3.3 uM /10 uM /33 uM /100 uM	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (100 uM)	Mortality	High	3014520

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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
115-96-8	6 Day(s), (6 Day(s))	*Danio rerio* (Zebra Danio), Embryo, 0 Days post fertilization, Not Reported, Not reported	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 uM /0.033 uM / 0.1 uM />0.3-<0.4 uM / 1 uM /3.3 uM /10 uM /33 uM /100 uM	Growth (Development-Teratogenic measurements, Response Site: Not reported)	NOEC (100 uM)	Development/ Growth	High	3014520
115-96-8	0-6 Day(s), (6 Day(s))	*Danio rerio* (Zebra Danio), Embryo, 0 Days post fertilization, Not Reported, Not reported	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 uM /0.033 uM / 0.1 uM />0.3-<0.4 uM / 1 uM /3.3 uM /10 uM /33 uM /100 uM	Mortality (Mortality-Survival, Response Site: Not reported)	NR (0.033-100 uM)	Mortality	High	3014520
115-96-8	6 Day(s), (6 Day(s))	*Danio rerio* (Zebra Danio), Embryo, 0 Days post fertilization, Not Reported, Not reported	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 uM /9.8 uM /17.6 uM /31.4 uM /56 uM /100 uM	Behavior (Behavior-Swimming, Response Site: Not reported)	NOEC (100 uM); NR (9.8-100 uM)	Behavioral	High	3014520
115-96-8	5.66-5.75 Day(s), (5.66-5.75 Day(s))	*Danio rerio* (Zebra Danio), Embryo, 6-8 Hours post fertilization, Not Reported, Laboratory (AQUATIC RESEARCH ORGANISMS, HAMPTON, NEW HAMPSHIRE)	Culture, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 uM /0.04 uM />1-<10 uM />1-<10 uM />10-<100 uM />10-<100 uM /120 uM	Mortality (Mortality-Mortality, Response Site: Not reported)	NR (0.04-120 uM)	Mortality	Uninformative	3479540
115-96-8	5.66-5.75 Day(s), (5.66-5.75 Day(s))	*Danio rerio* (Zebra Danio), Embryo, 6-8 Hours post fertilization, Not Reported, Laboratory (AQUATIC RESEARCH ORGANISMS, HAMPTON, NEW HAMPSHIRE)	Culture, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 uM /0.04 uM />1-<10 uM />1-<10 uM />10-<100 uM />10-<100 uM /120 uM	Growth (Development-Abnormal, Response Site: Not reported)	NOEC (120 uM)	Development/ Growth	Medium	3479540

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115-96-8	15 Minute(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (SUPPLIED BY HAUXTON FISHERY SERVICES, CAMBRIDGE)	Fresh water, Aqueous (aquatic habitat), Static, 5 Organism	Unmeasured	0 mg/L /10 mg/L /100 mg/L /1000 mg/L /10000 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-LETH (1000 mg/L)	Mortality	High	6310866
115-96-8	2 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (SUPPLIED BY HAUXTON FISHERY SERVICES, CAMBRIDGE)	Fresh water, Aqueous (aquatic habitat), Static, 10 Organism	Unmeasured	0 mg/L /25 mg/L /50 mg/L /100 mg/L /200 mg/L / 400 mg/L /800 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-LETH (800 mg/L)	Mortality	High	6310866
115-96-8	24-96 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (SUPPLIED BY HAUXTON FISHERY SERVICES, CAMBRIDGE)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L /25 mg/L /50 mg/L /100 mg/L /200 mg/L / 400 mg/L /800 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (249 mg/L)	Mortality	High	6310866
115-96-8	96 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (SUPPLIED BY HAUXTON FISHERY SERVICES, CAMBRIDGE)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L /10 mg/L /100 mg/L /1000 mg/L /10000 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (316 mg/L)	Mortality	High	6310866

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115-96-8	96 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (SUPPLIED BY HAUXTON FISHERY SERVICES, CAMBRIDGE)	Fresh water, Aqueous (aquatic habitat), Static, Not Reported	Unmeasured	0 mg/L /25 mg/L /50 mg/L /100 mg/L /200 mg/L / 400 mg/L /800 mg/L	Multiple (Multiple-Multiple effects reported as one result, Response Site: Not reported)	NOEC (50 mg/L)	Behavioral	Medium	6310866
115-96-8	96 Hour(s), (96 Hour(s))	*Oncorhynchus mykiss* (Rainbow Trout), Not reported, Not Reported, Laboratory (SUPPLIED BY HAUXTON FISHERY SERVICES, CAMBRIDGE)	Fresh water, Aqueous (aquatic habitat), Static, 5 Organism	Unmeasured	0 mg/L /10 mg/L /100 mg/L /1000 mg/L /10000 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	NR-ZERO (100 mg/L)	Mortality	High	6310866
115-96-8	96 Hour(s), (96 Hour(s))	*Oryzias latipes* (Japanese Medaka), Larva, <8 Hours post hatch, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Biochemical (Enzyme(s)-Acetylcholinesterase, Response Site: Not reported)	NOEC (6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	4292102

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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
115-96-8	96.167 Hour(s), (96.5 Hour(s))	*Oryzias latipes* (Japanese Medaka), Larva, <8 Hours post hatch, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Behavior (Behavior-Swimming, Response Site: Not reported)	NOEC (6250 ug/L)	Behavioral	High	4292102
115-96-8	96.333 Hour(s), (96.5 Hour(s))	*Oryzias latipes* (Japanese Medaka), Larva, <8 Hours post hatch, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Behavior (Behavior-Swimming, Response Site: Not reported)	NOEC (6250 ug/L)	Behavioral	High	4292102
115-96-8	96.5 Hour(s), (96.5 Hour(s))	*Oryzias latipes* (Japanese Medaka), Larva, <8 Hours post hatch, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-Synapsin IIa mRNA, Response Site: Not reported)	NOEC (1250 ug/L); LOEC (6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	4292102

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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
115-96-8	96.5 Hour(s), (96.5 Hour(s))	*Oryzias latipes* (Japanese Medaka), Larva, <8 Hours post hatch, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-ELAV like neuron-specific RNA binding protein 3 mRNA, Response Site: Not reported)	NOEC (6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	4292102
115-96-8	96.5 Hour(s), (96.5 Hour(s))	*Oryzias latipes* (Japanese Medaka), Larva, <8 Hours post hatch, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-Growth associated protein 43 mRNA, Response Site: Not reported)	NR (50-6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	4292102
115-96-8	96.5 Hour(s), (96.5 Hour(s))	*Oryzias latipes* (Japanese Medaka), Larva, <8 Hours post hatch, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-Tubulin alpha chain mRNA, Response Site: Not reported)	NOEC (6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	4292102

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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
115-96-8	96.5 Hour(s), (96.5 Hour(s))	*Oryzias latipes* (Japanese Medaka), Larva, <8 Hours post hatch, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-Myelin basic protein A mRNA, Response Site: Not reported)	NOEC (6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	4292102
115-96-8	96.5 Hour(s), (96.5 Hour(s))	*Oryzias latipes* (Japanese Medaka), Larva, <8 Hours post hatch, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Behavior (Behavior-Swimming, Response Site: Not reported)	NOEC (6250 ug/L); NOEC (6250 ug/L)	Behavioral	High	4292102
115-96-8	96.5 Hour(s), (96.5 Hour(s))	*Oryzias latipes* (Japanese Medaka), Larva, <8 Hours post hatch, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-Glial fibrillary acidic protein mRNA, Response Site: Not reported)	NR (50-6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	4292102

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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
115-96-8	96.5 Hour(s), (96.5 Hour(s))	*Oryzias latipes* (Japanese Medaka), Larva, <8 Hours post hatch, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-Sonic hedgehog a mRNA, Response Site: Not reported)	NOEC (1250 ug/L); LOEC (6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	4292102
115-96-8	96.5 Hour(s), (96.5 Hour(s))	*Oryzias latipes* (Japanese Medaka), Larva, <8 Hours post hatch, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Cellular (Genetics-Acetylcholinesterase mRNA, Response Site: Not reported)	NOEC (6250 ug/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Neurotoxicology	High	4292102
115-96-8	14 Day(s), (14 Day(s))	*Oryzias latipes* (Japanese Medaka), Embryo, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Reproduction (Reproduction-Hatch, Response Site: Not reported)	NOEC (6250 ug/L); NOEC (6250 ug/L)	Reproductive/ Teratogenic	High	4292102

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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
115-96-8	14 Day(s), (14 Day(s))	*Oryzias latipes* (Japanese Medaka), Embryo, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Growth (Development-Abnormal, Response Site: Not reported)	NOEC (6250 ug/L)	Development/ Growth	High	4292102
115-96-8	14 Day(s), (14 Day(s))	*Oryzias latipes* (Japanese Medaka), Embryo, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Physiology (Physiology-Heart rate, Response Site: Not reported)	NOEC (6250 ug/L)	Cardiovascular	High	4292102
115-96-8	14 Day(s), (14 Day(s))	*Oryzias latipes* (Japanese Medaka), Embryo, Not Reported, Laboratory (LABORATORY OF FRESHWATER FISH AT THE BIOSCIENCE CENTER OF NAGOYA UNIVERSITY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Not reported	0 ug/L /50 ug/L /250 ug/L /1250 ug/L /6250 ug/L	Growth (Growth-Length, Response Site: Whole organism)	NOEC (250 ug/L); LOEC (1250 ug/L)	Development/ Growth	High	4292102

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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
115-96-8	7 Day(s), (7 Day(s))	*Salmo salar* (Atlantic Salmon), Juvenile, Not Reported, Laboratory (SETTEFISKANLEGGET LUNDAMO AS, LUNDAMO, NORWAY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 mg/L /0.04 mg/L /0.2 mg/L /1 mg/L	Cellular (Genetics-Peroxisome proliferator-activated receptor alpha mRNA, Response Site: Liver)	LOEC (0.04 mg/L)	Mechanistic: Cell signaling/ function; Oxidative stress (including redox biology)	High	5469341
115-96-8	7 Day(s), (7 Day(s))	*Salmo salar* (Atlantic Salmon), Juvenile, Not Reported, Laboratory (SETTEFISKANLEGGET LUNDAMO AS, LUNDAMO, NORWAY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 mg/L /0.04 mg/L /0.2 mg/L /1 mg/L	Cellular (Genetics-Peroxisome proliferator-activated receptor beta mRNA, Response Site: Liver)	LOEC (0.04 mg/L)	Mechanistic: Cell signaling/ function; Oxidative stress (including redox biology)	High	5469341
115-96-8	7 Day(s), (7 Day(s))	*Salmo salar* (Atlantic Salmon), Juvenile, Not Reported, Laboratory (SETTEFISKANLEGGET LUNDAMO AS, LUNDAMO, NORWAY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 mg/L /0.04 mg/L /0.2 mg/L /1 mg/L	Cellular (Genetics-Peroxisome proliferator-activated receptor alpha mRNA, Response Site: Brain)	LOEC (0.04 mg/L)	Mechanistic: Cell signaling/ function; Oxidative stress (including redox biology)	High	5469341
115-96-8	7 Day(s), (7 Day(s))	*Salmo salar* (Atlantic Salmon), Juvenile, Not Reported, Laboratory (SETTEFISKANLEGGET LUNDAMO AS, LUNDAMO, NORWAY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 mg/L /0.04 mg/L /0.2 mg/L /1 mg/L	Cellular (Genetics-Peroxisome proliferator-activated receptor beta mRNA, Response Site: Brain)	LOEC (0.04 mg/L)	Mechanistic: Cell signaling/ function; Oxidative stress (including redox biology)	High	5469341

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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
115-96-8	7 Day(s), (7 Day(s))	*Salmo salar* (Atlantic Salmon), Juvenile, Not Reported, Laboratory (SETTEFISKANLEGGET LUNDAMO AS, LUNDAMO, NORWAY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 mg/L /0.04 mg/L /0.2 mg/L /1 mg/L	Cellular (Genetics-Peroxisome proliferator-activated receptor gamma mRNA, Response Site: Brain)	NR (0.04-1 mg/L)	Mechanistic: Cell signaling/ function; Oxidative stress (including redox biology)	High	5469341
115-96-8	7 Day(s), (7 Day(s))	*Salmo salar* (Atlantic Salmon), Juvenile, Not Reported, Laboratory (SETTEFISKANLEGGET LUNDAMO AS, LUNDAMO, NORWAY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 mg/L /0.04 mg/L /0.2 mg/L /1 mg/L	Cellular (Genetics-Glutathione S-transferase mRNA, Response Site: Liver)	LOEC (1 mg/L); NOEC (0.2 mg/L)	Mechanistic: Cell signaling/ function; Oxidative stress (including redox biology)	High	5469341
115-96-8	7 Day(s), (7 Day(s))	*Salmo salar* (Atlantic Salmon), Juvenile, Not Reported, Laboratory (SETTEFISKANLEGGET LUNDAMO AS, LUNDAMO, NORWAY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 mg/L /0.04 mg/L /0.2 mg/L /1 mg/L	Cellular (Genetics-Glutathione Peroxidase mRNA, Response Site: Liver)	NR (0.04-1 mg/L)	Mechanistic: Cell signaling/ function; Oxidative stress (including redox biology)	High	5469341
115-96-8	7 Day(s), (7 Day(s))	*Salmo salar* (Atlantic Salmon), Juvenile, Not Reported, Laboratory (SETTEFISKANLEGGET LUNDAMO AS, LUNDAMO, NORWAY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 mg/L /0.04 mg/L /0.2 mg/L /1 mg/L	Cellular (Genetics-Glutathione reductase mRNA, Response Site: Liver)	NR (0.04-1 mg/L)	Mechanistic: Cell signaling/ function; Oxidative stress (including redox biology)	High	5469341

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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
115-96-8	7 Day(s), (7 Day(s))	*Salmo salar* (Atlantic Salmon), Juvenile, Not Reported, Laboratory (SETTEFISKANLEGGET LUNDAMO AS, LUNDAMO, NORWAY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 mg/L /0.04 mg/L /0.2 mg/L /1 mg/L	Cellular (Genetics-Peroxisome proliferator-activated receptor gamma mRNA, Response Site: Liver)	LOEC (0.04 mg/L)	Mechanistic: Cell signaling/ function; Oxidative stress (including redox biology)	High	5469341
115-96-8	7 Day(s), (7 Day(s))	*Salmo salar* (Atlantic Salmon), Juvenile, Not Reported, Laboratory (SETTEFISKANLEGGET LUNDAMO AS, LUNDAMO, NORWAY)	Fresh water, Aqueous (aquatic habitat), Renewal, Not Reported	Unmeasured	0 mg/L /0.04 mg/L /0.2 mg/L /1 mg/L	Biochemical (Biochemistry-Thiobarbituric acid reactive substances, Response Site: Liver)	LOEC (0.04 mg/L)	Mechanistic: Cell signaling/ function; Oxidative stress (including redox biology)	High	5469341

* 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
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Metabolome, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Phenylalanine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Tyrosine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Valine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752

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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
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Leucine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Isoleucine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Glycine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Serine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752

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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
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Alanine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Glutamate, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Glutamine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Asparagine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752

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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
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Methionine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Arginine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Lysine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Serine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752

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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
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Tryptophan, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Threonine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Glucose, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Tryptophan, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752

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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
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Isoleucine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Alanine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Glutamate, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Asparagine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752

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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
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Methionine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Threonine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Metabolome, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Proline, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752

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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
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Leucine, Response Site: Not reported)	LOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Proline, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Arginine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Lysine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752

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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
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Phenylalanine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Tyrosine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Glutamine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Valine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752

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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
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Glycine, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752
115-96-8	48 Hour(s), (48 Hour(s))	*Daphnia magna* (Water Flea), Adult, 16 Day(s), Not Reported, Laboratory (WARD SCIENCE CANADA, ST. CATHERINES, ONTARIO)	Fresh water, Aqueous (aquatic habitat), Aquatic - not reported, Not Reported	Measured	0 mg/L /25.0-26.7 mg/L	Biochemical (Biochemistry-Glucose, Response Site: Not reported)	NOEC (25.0-26.7 mg/L)	Mechanistic: Biomarkers (exposure and effect); Cell signaling/ function; Nutritional and Metabolic	High	5184752

* 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
115-96-8	7 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (100 uM)	Mortality	Medium	5469417
115-96-8	7 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (100 uM)	Mortality	Medium	5469417
115-96-8	7 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (100 uM)	Behavioral	Medium	5469417
115-96-8	7 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (100 uM)	Behavioral	Medium	5469417

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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
115-96-8	7 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Phototactic response, Response Site: Not reported)	NOEC (100 uM)	Behavioral	Medium	5469417
115-96-8	7 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Phototactic response, Response Site: Not reported)	NOEC (100 uM)	Behavioral	Medium	5469417
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Phototactic response, Response Site: Not reported)	NOEC (100 uM)	Behavioral	Medium	5469417
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (100 uM)	Behavioral	Medium	5469417

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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
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (100 uM)	Mortality	Medium	5469417
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Escape response, Response Site: Not reported)	NOEC (100 uM)	Behavioral	Medium	5469417
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (100 uM)	Mortality	Medium	5469417
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (100 uM)	Behavioral	Medium	5469417

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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
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Phototactic response, Response Site: Not reported)	NOEC (100 uM)	Behavioral	Medium	5469417
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Thermotaxis, Response Site: Not reported)	NOEC (100 uM)	Behavioral	Medium	5469417
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Escape response, Response Site: Not reported)	NOEC (100 uM)	Behavioral	Medium	5469417
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 6 Organism	Unmeasured	0 uM /100 uM	Biochemical (Enzyme(s)-Cholinesterase, Response Site: Not reported)	NR (100 uM)	Other (please specify below)	Medium	5469417

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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
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Growth (Growth-Limb/body part regeneration, Response Site: Eye)	NOEC (100 uM)	Development/ Growth	Medium	5469417
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Adult, Not Reported, Laboratory (LAB STOCK ORIGINALLY FROM SHANGHAI UNIVERSITY, SHANGHAI, CHINA)	Fresh water, Aqueous (aquatic habitat), Static, 8 Organism	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Thermotaxis, Response Site: Not reported)	NOEC (100 uM)	Behavioral	Medium	5469417
115-96-8	7 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Not reported, Not Reported, Laboratory (FROM STOCK CULTURE, ORIGINALLY FROM SHANGHAI UNIVERSITY, CHINA)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (100 uM)	Behavioral	High	10064285
115-96-8	7 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Not reported, Not Reported, Laboratory (FROM STOCK CULTURE, ORIGINALLY FROM SHANGHAI UNIVERSITY, CHINA)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Phototactic response, Response Site: Not reported)	NOEC (100 uM)	Behavioral	High	10064285

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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
115-96-8	7 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Not reported, Not Reported, Laboratory (FROM STOCK CULTURE, ORIGINALLY FROM SHANGHAI UNIVERSITY, CHINA)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Growth (Growth-Limb/body part regeneration, Response Site: Eye)	NOEC (100 uM)	Development/ Growth	High	10064285
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Not reported, Not Reported, Laboratory (FROM STOCK CULTURE, ORIGINALLY FROM SHANGHAI UNIVERSITY, CHINA)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEC (100 uM)	Mortality	High	10064285
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Not reported, Not Reported, Laboratory (FROM STOCK CULTURE, ORIGINALLY FROM SHANGHAI UNIVERSITY, CHINA)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Phototactic response, Response Site: Not reported)	NOEC (100 uM)	Behavioral	High	10064285
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Not reported, Not Reported, Laboratory (FROM STOCK CULTURE, ORIGINALLY FROM SHANGHAI UNIVERSITY, CHINA)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Thermotaxis, Response Site: Not reported)	NOEC (100 uM)	Behavioral	High	10064285

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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
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Not reported, Not Reported, Laboratory (FROM STOCK CULTURE, ORIGINALLY FROM SHANGHAI UNIVERSITY, CHINA)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEC (100 uM)	Behavioral	High	10064285
115-96-8	12 Day(s), (12 Day(s))	*Dugesia japonica* (Flatworm), Not reported, Not Reported, Laboratory (FROM STOCK CULTURE, ORIGINALLY FROM SHANGHAI UNIVERSITY, CHINA)	Fresh water, Aqueous (aquatic habitat), Not reported, Not Reported	Unmeasured	0 uM /0.01 uM /0.1 uM /1 uM /10 uM /100 uM	Behavior (Behavior-Escape response, Response Site: Not reported)	NOEC (100 uM)	Behavioral	High	10064285

* 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
115-96-8	24 Hour(s), (24 Hour(s))	*Caenorhabditis elegans* (Nematode), Young adult, Not Reported, Laboratory (CAENORHABDITIS GENETIC CENTER)	Culture, Environmental, Direct application, Not Reported	Unmeasured	0 uM /100 uM /130 uM /160 uM /200 uM /250 uM /320 uM /400 uM /500 uM /630 uM /790 uM /1000 uM	Behavior (Feeding behavior-Feeding behavior, Response Site: Not reported)	LOEL (5000 uM); EC50 (0.112977486 uM); EC50 (0.121068042 uM)	Behavioral	High	3975281
115-96-8	48 Hour(s), (48 Hour(s))	*Caenorhabditis elegans* (Nematode), Larva, 1 Larval stage index, Not Reported, Laboratory (CAENORHABDITIS GENETIC CENTER)	Culture, Environmental, Direct application, Not Reported	Unmeasured	0 uM /100 uM /130 uM /160 uM /200 uM /250 uM /320 uM /400 uM /500 uM /630 uM /790 uM /1000 uM	Growth (Development-Stage, Response Site: Not reported)	LOEL (5000 uM); EC50 (1721667002 (0-1.63E25) uM); EC50 (337.0372168 uM); EC50 (200.2536791 (195.38-205.25) uM)	Development/ Growth	High	3975281
115-96-8	48 Hour(s), (48 Hour(s))	*Caenorhabditis elegans* (Nematode), Larva, 4 Larval stage index, Not Reported, Laboratory (CAENORHABDITIS GENETIC CENTER)	Culture, Environmental, Direct application, Not Reported	Unmeasured	0 uM /100 uM /130 uM /160 uM /200 uM /250 uM /320 uM /400 uM /500 uM /630 uM /790 uM /1000 uM	Reproduction (Reproduction-Progeny counts/ numbers, Response Site: Not reported)	LOEL (5000 uM); EC50 (4278.823586 (52.83-346583.6) uM); EC50 (2286.052164 (250.45-20866.64) uM); EC50 (2046.827696 (919.09-4558.3) uM)	Reproductive/ Teratogenic	High	3975281
115-96-8	1 Day(s), (6 Day(s))	*Caenorhabditis elegans* (Nematode), Larva, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA, USA)	Agar, Environmental, Growth medium, Not Reported	Unmeasured	0 mg/L / 500-3000 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEL (500 mg/L); LOEL (1000 mg/L)	Mortality	High	5469475

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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
115-96-8	1 Day(s), (6 Day(s))	*Caenorhabditis elegans* (Nematode), Larva, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA, USA)	Agar, Environmental, Growth medium, Not Reported	Unmeasured	0 mg/L / 500-3000 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1825 (1597-2086) mg/L)	Mortality	High	5469475
115-96-8	3 Day(s), (6 Day(s))	*Caenorhabditis elegans* (Nematode), Larva, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA, USA)	Agar, Environmental, Growth medium, Not Reported	Unmeasured	0 mg/L / 500-3000 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEL (500 mg/L); LOEL (1000 mg/L)	Mortality	High	5469475
115-96-8	3 Day(s), (6 Day(s))	*Caenorhabditis elegans* (Nematode), Larva, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA, USA)	Agar, Environmental, Growth medium, Not Reported	Unmeasured	0 mg/L / 500-3000 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1578 (1294-1924) mg/L)	Mortality	High	5469475

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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
115-96-8	3 Day(s), (38 Day(s))	*Caenorhabditis elegans* (Nematode), Larva, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA, USA)	Agar, Environmental, Growth medium, Not Reported	Unmeasured	0 mg/L /50 mg/L /250 mg/L /500 mg/L /750 mg/L /1000 mg/L	Cellular (Cell(s)-Cell Viability, Response Site: Not reported)	NOEL (1000 mg/L)	Mechanistic: Biomarkers (exposure and effect)	High	5469475
115-96-8	3 Day(s), (38 Day(s))	*Caenorhabditis elegans* (Nematode), Larva, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA, USA)	Agar, Environmental, Growth medium, Not Reported	Unmeasured	0 mg/L /50 mg/L /250 mg/L /500 mg/L /750 mg/L /1000 mg/L	Cellular (Cell(s)-Cell Viability, Response Site: Whole organism)	NOEL (750 mg/L); LOEL (1000 mg/L)	Mechanistic: Biomarkers (exposure and effect)	High	5469475
115-96-8	3 Day(s), (38 Day(s))	*Caenorhabditis elegans* (Nematode), Larva, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA, USA)	Agar, Environmental, Growth medium, Not Reported	Unmeasured	0 mg/L /50 mg/L /250 mg/L /500 mg/L /750 mg/L /1000 mg/L	Cellular (Cell(s)-Cell Viability, Response Site: Tail)	LOEL (750 mg/L); NOEL (500 mg/L)	Mechanistic: Biomarkers (exposure and effect)	High	5469475

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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
115-96-8	3 Day(s), (38 Day(s))	*Caenorhabditis elegans* (Nematode), Larva, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA, USA)	Agar, Environmental, Growth medium, Not Reported	Unmeasured	0 mg/L /50 mg/L /250 mg/L /500 mg/L /750 mg/L /1000 mg/L	Behavior (Behavior-Distance moved, change in direct movement, Response Site: Not reported)	NOEL (250 mg/L); NOEL (250 mg/L); LOEL (500 mg/L); NOEL (250 mg/L); LOEL (500 mg/L); LOEL (500 mg/L); NOEL (1000 mg/L); NOEL (250 mg/L); LOEL (500 mg/L)	Neurological	High	5469475
115-96-8	3 Day(s), (38 Day(s))	*Caenorhabditis elegans* (Nematode), Larva, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA, USA)	Agar, Environmental, Growth medium, Not Reported	Unmeasured	0 mg/L /50 mg/L /250 mg/L /500 mg/L /750 mg/L /1000 mg/L	Mortality (Mortality-Lifespan, Response Site: Not reported)	NOEL (500 mg/L); LOEL (750 mg/L)	Mortality	Medium	5469475
115-96-8	3 Day(s), (38 Day(s))	*Caenorhabditis elegans* (Nematode), Larva, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA, USA)	Agar, Environmental, Growth medium, Not Reported	Unmeasured	0 mg/L /50 mg/L /250 mg/L /500 mg/L /750 mg/L /1000 mg/L	Biochemical (Biochemistry-Alpha-synuclein, Response Site: Muscle)	NOEL (250 mg/L); LOEL (500 mg/L)	Mechanistic: Biomarkers (exposure and effect)	High	5469475

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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
115-96-8	3 Day(s), (38 Day(s))	*Caenorhabditis elegans* (Nematode), Larva, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA, USA)	Agar, Environmental, Growth medium, Not Reported	Unmeasured	0 mg/L /50 mg/L /250 mg/L /500 mg/L /750 mg/L /1000 mg/L	Growth (Growth-Length, Response Site: Whole organism)	NOEL (500 mg/L); LOEL (750 mg/L)	Development/ Growth	High	5469475
115-96-8	6 Day(s), (6 Day(s))	*Caenorhabditis elegans* (Nematode), Larva, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA, USA)	Agar, Environmental, Growth medium, Not Reported	Unmeasured	0 mg/L / 500-3000 mg/L	Mortality (Mortality-Mortality, Response Site: Not reported)	LC50 (1381 (909-2100) mg/L)	Mortality	High	5469475
115-96-8	6 Day(s), (6 Day(s))	*Caenorhabditis elegans* (Nematode), Larva, Not Reported, Laboratory (CAENORHABDITIS GENETICS CENTER, UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA, USA)	Agar, Environmental, Growth medium, Not Reported	Unmeasured	0 mg/L / 500-3000 mg/L	Mortality (Mortality-Survival, Response Site: Not reported)	NOEL (500 mg/L); LOEL (1000 mg/L)	Mortality	High	5469475

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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
115-96-8	48 Hour(s), (48 Hour(s))	*Caenorhabditis elegans* (Nematode), Larva, 1 Larval stage index, Not Reported, Laboratory (CAENORHABDITIS GENETIC CENTER, MINNEAPOLIS, MINNESOTA)	Culture, Environmental, Culture medium, Not Reported	Unmeasured	0 uM / 100 uM />100-<1000 uM />100-<1000 uM />100-<1000 uM />100-<1000 uM />100-<1000 uM />100-<1000 uM />100-<1000 uM / 1000 uM	Growth (Development-Slowed, Retarded, Delayed or Non-development, Response Site: Not reported)	NOEL (1000 uM)	Development/ Growth	Medium	3479540
115-96-8	3 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Biochemical (Biochemistry-8-hydroxydeoxyguanosine, Response Site: Not reported)	LOEL (0.1 mg/kg dry soil)	Neurological	High	5469239
115-96-8	3 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Growth (Growth-Weight, Response Site: Whole organism)	NOEL (10 mg/kg dry soil)	Development/ Growth	High	5469239
115-96-8	3 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Cellular (Genetics-Damage, Response Site: Coelomocytes)	LOEL (1 mg/kg dry soil); NOEL (0.1 mg/kg dry soil); NOEL (0.1 mg/kg dry soil); LOEL (1 mg/kg dry soil)	Neurological	High	5469239

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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
115-96-8	3 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Biochemical (Enzyme(s)-Glutathione reductase, Response Site: Not reported)	LOEL (0.1 mg/kg dry soil)	Neurological	High	5469239
115-96-8	3 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Biochemical (Enzyme(s)-Acetylcholinesterase, Response Site: Not reported)	LOEL (0.1 mg/kg dry soil)	Neurological	High	5469239
115-96-8	7 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Biochemical (Enzyme(s)-Acetylcholinesterase, Response Site: Not reported)	NOEL (0.1 mg/kg dry soil); LOEL (1 mg/kg dry soil)	Neurological	High	5469239
115-96-8	7 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Biochemical (Enzyme(s)-Glutathione reductase, Response Site: Not reported)	LOEL (1 mg/kg dry soil); NOEL (0.1 mg/kg dry soil)	Neurological	High	5469239
115-96-8	7 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Cellular (Genetics-Damage, Response Site: Coelomocytes)	LOEL (1 mg/kg dry soil); NOEL (0.1 mg/kg dry soil); LOEL (1 mg/kg dry soil); NOEL (0.1 mg/kg dry soil)	Neurological	High	5469239

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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
115-96-8	7 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Growth (Growth-Weight, Response Site: Whole organism)	NR (0.1-10 mg/kg dry soil)	Development/ Growth	High	5469239
115-96-8	7 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Biochemical (Biochemistry-8-hydroxydeoxyguanosine, Response Site: Not reported)	LOEL (0.1 mg/kg dry soil)	Neurological	High	5469239
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Biochemical (Enzyme(s)-Glutathione reductase, Response Site: Not reported)	NR (0.1-10 mg/kg dry soil)	Neurological	High	5469239
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Biochemical (Biochemistry-8-hydroxydeoxyguanosine, Response Site: Not reported)	LOEL (0.1 mg/kg dry soil)	Neurological	High	5469239
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Biochemical (Enzyme(s)-Acetylcholinesterase, Response Site: Not reported)	NR (0.1-10 mg/kg dry soil)	Neurological	High	5469239

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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
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Cellular (Genetics-Neuronal acetylcholine receptor, Neurotransmitter-gated ion-channel ligand binding domain mRNA, Response Site: Not reported)	NOEL (1 mg/kg dry soil); LOEL (10 mg/kg dry soil)	Neurological	High	5469239
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Cellular (Genetics-EW1_F1P10_E08 mRNA, Response Site: Not reported)	NR (0.1-10 mg/kg dry soil)	Neurological	High	5469239
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Cellular (Genetics-Hexosaminidase mRNA, Response Site: Not reported)	NR (0.1-10 mg/kg dry soil)	Neurological	High	5469239
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Cellular (Genetics-Lr_PAHC_64C08 mRNA, Response Site: Not reported)	LOEL (0.1 mg/kg dry soil)	Neurological	High	5469239
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Growth (Growth-Weight, Response Site: Whole organism)	NR (0.1-10 mg/kg dry soil)	Development/ Growth	High	5469239

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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
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Cellular (Genetics-Chitinase mRNA, Response Site: Intestinal tract)	NR (0.1-10 mg/kg dry soil)	Neurological	High	5469239
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Cellular (Genetics-Damage, Response Site: Coelomocytes)	NOEL (0.1 mg/kg dry soil); LOEL (1 mg/kg dry soil); NOEL (0.1 mg/kg dry soil); LOEL (1 mg/kg dry soil)	Neurological	High	5469239
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Cellular (Genetics-Acetylcholinesterase mRNA, Response Site: Not reported)	LOEL (0.1 mg/kg dry soil)	Neurological	High	5469239
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Cellular (Genetics-GABAa Receptor mRNA, Response Site: Not reported)	NR (0.1-10 mg/kg dry soil)	Neurological	High	5469239
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Cellular (Genetics-Cathepsin L mRNA, Response Site: Intestinal tract)	NOEL (0.1 mg/kg dry soil); LOEL (1 mg/kg dry soil)	Gastrointestinal	High	5469239

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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
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Cellular (Genetics-Neuronal acetylcholine receptor, Neurotransmitter-gated ion-channel transmembrane region mRNA, Response Site: Not reported)	NR (0.1-10 mg/kg dry soil)	Neurological	High	5469239
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Mortality (Mortality-Mortality, Response Site: Not reported)	NOEL (10 mg/kg dry soil)	Mortality	High	5469239
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Cellular (Histology-Degeneration, Response Site: Intestinal tract)	LOEL (0.1 mg/kg dry soil)	Gastrointestinal	High	5469239
115-96-8	14 Day(s), (14 Day(s))	*Eisenia fetida* (Earthworm), Adult, Not Reported, Not reported (LOCAL FARMING FACTORY, JURONG, CHINA)	Artificial soil, Environmental, Direct application, Not Reported	Unmeasured	0 mg/kg dry soil /0.1 mg/kg dry soil /1 mg/kg dry soil /10 mg/kg dry soil	Cellular (Genetics-N-Terminal acetyltransferase mRNA, Response Site: Not reported)	NR (0.1-10 mg/kg dry soil)	Neurological	High	5469239

* 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
115-96-8	7 Day(s), (21 Day(s))	*Falco sparverius* (American Kestrel), Adult, 1 Year(s), Male, Not reported (CAPTIVE)	No substrate, Oral (diet, drink, gavage), Food, 7 Male organisms	Unmeasured	0 ng/g org/d /21.93 ng/g org/d	Biochemical (Hormone(s)-Thyroxine, Response Site: Plasma)	LOEL (21.93 ng/g org/d); NOEL (21.93 ng/g org/d)	ADME (biotransformation)	High	5353113
115-96-8	7 Day(s), (21 Day(s))	*Falco sparverius* (American Kestrel), Adult, 1 Year(s), Male, Not reported (CAPTIVE)	No substrate, Oral (diet, drink, gavage), Food, 7 Male organisms	Unmeasured	0 ng/g org/d /21.93 ng/g org/d	Biochemical (Hormone(s)-Triiodothyronine, Response Site: Plasma)	LOEL (21.93 ng/g org/d); NOEL (21.93 ng/g org/d)	ADME (biotransformation)	High	5353113
115-96-8	21 Day(s), (21 Day(s))	*Falco sparverius* (American Kestrel), Adult, 1 Year(s), Male, Not reported (CAPTIVE)	No substrate, Oral (diet, drink, gavage), Food, 7 Male organisms	Unmeasured	0 ng/g org/d /21.93 ng/g org/d	Cellular (Cell(s)-Height, Response Site: Thyroid)	LOEL (21.93 ng/g org/d)	Other (please specify below)	High	5353113
115-96-8	21 Day(s), (21 Day(s))	*Falco sparverius* (American Kestrel), Adult, 1 Year(s), Male, Not reported (CAPTIVE)	No substrate, Oral (diet, drink, gavage), Food, NA Male organisms	Unmeasured	0 ng/g org/d /21.93 ng/g org/d	Accumulation (Accumulation-Residue, Response Site: Liver)	NR (21.93 ng/g org/d)	ADME (biotransformation)	High	5353113
115-96-8	21 Day(s), (21 Day(s))	*Falco sparverius* (American Kestrel), Adult, 1 Year(s), Male, Not reported (CAPTIVE)	No substrate, Oral (diet, drink, gavage), Food, NA Male organisms	Unmeasured	0 ng/g org/d /21.93 ng/g org/d	Growth (Growth-Weight, Response Site: Whole organism)	NOEL (21.93 ng/g org/d)	Development/ Growth	High	5353113
115-96-8	21 Day(s), (21 Day(s))	*Falco sparverius* (American Kestrel), Adult, 1 Year(s), Male, Not reported (CAPTIVE)	No substrate, Oral (diet, drink, gavage), Food, NA Male organisms	Unmeasured	0 ng/g org/d /21.93 ng/g org/d	Growth (Growth-Weight gain, Response Site: Whole organism)	NOEL (21.93 ng/g org/d)	Development/ Growth	High	5353113
115-96-8	21 Day(s), (21 Day(s))	*Falco sparverius* (American Kestrel), Adult, 1 Year(s), Male, Not reported (CAPTIVE)	No substrate, Oral (diet, drink, gavage), Food, NA Male organisms	Unmeasured	0 ng/g org/d /21.93 ng/g org/d	Biochemical (Enzyme(s)-Alanine transaminase (ALT), Response Site: Plasma)	LOEL (21.93 ng/g org/d)	ADME (biotransformation)	High	5353113

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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
115-96-8	21 Day(s), (21 Day(s))	*Falco sparverius* (American Kestrel), Adult, 1 Year(s), Male, Not reported (CAPTIVE)	No substrate, Oral (diet, drink, gavage), Food, NA Male organisms	Unmeasured	0 ng/g org/d /21.93 ng/g org/d	Biochemical (Enzyme(s)-Alkaline phosphatase, Response Site: Plasma)	LOEL (21.93 ng/g org/d)	ADME (biotransformation)	High	5353113
115-96-8	21 Day(s), (21 Day(s))	*Falco sparverius* (American Kestrel), Adult, 1 Year(s), Male, Not reported (CAPTIVE)	No substrate, Oral (diet, drink, gavage), Food, NA Male organisms	Unmeasured	0 ng/g org/d /21.93 ng/g org/d	Biochemical (Biochemistry-Acid produced, Response Site: Bile)	NOEL (21.93 ng/g org/d)	Hepatic/Liver	High	5353113
115-96-8	21 Day(s), (21 Day(s))	*Falco sparverius* (American Kestrel), Adult, 1 Year(s), Male, Not reported (CAPTIVE)	No substrate, Oral (diet, drink, gavage), Food, NA Male organisms	Unmeasured	0 ng/g org/d /21.93 ng/g org/d	Growth (Morphology-Organ weight in relationship to body weight, Response Site: Organ)	NOEL (21.93 ng/g org/d)	Development/ Growth	High	5353113
115-96-8	21 Day(s), (21 Day(s))	*Falco sparverius* (American Kestrel), Adult, 1 Year(s), Male, Not reported (CAPTIVE)	No substrate, Oral (diet, drink, gavage), Food, NA Male organisms	Unmeasured	0 ng/g org/d /21.93 ng/g org/d	Biochemical (Biochemistry-Glutathione (reduced glutathione), Response Site: Liver)	NOEL (21.93 ng/g org/d)	Hepatic/Liver	High	5353113
115-96-8	21 Day(s), (21 Day(s))	*Falco sparverius* (American Kestrel), Adult, 1 Year(s), Male, Not reported (CAPTIVE)	No substrate, Oral (diet, drink, gavage), Food, 7 Male organisms	Unmeasured	0 ng/g org/d /21.93 ng/g org/d	Cellular (Cell(s)-Size, Response Site: Thyroid)	LOEL (21.93 ng/g org/d)	Other (please specify below)	High	5353113
115-96-8	21 Day(s), (21 Day(s))	*Falco sparverius* (American Kestrel), Adult, 1 Year(s), Male, Not reported (CAPTIVE)	No substrate, Oral (diet, drink, gavage), Food, 7 Male organisms	Unmeasured	0 ng/g org/d /21.93 ng/g org/d	Biochemical (Enzyme(s)-Type II iodothyronine deiodinase, Response Site: Liver)	NOEL (21.93 ng/g org/d)	Hepatic/Liver	High	5353113
115-96-8	21 Day(s), (21 Day(s))	*Falco sparverius* (American Kestrel), Adult, 1 Year(s), Male, Not reported (CAPTIVE)	No substrate, Oral (diet, drink, gavage), Food, 7 Male organisms	Unmeasured	0 ng/g org/d /21.93 ng/g org/d	Cellular (Cell(s)-Area, Response Site: Thyroid)	NOEL (21.93 ng/g org/d)	Other (please specify below)	High	5353113

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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
115-96-8	7-30 Day(s), (30 Day(s))	*Gallus gallus* (Chicken), 12 Month(s), Female, Not reported (NR)	No substrate, Injection, Injection, unspecified, Not Reported	Unmeasured	0 mg/kg bdwt/d /420 mg/kg bdwt/d	Physiology (Intoxication-Paralysis, Response Site: Not reported)	NR (420 mg/kg bdwt/d)	Behavioral	Uninformative	5165206

* 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, Source	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
115-96-8	2 year(s), (2 year(s))	Rat, Adult, Fischer 344/N, Male	Gavage	Chemical analysis reported	0 mg/kg /44 mg/kg /88 mg/kg	88	2-year NOEL / LOEL	Kidney/Renal	High	5469669
115-96-8	2 year(s), (2 year(s))	Rat, Adult, Fischer 344/N, Female	Gavage	Chemical analysis reported	0 mg/kg /44 mg/kg /88 mg/kg	88	2-year NOEL / LOEL	Kidney/Renal	High	5469669
115-96-8	2 year(s), (2 year(s))	Rat, Adult, Fischer 344/N, Male	Gavage	Chemical analysis reported	0 mg/kg /44 mg/kg /88 mg/kg	44	2-year NOEL / LOEL	Mortality	High	5469669
115-96-8	2 year(s), (2 year(s))	Rat, Adult, Fischer 344/N, Female	Gavage	Chemical analysis reported	0 mg/kg /44 mg/kg /88 mg/kg	44	2-year NOEL / LOEL	Mortality	High	5469669
115-96-8	2 year(s), (2 year(s))	Rat, Adult, Fischer 344/N, Male	Gavage	Chemical analysis reported	0 mg/kg /44 mg/kg /88 mg/kg	88	2-year NOEL / LOEL	Neurotoxicity	High	5469669
115-96-8	2 year(s), (2 year(s))	Rat, Adult, Fischer 344/N, Female	Gavage	Chemical analysis reported	0 mg/kg /44 mg/kg /88 mg/kg	88	2-year NOEL / LOEL	Neurotoxicity	High	5469669
115-96-8	16 week(s), (16 week(s))	Rat, Adult, Fischer 344/N, Male	Gavage	Chemical analysis reported	0 mg/kg /22 mg/kg /44 mg/kg /88 mg/kg /175 mg/kg /350 mg/kg	88 / 175	16-week NOEL / LOEL	Mortality	High	5469641
115-96-8	16 week(s), (16 week(s))	Rat, Adult, Fischer 344/N, Female	Gavage	Chemical analysis reported	0 mg/kg /22 mg/kg /44 mg/kg /88 mg/kg /175 mg/kg /350 mg/kg	175 / 350	16-week NOEL / LOEL	Mortality	High	5469641
115-96-8	16 week(s), (16 week(s))	Mice, Adult, B6C3F1, Male	Gavage	Chemical analysis reported	0 mg/kg /44 mg/kg /88 mg/kg /175 mg/kg /350 mg/kg /700 mg/kg	350 / 700	16-week NOEL / LOEL	Reproduction	High	5469641
115-96-8	16 week(s), (16 week(s))	Mice, Adult, B6C3F1, Female	Gavage	Chemical analysis reported	0 mg/kg /44 mg/kg /88 mg/kg /175 mg/kg /350 mg/kg /700 mg/kg	350 / 700	16-week NOEL / LOEL	Reproduction	High	5469641

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Data Extraction of Rodent Data for the Application of Environmental Hazard

CASRN	Exposure and Overall Duration	Test Organism Species, Age, Sex, Source	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
115-96-8	16 week(s), (16 week(s))	Mice, Adult, B6C3F1, Male	Gavage	Chemical analysis reported	0 mg/kg /44 mg/kg /88 mg/kg /175 mg/kg /350 mg/kg /700 mg/kg	350 / 700	16-week NOEL / LOEL	Kidney/Renal	High	5469641
115-96-8	16 week(s), (16 week(s))	Mice, Adult, B6C3F1, Female	Gavage	Chemical analysis reported	0 mg/kg /44 mg/kg /88 mg/kg /175 mg/kg /350 mg/kg /700 mg/kg	350 / 700	16-week NOEL / LOEL	Kidney/Renal	High	5469641
115-96-8	60 day(s), (60 day(s))	Rat, Adult, Sprague-Dawley, Female	Gavage	Nominal concentrations (Unmeasured)	0 mg/kg/d /50 mg/kg/d /100 mg/kg/d /250 mg/kg/d	50 / 100	60-day NOEL / LOEL	Neurotoxicity	High	5469245
115-96-8	8 day(s), (8 day(s))	Mice, Adult, CD-1 IGS outbred, Female	Gavage	Nominal concentrations (Unmeasured)	0 mg/kg/d / 1000 mg/kg/d /1315 mg/kg/d /1730 mg/kg/d /2280 mg/kg/d /3000 mg/kg/d	940	8-day LOEL	Mortality	High	790471
115-96-8	1 day(s) (single dose), (3 week(s))	Rat, Adult, Fischer 344/N, Female	Gavage	Nominal concentrations (Unmeasured)	0 mg/kg /275 mg/kg	275	LOEL	Behavior	High	107658

Tris(2-chloroethyl) phosphate (TCEP) - Acute (less than or equal to 24 hr)

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*	Citation and HERO ID
Eye irritation testing was carried out in accordance with the procedures outlined in CFR Part 191.12, Chap. 1, Title 21Skin irritation testing was carried out in accordance with the proposed FDA revisions of the test for primary skin irritants published in the FR 37: No. 244, December 19, 1972. Rabbit; New Zealand White - [rabbit]; Unknown	Dermal 1 days Single dose study. 10 mg (or 0.1 ml) of the test material was instilled into 1 eye	**POD: Not irritating to skin or the eye** 10mg	Six New Zealand rabbits (sex not specified) were administered 10 mg (or 0.1 ml) of TCEP in one eye. The untreated eye of each rabbit served as the control. Eye were observed at 24, 48, and 72 hours post treatment for signs of irritation. No eye irritation was observed, however, TCEP produced narcosis and apparent paralysis in four of the six test rabbits. The timing of this observation was not reported. The study authors classified TCEP as not irritating to the eye.Study authors also investigated primary skin irritation. Test substance was applied to clipped intact and abraded skin of six rabbits (sex not specified). The amount of test substance applied was not explicitly stated, however, study authors state that they followed the procedures laid out in an FDA proposed revision of the test for primary skin irritants, which indicates that 0.5 ml (or 0.5 grams) of test substance should be applied and covered with a gauze patch. After 4 hours of exposure, the TCEP was removed via washing. Skin was scored for irritation using the Draize method 4, 24, and 48 hours after the initial treatment and animals were retained for observation until 96-hours post treatment. No evidence of skin irritation was observed, however, 4 of 6 rabbits died. The cause of death was not described, nor was the timing of the observed mortality reported. Under the conditions of the study, TCEP was not considered irritating to skin.	No information on animal husbandry or specific doses. 4 out of 6 test animals died.	Neurological/ Behavioral: Low, Mortality: Medium, Irritation: Medium	Confidential 1973 6311026

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Tris(2-chloroethyl) phosphate (TCEP) - Acute (less than or equal to 24 hr)

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*	Citation and HERO ID
No guidelines explicitly stated. Rat; Not specified; Male	Oral: Gavage single dose No specific mention of a control group or control vehicle. Tabled results were compared against what the authors referred to as 'normal', and methods referred to the first group of animals as having blood collected for baseline values for cholinesterase.	**POD: 0.18 ml/ kg (LOAEL)– decrease in plasma cholinesterase levels.** 0.18ml/kg	In a 4 day toxicity study, TCEP was administered by oral gavage in corn oil to male rats (5/group) at 0.18 ml/kg (test material concentration not reported) for 1, 2, 3 or 4 days, and were killed by heart puncture 24 hours following final administration. An additional 5 animals were sacrificed without treatment to serve as untreated controls. Endpoints evaluated included mortality, red blood cell cholinesterase levels, and plasma cholinesterase levels. The authors reported 1 death before sacrifice in an animal scheduled to 1 application of TCEP and some morbidity observed in some animals following administration of test material, without additional detail. A change in pH denoting decreased cholinesterase levels was seen in red blood cell samples with larger number of TCEP administrations, but no change was seen in plasma samples	Small number of animals. No extensive information on animal characteristics. No statistical analysis.	Immune/ Hematological: Uninformative	FDRL 1972 6311010
No guidelines explicitly stated. Rabbit; Albino; Unknown	Dermal single dose No mention of control animals other than blood samples were obtained from each of the 3 test rabbits for determination of cholinesterase activities prior to treatment with test compound via dermal exposure.	**POD: 0.4 ml/ kg (LOAEL)– decrease in plasma cholinesterase levels.** 0.4ml/kg	In a 1 day toxicity study, control blood was collected and then TCEP was applied dermally to 3 albino rabbits at 0.4mg/kg (test material concentration not reported). Blood was then collected and TCEP was re-administered 1, 2, 3, and 4 days after initial administration. Endpoints evaluated included skin examination, red blood cell cholinesterase levels, and plasma cholinesterase levels. The areas of skin in contact with the test material became necrotic and fissured. A change in pH denoting decreased plasma cholinesterase levels was seen following all but the last administration of TCEP. Red blood cell samples showed varied levels of cholinesterase.	Small number of animals. No extensive information on animal characteristics.	Immune/ Hematological: Uninformative	FDRL 1972 6311010

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Tris(2-chloroethyl) phosphate (TCEP) - Acute (less than or equal to 24 hr)

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*	Citation and HERO ID
No mention of GLP or test guideline Hen; White Leghorn; Female	Oral: Gavage 1 days One dose given for biochemical measures	**POD: 14 g/kg (LOAEL) - 87.1% decrease in plasma cholinesterase and 30% decrease in brain neurotoxic esterase** 14.2g/kg	Groups of female white Leghorn chickens were exposed to a single oral gavage dose either to corn oil only (controls; number of hens not stated) or tri-beta-chloroethyl phosphate (TCEP, product name Fyrol CEF) at 14.2 g/kg (neat) (number of hens not stated). A positive control (tri-o-tolyl phosphate; TOCP) was also tested as well as another test compound (tri(2-chloropropyl) phosphate; Fyrol PCF). Both brain neurotoxic esterase (NTE) and plasma cholinesterase (ChE) were measured and showed statistically significant decreases ($p < 0.05$) of 30% and 87.1% , respectively. For TCEP, The level of NTE decrease did not reach the level of 75% inhibition considered necessary to suggest an affect on delayed neurotoxicity. In contrast, the positive control (TOCP) showed profound inhibition of both NTE and ChE.	Only one dose was used and no dose-response assessment was possible.	Neurological/ Behavioral: Medium	Sprague et al 1981 656590
No GLP guideline reported Rat; Fischer 344 - [rat]; Female	Oral: Gavage Single dose	**POD: 275 mg/kg (LOAEL, neurological)** 275 mg/kg-bw/day	In an acute toxicity study, a single dose of TCEP was administered by oral gavage in corn oil to female Fisher-344 rats at concentrations of 0 (n=8) or 275 mg/kg bw/day (n=6). Endpoints evaluated included clinical signs of toxicity, behavioral effects (Morris water maze to evaluate spatial navigation) and histopathology (brain). Seizures involving wet-dog shakes, facial twitching, forelimb clonus, myoclonic jaw motion, and whole-body jerks were seen at time of treatment. Treated rats were mildly impaired in the acquisition of the water maze task which was completed once daily for 9 consecutive days, where significant treatment by time interaction and time effect were identified. In a repeated acquisition task where rats were given 4 trials per day for 8 sessions, there was a significant treatment effect, trial effect, and treatment by trial interaction. Treatment produced severe hippocampal lesions consistent with loss of CA1 pyramidal cells, with moderately severe damage to C3 and lesser damage marked by necrosis and loss of granular cells in CA4.	None.	Neurological/ Behavioral: High	Tilson et al. 1990 107658

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Tris(2-chloroethyl) phosphate (TCEP) - Acute (less than or equal to 24 hr)

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*	Citation and HERO ID
All experiments in this study were performed with the approval of the Ethic Committee for Experimental Animals of National Institute for Environmental Studies Mouse; ICR - [mouse]; Male	Intraperitoneally 1 days Experiment 1. Single administration of TRCP. The animals were divided into four groups according to the doses of TRCP or its vehicle (olive oil). After an adaptation period of 30 min, olive oil or 50, 100, or 200 mg/kg of TRCP was administered and measurements of AA were conducted for 2 h.	**POD: 200 mg/kg/day (LOAEL, neurochemical mechanistic effect)** 0, 50, 100, 200 mg/kg-bw/day	In a 1-day toxicity study, TCEP was administered by intraperitoneal injection a single dose to male ICR mice (10/group) at concentrations of 0, 50, 100, or 200 mg/kg, where 200 mg/kg was associated with light convulsions in test animals. Endpoints evaluated included ambulation measurement to examine the neurochemical mechanistic effect of TCEP in male mice. Scheffe"s test revealed that ambulatory activity after the administration of 100 and 200 mg/kg of TCEP was significantly higher than that after other treatments. Mice showed high ambulatory activity just after the beginning of the measurement period, which decreased gradually, indicating adaptation to the new environment. Note: Experiments 2-5 were not summarized here as administration in those experiments were combined administration of TCEP with other chemicals, though these results suggest that TRCP or TCEP acts as a GABA antagonist and not as a cholinergic agonist, and that TRCP increases ambulatory activity in ICR mice through a GABAergic mechanism.	Single dose study in male mice only	Neurological/ Behavioral: High	Umezu et al. 1998 5469219

* Overall Quality Determination

Tris(2-chloroethyl) phosphate (TCEP) - 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*	Citation and HERO ID
No Guideline Reported. Mouse; CD-1 - [mouse]; Female	Oral: Gavage 8 days 8 days of dosing and 8 days of observation.	**POD: 1000 mg/ kg (LOAEL)– Mortality, Neurological** 0, 1000, 1315, 1730, 2280, 3000 mg/kg-bw/day	In this MED study, overall, with TCEP, there was mortality at the 1000mg/kg level. Additionally, most of the deaths occurred before the 4th interval. There were occurences of ataxia and tremors following dosing in all animals.	There were some dosing errors that lead to the death of a couple of mice.	Neurological/ Behavioral, Mortality: High	Hazleton Laboratories 1983 790471
NTP Guideline study; GLP compliant Rat; Fischer 344 - [rat]; Both	Oral: Gavage 5 days/week 12 days Animals were gavaged 5 days per week over a period of 16 days (12 total doses).	**POD: Uninformative - the study is insufficient for POD determination.** 0, 22, 44, 88, 175, 350 mg/kg-bw/day	See footnotes for full summary [1]	Animals from all groups, including controls were infected with sialodacryoadenitis virus. Animal husbandry conditions (temperature and humidity) varied significantly and were outside of the ranges specified in the NTP guidelines. The study did not provide quantitative data for several endpoints (clinical signs, gross necropsy, and histopathology).	Neurological/ Behavioral: Uninformative, Hepatic/ Liver: Uninformative, Renal/Kidney: Uninformative, Lung/Respiratory: Uninformative	NTP 1991 5469669
NTP Guideline study; GLP compliant Mouse; B6C3F1 - [mouse]; Both	Oral: Gavage 5 days/week 12 days Animals were gavaged 5 days per week over a period of 16 days (12 total doses)	**POD: No POD was determined** 0, 44, 88, 175, 350, 700 mg/kg-bw/day	See footnotes for full summary [2]	The starting body weights of females in the treatment groups were significantly higher than controls. This confounding factor makes it difficult to interpret the study results. There were several deviations from NTP guideline specifications in animal husbandry conditions (number of males per cage, temperature and humidity levels).	Renal/Kidney: Uninformative	NTP 1991 5469669
non GLP but consistent with guideline study Mouse; Swiss - [mouse]; Female	Dermal 3 days Dorsal applications on days 1, 3, and 5. The treated skin areas were removed on day 8.	**POD: 74.5 mg total dose/mouse (NOEL, skin, for sebaceous gland suppression and epidermal hyperplasia)** 0, 31.9, 53.2, 74.5mg as total dose applied in 3 applications, each of which contained the test compound as a solution in 0.05 ml acetone.	In an 8-day short-term dermal study, TCEP was administered by dermal exposure in acetone to female Swiss mice at concentrations of 0, 31.9, 53.2, and 74.5 mg on days 1, 3, and 5 (25/treatment group, 24/control). The dose estimated as 1135, 1893 and 2651 mg/kg (when not averaged over time = doses on each of the 3 days of dosing; when averaged over 5 days, doses are 681, 1136, and 1591 mg/kg/day), using the mean bodyweight for female Swiss Webster mice of 28.1 g (0.0281 kg) at 6 weeks (42 days) from Taconic Biosciences. Endpoints evaluated included evaluation of number of sebaceous glands and thickness of the epidermis. mice treated with TCEP did not show sebaceous glands suppression and hyperplasia was not induced.	In short term mouse skin test treated with TCEP, sebaceous glands were not suppressed and hyperplasia was not induced	Skin/Connective Tissue: High	Sala et al. 1982 5469568

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Tris(2-chloroethyl) phosphate (TCEP) - 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*	Citation and HERO ID
No mention of GLP or test guideline Hen; White Leghorn; Female	Oral: Gavage 3 weeks 2 days One dose was given on day one and the second dose given on day 21; animals were observed for weeks after the second dose.	**POD: 14 g/kg (LOAEL) – deaths, body weight loss, severe feather loss, decreased food consumption** 14.2g/kg	Groups of white Leghorn chickens were exposed to oral gavage doses of corn oil only (controls; 10 animals) or tri-beta-chloroethyl phosphate (TCEP, product name Fyrol CEF) at 14.2 g/kg (neat) (18 animals). A positive control (tri-o-tolyl phosphate; TOCP) was also tested as well as another test compound (tri(2-chloropropyl) phosphate; Fyrol PCF). Animals were dosed twice (on day 1 and day 21) and then observed for an additional three weeks. Animals were examined for histopathological effects in brain, spinal cord and peripheral nerves; walking behavior; body weight and food consumption; deaths and other signs. The authors reported four deaths and severe feather loss in the TCEP group vs. none in controls. Animals showed body weight loss (although unclear how different this was from controls) and decreased food consumption immediately after dosing. The positive control group exhibited effects associated with delayed neurotoxicity but the TCEP group did not show similar effects. Specifically, for TCEP, no differences from controls were identified in the incidence of focal gliosis and other histopathological outcomes and walking behavior was not affected.	Only one dose was used and no dose-response assessment was possible. Controls (and possibly treated groups) may have been exposed to the virus that causes Marek's disease and thus, interpretation of study results may have been somewhat compromised.	Neurological/ Behavioral: Medium	Sprague et al 1981 656590

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Tris(2-chloroethyl) phosphate (TCEP) - 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*	Citation and HERO ID
Guidelines for Proper Conduct of Animal Experiments (Science Council of Japan, June 1, 2006) and according to the protocol approved by the Animal Care and Use Committee of the Tokyo University of Agriculture and Technology. Rat; F344/NSIc; Male	Oral: Gavage 28 days Rats were acclimated 1 week prior to dosing with test substance. Test substance was dissolved in corn oil.	**POD: 350 mg/kg/ bw-day (LOAEL, kidney)** 0, 350 mg/kg-bw/day	Cell cycle changes during the early stages of renal carcinogenesis were investigated. Five-week old male F344/NSIc rats (N = 10/treatment group) were gavaged with 350 mg/kg-d TCEP for 28 consecutive days and then sacrificed. Control animals were maintained with basal diet and tap water without any treatment during the experimental period. Following sacrifice, kidneys were excised and stained for microscopic examination and immunohistochemical analysis. TCEP treatment induced scattered distribution of regenerating tubules in the cortex and the outer stripe of the outer medulla (OSOM). TCEP treatment did not induce karyomegaly in the cortex or OSOM. Treatment with TCEP significantly increased expression of Ki-67 nuclear antigen (a cell proliferation marker that is expressed in cells during the G1 to M phase of the cell cycle). Topoisomerase IIa, a molecule unlinking DNA catenation from the late S to the G2 and M phase, was significantly increased after treatment with TCEP. Other cell cycle markers (e.g., Cdc2, p-Chk2, H2AX, Cylclin D1, Cdk4, p-Rb, Cyclin E, Cdk2) were not significantly altered following treatment with TCEP.	Unclear is negative controls were untreated or vehicle treated.	Renal/Kidney: Medium	Taniai et al. 2012 5469208
All procedures in this study were conducted in compliance with the Guidelines for Proper Conduct of Animal Experiments Rat; Fischer 344 - [rat]; Male	Oral: Gavage 7 days/week 4 weeks 28 days	**POD: Not applicable** 0, 350 mg/kg-bw/day	The aim of this 28-day study was to identify early prediction markers of carcinogens in rats. Five-week old male F344/NSIc rats were gavaged with 0 or 350 mg/kg bw/day TCEP (dissolved in corn oil) for 28-days. Following treatment, kidneys were sectioned and stained for histopathological examination and immunohistochemistry. Immunohistochemical analysis was performed on either the outer medulla (OSOM) or the combined whole cortical area and OSOM. TCEP treatment resulted in scattered proximal tubular regeneration in the cortex and OSOM. Immunohistochemical analysis revealed a significant increase in Mcm3+, Ubd+, and TUNEL+ cells in the OSOM and the combined whole cortical area and OSOM.	Unclear if negative control was untreated for vehicle treated. Exposure administration details are poorly described.	Cancer/ Carcinogenesis: Medium	Taniai et al. 2012 5469521

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Tris(2-chloroethyl) phosphate (TCEP) - 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*	Citation and HERO ID

* Overall Quality Determination

[1] 5469669: In a 16-day toxicity study, TCEP was administered via gavage in corn oil to Fisher-344/N rats (5/sex/group) at concentrations of 0, 22, 44, 88, 175 or 350 mg/kg-day, 5 days per week, over a period of 16 days, for a total of 12 doses. Endpoints evaluated included serum cholinesterase activity, mortality, clinical signs of toxicity, body weight, organ weights (brain, heart, liver, lung, kidney, thymus), gross necropsy, and histopathology (adrenals, bone (including marrow), bone marrow (sternum), brain, clitoral gland, epididymis, esophagus, harderian gland, heart, kidney, large intestines (cecum, colon, rectum), liver, lung with bronchi, lymph nodes (mandibular, mesenteric), mammary glands, nasal cavity and turbinates, ovaries, pancreas, parathyroid, pituitary, preputial gland, prostate, salivary gland, seminal vesicles, skin, small intestines (duodenum, ileum, jejunum), spleen, stomach, testes, thymus, thyroid, trachea, urinary bladder, uterus, tissue masses, and gross lesions) in controls and animals at 350 mg/kg-day. No deaths, clinical signs of toxicity, or changes in body weight were observed in treated animals compared to controls. Serum cholinesterase activity in female rats receiving 175 or 350 mg/kg-day was 79.7% and 81.8% compared to control animals, respectively. Mean absolute and relative liver weights in females receiving 350 mg/kg-day were significantly greater than controls (16.7% and 13.6% increase, respectively); there were no liver weight changes in males. Mean absolute and relative kidney weights in males receiving 175 or 350 mg/kg-day were significantly greater than controls (8% and 12% increases, respectively, for 175 mg/kg-day; 10% and 10% , respectively, for 350 mg/kg-day). Kidney weights in females remained unchanged. Decreased absolute and relative lung weights were observed in females receiving 88 to 350 mg/kg-day. The decreases were not clearly dose-responsive but ranged from 16.7% to 18.2% (absolute) and from 17.7% to 18.8% (relative). No changes in male lung weights were observed. In females, there were non-dose-related reductions in absolute and relative thymus weights, and in absolute brain weights. No gross or histopathological changes attributed to treatment were observed. However, degenerative and inflammatory lesions characteristic of infection with sialodacryoadenitis virus (SDA) were observed in the salivary glands and lungs of most dosed and control rats. It is unclear whether the infections influenced the results observed, and the presence of infection renders this study uninformative. Toxicity values were not specified by the study author.

[2] 5469669: In a 16-day toxicity study, TCEP was administered via gavage in corn oil to female and male B6C3F1 mice (5/sex/group) at concentrations of 0, 44, 88, 175, 350, or 700 mg/kg-day, 5 days per week, over a period of 16 days (12 total doses). Endpoints evaluated included mortality, clinical signs of toxicity, body weight, serum cholinesterase activity, organ weights (brain, heart, liver, lung, kidney, thymus), gross necropsy, histopathology (adrenals, bone (including marrow), bone marrow (sternum), brain, clitoral gland, epididymis, esophagus, harderian gland, heart, kidney, large intestines (cecum, colon, rectum), liver, lung with bronchi, lymph nodes (mandibular, mesenteric), mammary glands, nasal cavity and turbinates, ovaries, pancreas, parathyroid, pituitary, preputial gland, prostate, salivary gland, seminal vesicles, skin, small intestines (duodenum, ileum, jejunum), spleen, stomach, testes, thymus, thyroid, trachea, urinary bladder and uterus in control and high-dose animals as well as any tissue masses, and gross lesions. Three animals died due to gavage trauma; no treatment-related deaths were observed. Mice given 350 or 700 mg/kg-day exhibited ataxia and convulsive movements during the first three days of dosing; incidence and statistical significance were not specified. The final body weights of treated animals were compatible with the controls; however, control males and some treated males lost weight during the treatment period. The initial body weights of treated females were statistically significantly higher (12 to 20%) than controls, despite the study indicating that animals were assigned to weight groups and then randomly allocated into cages and then groups. Then, during the study, the treated females gained significantly less weight than the controls, which resulted in comparable final body weights. There were no treatment-related effects on serum cholinesterase activity although it was noted that there was considerable variation in the values. Although some statistically significant organ weight changes were observed in males, they were likely sporadic, and not related to treatment (decreased absolute and/or relative heart weights in males at 44 and 88 mg/kg-day; decreased relative liver weight in low-dose males; and a non-dose-related decrease in relative brain weights in males from all treatment groups). In females, relative kidney weights changed by 10% , -3% (decrease), 15% , 11% , and 22% at 700 mg/kg-day, compared with controls. The increase at 700 mg/kg-day was significant. No statistically significant increases in absolute kidney weights were observed, the magnitudes of change were 11% , 0% , 17% , 11% , and 17% . There was no accompanying histopathology, and no gross or histopathological lesions were attributed to treatment (data were not shown). No study author reported toxicity values were provided. Although the kidney weight changes in females were not clearly dose-related, starting at 175 mg/kg-day, the increases were consistently above 10% , and are considered to be biologically significant. The kidney was also identified as a potential target organ in longer-duration studies. However, these organ weight data may be confounded by the differences in initial animal body weights of the treated females and therefore, definitive NOAEL and LOAEL values cannot be determined.

Tris(2-chloroethyl) phosphate (TCEP) - Subchronic (>30-91 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*	Citation and HERO ID
All experiments were performed in accordance with the Guiding Principles in the Use of Animals in Toxicology Mouse; ICR - [mouse]; Male	Oral: Diet 7 days/week 35 days	**POD: 100 mg/kg/ day (LOAEL, testis, metabolic)** 0, 100, 300 mg/kg-bw/day	See footnotes for full summary [1]	None	Reproductive/ Developmental, Nutritional/Metabolic: High	Chen et al. 2015 4199395
All animal procedures were carried out in accordance with the National Institute of Health Guide for the Care and Use of Laboratory Animals (NIH Publications No. 80-23). The laboratory is AAALAC (Association for Assessment and Accreditation of Laboratory Animal Care) certified. Rat; Sprague-Dawley - [rat]; Female	Oral: Gavage 60 days	**POD: 50 mg/kg/day (NOAEL, neurological/behavioral)** 0, 50, 100, 250 mg/kg-bw/day	See footnotes for full summary [2]	While only one sex was used in this study, earlier TCEP toxicological studies have shown that there is a sex difference in rats, with female rats being more sensitive to TCEP neurotoxicity. It is not clear if this rationale played a role in the selection of only female rats for this study. However, it is only a minor limitation due to the established sex-specific sensitivity.	Neurological/ Behavioral: High	Yang et al. 2018 5469245

* Overall Quality Determination

[1] 4199395: In a 35-day toxicity study, TCEP was administered by oral gavage in feed to male ICR mice (7/group) at concentrations of 0, 100, or 300 mg/kg/day. Endpoints evaluated included body weight, organ weights (liver and testes), histopathology (testes, 2/group), gene expression analysis (liver and testes). For the 100 mg/kg/day and 300 mg/kg/day dose groups, here was a treatment-related, statistically significant decrease in body weights at day 30. At end of treatment, both 100 mg/kg/day and 300 mg/kg/day dose groups had absolute liver weights that were 17.3% and 18.1% lower than controls. TCEP caused oxidative stress in the liver as indicated by the following significant changes in hepatic enzymes contents: GSH increase at low and high doses, SOD increase at low dose, CAT increase at high dose, GPX increase at low and high doses, GST decrease at high dose. TCEP treated groups did not show significant increase of hepatic MDA when compared with the control group. TCEP disturbed the transcription of the following genes related to oxidative stress in the liver: Sod1 increase at high dose, Sod2 increase at low and high doses, Gpx1 increase at low and high doses, Gpx2 increase at high dose, Cat increase at high dose, and Gsta1 decrease and low and high doses. At end of treatment, there was a 13.6% decrease in absolute testes weights in mice treated with 300 mg/kg/day when compared to control group. Both the 100 mg/kg/day and 300 mg/kg/day dose groups showed testicular tissue change, including decreases in the number of Leydig cells, Sertoli cells, spermatogenic cells, and seminiferous tubules. The absolute disintegration of seminiferous tubule structure was observed in animals at 300 mg/kg/day. At 300 mg/kg/day, there was a significant reduction in testosterone in the testes and the transcription of the following testosterone synthesis related genes in the testis was disturbed: LDL-R decrease at high dose; StAR, P450-17", and P450scc decrease at low and high doses; and 3"-HSD increase at low and high doses.

[2] 5469245: In a 60-day toxicity study, TCEP was administered by oral gavage in corn oil to female Sprague-Dawley rats (10/group) at concentrations of 0, 50, 100, or 250 mg/kg/day. Endpoints evaluated included clinical signs of toxicity, body weight, behavioral effects (Morris water maze to evaluate spatial learning and memory functions), histopathology (brain, 3/group), and metabolomics. No treatment-related effects on survival, bodyweight, or food and water consumption were observed. Rats treated at 250 mg/kg/day had occasional convulsions and occasional periods of hyperactivity after 40 days of exposure. The Morris water maze was completed on 6 consecutive days and rats treated with 100 and 200 mg/kg/day had remarkably higher escape latencies to find the water maze hidden platform than the vehicle controls on days 4-6 ($p < 0.01$). On day 7, the water maze platform was removed for a space exploring test, where the 100 and 250 mg/kg/day dose groups had significantly shorter cumulative path lengths of swims within the target quadrant than that of the controls ($p<0,01$, $p<0.001$ respectively) and the 250 mg/kg/day dose group had significantly lower frequencies of crossing the area the platform compared to controls ($p<0.01$). In the 100 and 200 mg/kg/day dose groups, the hippocampal layered pyramidal structure was disintegrated and showed neuronal loss, with necrotic and apoptotic features in the CA1 region. The 250 mg/kg/day dose group also showed invading inflammatory cells and calcified or ossified foci in the brain cortex. In TCEP-treated animals, the major metabolites that had increased in the aqueous phase included N-acetyl aspirate (NAA), glutamine (GLU), glutamic acid, glucose, taurine, choline, creatine, and myo-inositol levels, whereas lactate, g-amino butyric acid (GABA), glycine, and two unknown compounds were decreased. The major metabolite differences in the lipid phase included increased cholesterol ester and glycerol and decreased free cholesterol, total cholesterol, lipid (CH2CH2CO), fatty acid, polyunsaturated fatty acid, and phosphatidylcholine levels compared to controls.

Tris(2-chloroethyl) phosphate (TCEP) - Chronic (>91 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*	Citation and HERO ID
NTP study; adherence to GLP not specified. Rat; Fischer 344 - [rat]; Both	Oral: Gavage 5 days/week 16 weeks Animals were dosed 5 days per week for 16 weeks.	**POD: 22 mg/kg-day (NOAEL, liver)** 0, 22, 44, 88, 175, 350 mg/kg-bw/day	See footnotes for full summary [1]	Some animal husbandry conditions varied widely (humidity ranged from 10% to 78%) and levels were outside the range recommended in the NTP guideline. The study reported dosing errors in the top two dose groups and several deaths due to gavage trauma; these are not expected to significantly impact the study results. There were several data reporting limitations that precluded the ability to perform an independent analysis of the data.	Hepatic/Liver: High, Renal/ Kidney: High, Neurological/ Behavioral: Medium	Mathews et al. 1990 5469641
NTP study; adherence to GLP not specified. Mouse; B6C3F1 - [mouse]; Both	Oral: Gavage 5 days/week 16 weeks Animals were dosed 5 days per week for 16 weeks.	**POD: 88 mg/kg-day (NOAEL, liver, kidney)** 0, 44, 88, 175, 350, 700 mg/kg-bw/day	See footnotes for full summary [2]	Some animal husbandry conditions varied widely (humidity ranged from 10% to 78%) and both humidity and temperature levels were outside the range recommended in the NTP guideline. It is also recommended that male mice are housed individually, and these mice were housed 5/cage. The study reported dosing errors in the top two dose groups and several deaths due to gavage trauma; these are not expected to significantly impact the study results. There were several data reporting limitations that precluded the ability to perform an independent analysis of the data.	Hepatic/Liver: High, Renal/ Kidney: High	Mathews et al. 1990 5469641
NTP study; adherence to GLP not specified. Rat; Fischer 344 - [rat]; Both	Oral: Gavage 5 days/week 16 weeks Animals were dosed 5 days per week for 16 weeks.	**POD: 22 mg/kg-day (NOAEL, liver)** 0, 22, 44, 88, 175, 350 mg/kg-bw/day	See footnotes for full summary [3]	Some animal husbandry conditions varied widely (humidity ranged from 10% to 78%) and levels were outside the range recommended in the NTP guideline. The study reported dosing errors in the top two dose groups and several deaths due to gavage trauma; these are not expected to significantly impact the study results. There were several data reporting limitations that precluded the ability to perform an independent analysis of the data.	Hepatic/Liver: High, Renal/ Kidney: High, Neurological/ Behavioral: Medium	Mathews et al. 1990 5469641

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Tris(2-chloroethyl) phosphate (TCEP) - Chronic (>91 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*	Citation and HERO ID
NTP study; adherence to GLP not specified. Mouse; B6C3F1 - [mouse]; Both	Oral: Gavage 5 days/week 16 weeks Animals were dosed 5 days per week for 16 weeks.	**POD: 88 mg/kg-day (NOAEL, liver, kidney)** 0, 44, 88, 175, 350, 700 mg/kg-bw/day	See footnotes for full summary [4]	Some animal husbandry conditions varied widely (humidity ranged from 10% to 78%) and both humidity and temperature levels were outside the range recommended in the NTP guideline. It is also recommended that male mice are housed individually, and these mice were housed 5/cage. The study reported dosing errors in the top two dose groups and several deaths due to gavage trauma; these are not expected to significantly impact the study results. There were several data reporting limitations that precluded the ability to perform an independent analysis of the data.	Hepatic/Liver: High, Renal/ Kidney: High	Mathews et al. 1990 5469641
NTP Guideline study; GLP compliant Rat; Fischer 344 - [rat]; Both	Oral: Gavage 5 days/week 16 weeks Animals were gavaged 5 days per week for 16 weeks (females) or for 18 weeks (males)	**POD: 22 mg/kg-day (NOAEL, liver)** 0, 22, 44, 88, 175, 350 mg/kg-bw/day	See footnotes for full summary [5]	The duration of exposure was different for males and females making it difficult to compare results across sexes. Some animal husbandry conditions varied widely (humidity ranged from 10% to 78%) and levels were outside the range recommended in the NTP guideline. The study reported dosing errors in the top two dose groups and several deaths due to gavage trauma; these are not expected to significantly impact the study results. Histopathology and clinical signs data were not quantitatively reported precluding the ability for an independent review.	Neurological/ Behavioral: High, Hepatic/Liver: High, Mortality: High, Renal/ Kidney: High	NTP 1991 5469669
NTP Guideline study; GLP compliant Mouse; B6C3F1 - [mouse]; Both	Oral: Gavage 5 days/week 16 weeks Animals were gavaged 5 days per week for 16 weeks	**POD: 88 mg/kg/ day (NOAEL, liver, kidney)** 0, 44, 88, 175, 350, 700 mg/kg-bw/day	See footnotes for full summary [6]	Some animal husbandry conditions varied widely (humidity ranged from 10% to 78%) and levels were outside the range recommended in the NTP guideline. The study reported dosing errors in the top two dose groups and several deaths due to gavage trauma; these are not expected to significantly impact the study results. Histopathology and clinical signs data were not quantitatively reported precluding the ability for an independent review.	Renal/Kidney: High	NTP 1991 5469669

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Tris(2-chloroethyl) phosphate (TCEP) - Chronic (>91 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*	Citation and HERO ID
NTP Guideline study; GLP compliant Mouse; B6C3F1 - [mouse]; Both	Oral: Gavage 5 days/week 104 weeks Animals were gavaged 5 days per week for 2 years	**POD: Equivocal for carcinogenicity** 0, 175, 350 mg/kg-bw/day	See footnotes for full summary [7]	Data for the interim sacrifice were either not reported (organ weight data, histopathology), or were only reported qualitatively (hematology and serum chemistry). Some animal husbandry conditions varied widely (humidity ranged from 15% to 84% and temperature ranged from 60 to 86 degrees F) and levels were outside the range recommended in the NTP guideline. Male mice also were housed 5/cage instead of the recommended single mouse per cage. The animal strain may not be appropriate for the evaluation of hepatocellular adenomas due to high background.	Cancer/ Carcinogenesis: High, Hepatic/ Liver: High, Ocular/Sensory: High, Renal/Kidney: High	NTP 1991 5469669
NTP Guideline study; GLP compliant Rat; Fischer 344 - [rat]; Both	Oral: Gavage 5 days/week 16 weeks Animals were gavaged 5 days per week for 2 years.	**POD: Positive for carcinogenicity** 0, 44, 88 mg/kg-bw/day	See footnotes for full summary [8]	The strain of rats used is no longer used for NTP chronic carcinogenicity studies due to the high background levels of several tumor types. Animal husbandry conditions (number of animals per cage, humidity, and temperature) deviated from NTP-specified guidelines. Data reporting of outcomes assessed at the interim sacrifice was limited (no quantitative hematology, serum chemistry, or histopathology). Gross necropsy results were not reported at any time point. Clinical observations were also not provided.	Neurological/ Behavioral: High, Cancer/ Carcinogenesis: High, Hepatic/ Liver: High, Renal/ Kidney: High	NTP 1991 5469669
non GLP but consistent with guideline study Mouse; Swiss - [mouse]; Female	Dermal 2 days/week 78 weeks For initiation study, a single dermal application of TCEP was used. For the tumor promotion study, there were 2 dermal applications/week for 78 weeks.	**POD: Uninformative " not suitable for POD determination** 109total dose reported in tumor promotion study is 3.2 g/animal (109 g/kg bw).	In a 78-week long-term dermal study, TCEP exposure was administered by dermal exposure in acetone to 32 female Swiss mice . When evaluating as an initiator, mice received one 71 mg dose [2029 mg/kg assuming 0.035 kg bw per Taconic Biosciences]; when evaluating as promotor or complete carcinogen, mice received 21 mg [600 mg/kg assuming 0.035 kg bw per Taconic Biosciences] 2x/week for 78 weeks [dose is 171 mg/kg/day when averaged with days of no dosing]. Historical data was used for the solvent control. Endpoints evaluated included skin examination for tumor formation and post-mortem histological assessment. TCEP did not have any effect as a complete carcinogen on mouse skin. However, the incidence of lung adenomas was significantly increased.	There are no concurrent negative controls. The control historical data were used/considered by study authors but not fully reported in the paper.	Cancer/ Carcinogenesis: Uninformative, Skin/Connective Tissue: Uninformative	Sala et al. 1982 5469568

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Tris(2-chloroethyl) phosphate (TCEP) - Chronic (>91 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*	Citation and HERO ID

* Overall Quality Determination

[1] 5469641: In a 16-week toxicity study, TCEP was administered via gavage in corn oil to Fisher-344/N rats (10/sex/group) at concentrations of 0, 22, 44, 88, 175 or 350 mg/kg-day, 5 days per week, for 16 weeks. A dosing error during week 4 resulted in the 175 mg/kg-day and 350 mg/kg-day receiving double the target dose for 3 days. Dosing was stopped on day 4 and resumed at target levels on day 5. Two overdosed females in each group died and others showed signs of toxicity (salivation, convulsions, ataxia, gasping), while no overdosed males exhibited these effects. Endpoints evaluated included mortality, clinical signs of toxicity, body weight, serum cholinesterase activity, organ weights (not clearly specified, but brain, thymus, liver and kidney were mentioned), and histopathology of the heart, lung, kidney, thyroid, esophagus, thymus, salivary gland, brain, adrenal gland, liver, epididymis, spleen, mesenteric lymph node, prostate, and bone marrow in controls and animals from the 175 and 350 mg/kg-day groups. A more detailed analysis of brain tissues was conducted in all dose groups, although the details were not clearly reported. The study also included sperm morphology and vaginal cytology assessments. In addition to the mortalities associated with the overdose (2 females each at 175 and 350 mg/kg-day), there were 4 additional deaths due to gavage trauma (1 male and 2 females at 22 mg/kg-day and 1 male at 350 mg/kg-day). Other deaths were observed in 5 males at 350 mg/kg-day, 1 male at 175 mg/kg-day, and 3 females at 350 mg/kg-day that were considered by the authors to be treatment-related; the causes of these deaths were not specified. Occasional hyperactivity was noted after dosing in females administered 175 and 350 mg/kg-day, and during week 12, high-dose females had periodic convulsions. There was a 20% increase in body weight in 350 mg/kg-day female rats, not seen in males. Serum cholinesterase activity in female rats receiving 175 or 350 mg/kg-day was 75% and 59% , respectively, of the control animals. Absolute liver weights significantly increased by 7.5% and 17.2% in males at 175 and 350 mg/kg-day, respectively. Relative-to-body liver weights were significantly increased by 19.9% in 350 mg/kg/day males. Absolute and relative-to-body kidney weights were increased in 350mg/kg males by 22.7% and 24.9% respectively, compared to controls. Absolute liver weights were significantly increased in females given 44, 88, 175, or 350 mg/kg-day by 12.3% , 6.9% , 23.9% , and 83.6% , respectively, relative to control animals. Relative-to-body liver weights were significantly increased in females given 22, 44, 88, 175, or 350 mg/kg-day by 5.9% , 13.1% , 10.3% , 18.8% , and 50.6% , respectively, compared to control animals. Absolute kidney weights were significantly increased in females given 44, 88, 175, or 350 mg/kg-day by 7% , 7% , 16.9% , and 46.5% , respectively, compared to control animals. Relative-to-body kidney weights were significantly increased in females given 44, 88, 175, or 350 mg/kg-day by 9.2% , 11.1% , 13.3% , and 22.2% respectively, compared to control animals. Other reported organ weight changes included an 11% decrease in brain weight and a 19% decrease in thymus weight (absolute or relative not specified) in high-dose females. Gross necropsy results were not reported. Sperm morphology analysis could not be done due to unspecified technical difficulties. Histopathology was purportedly limited to the brain. Necrosis of the neurons of the hippocampus (primarily CA1) was observed in 2/10 350 mg/kg-day males, 8/10 175 mg/kg-day females, and 10/10 350 mg/kg-day females, the last of which also sustained necrosis in the thalamus. Histopathology results in other tissues were not reported. No author reported NOAEL and LOAEL values were provided. A NOEL of 22 mg/kg-day and a LOEL of 44 mg/kg-day was determined for this review based on statistically significant increases in absolute and relative liver weights in female rats in the absence of accompanying histopathology. The biological significance is unclear based on lack of histological change as well as lack of measurement of liver enzyme activity. Relative liver weights were also significantly increased at 22 mg/kg-day, but the magnitude of change was small (<10%).This evaluation was based on the current study only; however, this study is also reported in 5469669 in more detail.

[2] 5469641: In a 16-week toxicity study, TCEP was administered via gavage in corn oil to B6C3F1 mice (10/sex/group) at concentrations of 0, 44, 88, 175, 350, or 700 mg/kg-day, 5 days per week. A dosing error during week 4 resulted in the 350 mg/kg-day and 700 mg/kg-day receiving double the target dose for 3 days. Dosing was stopped on day 4 and resumed at target levels on day 5. Two overdosed females in each group died and others showed signs of toxicity (salivation, convulsions, ataxia, gasping), while no overdosed males exhibited these effects. Endpoints evaluated included mortality, clinical signs of toxicity, body weight, serum cholinesterase activity, organ weights (not clearly specified, but brain, thymus, liver and kidney were mentioned), and histopathology of the heart, lung, kidney, thyroid, esophagus, thymus, salivary gland, brain, adrenal gland, liver, epididymis, spleen, mesenteric lymph node, prostate, and bone marrow in controls and animals from the 700 mg/kg-day group. The study also included sperm morphology and vaginal cytology assessments. There were no deaths due to the overdose and no treatment-related deaths; however, three males (1 each at 175, 350, and 700 mg/kg-day) and two females (1 each at 175 and 350 mg/kg-day) died due to gavage trauma. The final and necropsy body weights of treated animals were comparable to controls. There were no treatment-related effects on serum cholinesterase activity. Relative-to-body liver weights were significantly increased in males receiving 88 mg/kg-day (11%) and 700 mg/kg-day (12.1%), compared to controls, but not at 175 or 350 mg/kg-day. Similarly, absolute liver weights in males were only significantly increased at 88 mg/kg-day (16%). In females, both the mean absolute and relative-to-body liver weights were significantly increased at 175, 350 and 700 mg/kg-day, but the increases were not clearly dose-related. The absolute weights were increased by 14% , 21% , and 13.1% , and the relative weights were increased by 10.6% , 17.1% , and 14.2% , respectively. Male mice receiving 700 mg/kg-day had significantly reduced absolute kidney weights, decreased by 19.4% compared to the controls. Male relative-to-body kidney weights were decreased at 175, 350, and 700 mg/kg-day by 13.3% , 16.1% , and 14.1% compared to controls. No changes in female kidney weights were observed. No other organ weight changes were reported. High-dose males had a slight (P = 0.05) reduction in sperm counts. Vaginal cytology and gross necropsy results were not reported. Tubule epithelial cells with enlarged nuclei (cytomegaly and karyomegaly) were observed in the kidneys of all high-dose (700 mg/kg) male and female mice vs. 1 in 10 control mice. These lesions were observed primarily in the proximal convoluted tubules of the inner cortex and outer stripe of the outer medulla and, to a lesser extent, in the straight portion of the loops of Henle in the outer medulla.No author-reported toxicity values were provided. A NOAEL of 88 mg/kg-day and a LOAEL of 175 mg/kg-day was determined for this review based on decreased relative kidney weights in male mice. Increased absolute and relative liver weights were also seen in female mice.This evaluation was based on the current study only; however, this study is also reported in 5469669 in more detail.

[3] 5469641: In a 16-week toxicity study, TCEP was administered via gavage in corn oil to Fisher-344/N rats (10/sex/group) at concentrations of 0, 22, 44, 88, 175 or 350 mg/kg-day, 5 days per week, for 16 weeks. A dosing error during week 4 resulted in the 175 mg/kg-day and 350 mg/kg-day receiving double the target dose for 3 days. Dosing was stopped on day 4 and resumed at target levels on day 5. Two overdosed females in each group died and others showed signs of toxicity (salivation, convulsions, ataxia, gasping), while no overdosed males exhibited these effects. Endpoints evaluated included mortality, clinical signs of toxicity, body weight, serum cholinesterase activity, organ weights (not clearly specified, but brain, thymus, liver and kidney were mentioned), and histopathology of the heart, lung, kidney, thyroid, esophagus, thymus, salivary gland, brain, adrenal gland, liver, epididymis, spleen, mesenteric lymph node, prostate, and bone marrow in controls and animals from the 175 and 350 mg/kg-day groups. A more detailed analysis of brain tissues was conducted in all dose groups, although the details were not clearly reported. The study also included sperm morphology and vaginal cytology assessments. In addition to the mortalities associated with the overdose (2 females each at 175 and 350 mg/kg-day), there were 4 additional deaths due to gavage trauma (1 male and 2 females at 22 mg/kg-day and 1 male at 350 mg/kg-day). Other deaths were observed in 5 males at 350 mg/kg-day, 1 male at 175 mg/kg-day, and 3 females at 350 mg/kg-day that were considered by the authors to be treatment-related; the causes of these deaths were not specified. Occasional hyperactivity was noted after dosing in females administered 175 and 350 mg/kg-day, and during week 12, high-dose females had periodic convulsions. There was a 20% increase in body weight in 350 mg/kg-day female rats, not seen in males. Serum cholinesterase activity in female rats receiving 175 or 350 mg/kg-day was 75% and 59% , respectively, of the control animals. Absolute liver weights significantly increased by 7.5% and 17.2% in males at 175 and 350 mg/kg-day, respectively. Relative-to-body liver weights were significantly increased by 19.9% in 350 mg/kg/day males. Absolute and relative-to-body kidney weights were increased in 350mg/kg males by 22.7% and 24.9% respectively, compared to controls. Absolute liver weights were significantly increased in females given 44, 88, 175, or 350 mg/kg-day by 12.3% , 6.9% , 23.9% , and 83.6% , respectively, relative to control animals. Relative-to-body liver weights were significantly increased in females given 22, 44, 88, 175, or 350 mg/kg-day by 5.9% , 13.1% , 10.3% , 18.8% , and 50.6% , respectively, compared to control animals. Absolute kidney weights were significantly increased in females given 44, 88, 175, or 350 mg/kg-day by 7% , 7% , 16.9% , and 46.5% , respectively, compared to control animals. Relative-to-body kidney weights were significantly increased in females given 44, 88, 175, or 350 mg/kg-day by 9.2% , 11.1% , 13.3% , and 22.2% respectively, compared to control animals. Other reported organ weight changes included an 11% decrease in brain weight and a 19% decrease in thymus weight (absolute or relative not specified) in high-dose females. Gross necropsy results were not reported. Sperm morphology analysis could not be done due to unspecified technical difficulties. Histopathology was purportedly limited to the brain. Necrosis of the neurons of the hippocampus (primarily CA1) was observed in 2/10 350 mg/kg-day males, 8/10 175 mg/kg-day females, and 10/10 350 mg/kg-day females, the last of which also sustained necrosis in the thalamus. Histopathology results in other tissues were not reported. No author reported NOAEL and LOAEL values were provided. A NOEL of 22 mg/kg-day and a LOEL of 44 mg/kg-day was determined for this review based on statistically significant increases in absolute and relative liver weights in female rats in the absence of accompanying histopathology. The biological significance is unclear based on lack of histological change as well as lack of measurement of liver enzyme activity. Relative liver weights were also significantly increased at 22 mg/kg-day, but the magnitude of change was small (<10%).This evaluation was based on the current study only; however, this study is also reported in 5469669 in more detail.

[4] 5469641: In a 16-week toxicity study, TCEP was administered via gavage in corn oil to B6C3F1 mice (10/sex/group) at concentrations of 0, 44, 88, 175, 350, or 700 mg/kg-day, 5 days per week. A dosing error during week 4 resulted in the 350 mg/kg-day and 700 mg/kg-day receiving double the target dose for 3 days. Dosing was stopped on day 4 and resumed at target levels on day 5. Two overdosed females in each group died and others showed signs of toxicity (salivation, convulsions, ataxia, gasping), while no overdosed males exhibited these effects. Endpoints evaluated included mortality, clinical signs of toxicity, body weight, serum cholinesterase activity, organ weights (not clearly specified, but brain, thymus, liver and kidney were mentioned), and histopathology of the heart, lung, kidney, thyroid, esophagus, thymus, salivary gland, brain, adrenal gland, liver, epididymis, spleen, mesenteric lymph node, prostate, and bone marrow in controls and animals from the 700 mg/kg-day group. The study also included sperm morphology and vaginal cytology assessments. There were no deaths due to the overdose and no treatment-related deaths; however, three males (1 each at 175, 350, and 700 mg/kg-day) and two females (1 each at 175 and 350 mg/kg-day) died due to gavage trauma. The final and necropsy body weights of treated animals were comparable to controls. There were no treatment-related effects on serum cholinesterase activity. Relative-to-body liver weights were significantly increased in males receiving 88 mg/kg-day (11%) and 700 mg/kg-day (12.1%), compared to controls, but not at 175 or 350 mg/kg-day. Similarly, absolute liver weights in males were only significantly increased at 88 mg/kg-day (16%). In females, both the mean absolute and relative-to-body liver weights were significantly increased at 175, 350 and 700 mg/kg-day, but the increases were not clearly dose-related. The absolute weights were increased by 14% , 21% , and 13.1% , and the relative weights were increased by 10.6% , 17.1% , and 14.2% , respectively. Male mice receiving 700 mg/kg-day had significantly reduced absolute kidney weights, decreased by 19.4% compared to the controls. Male relative-to-body kidney weights were decreased at 175, 350, and 700 mg/kg-day by 13.3% , 16.1% , and 14.1% compared to controls. No changes in female kidney weights were observed. No other organ weight changes were reported. High-dose males had a slight (P = 0.05) reduction in sperm counts. Vaginal cytology and gross necropsy results were not reported. Tubule epithelial cells with enlarged nuclei (cytomegaly and karyomegaly) were observed in the kidneys of all high-dose (700 mg/kg) male and female mice vs. 1 in 10 control mice. These lesions were observed primarily in the proximal convoluted tubules of the inner cortex and outer stripe of the outer medulla and, to a lesser extent, in the straight portion of the loops of Henle in the outer medulla.No author-reported toxicity values were provided. A NOAEL of 88 mg/kg-day and a LOAEL of 175 mg/kg-day was determined for this review based on decreased relative kidney weights in male mice. Increased absolute and relative liver weights were also seen in female mice.This evaluation was based on the current study only; however, this study is also reported in 5469669 in more detail.

[5] 5469669: In a 16-week toxicity study, TCEP was administered via gavage in corn oil to Fisher-344/N rats (10/sex/group) at concentrations of 0, 22, 44, 88, 175 or 350 mg/kg-day, 5 days per week, where females were treated

for 16 weeks, and males were treated for 18 weeks. A dosing error during week 4 resulted in the 175 mg/kg-day and 350 mg/kg-day receiving double the target dose for 3 days. Dosing was stopped on day 4 and resumed at target levels on day 5. Two overdosed females in each group died and others showed signs of toxicity (salivation, convulsions, ataxia, gasping), while no overdosed males exhibited these effects. Endpoints evaluated included mortality, clinical signs of toxicity, body weight, serum cholinesterase activity, organ weights (brain, heart, liver, lung, kidney, thymus, and testis), histopathology (adrenals, bone (including marrow), bone marrow (sternum), brain, clitoral gland, epididymis, esophagus, harderian gland, heart, kidney, large intestines (cecum, colon, rectum), liver, lung with bronchi, lymph nodes (mandibular, mesenteric), mammary glands, nasal cavity and turbinates, ovaries, pancreas, parathyroid, pituitary, preputial gland, prostate, salivary gland, seminal vesicles, skin, small intestines (duodenum, ileum, jejunum), spleen, stomach, testes, thymus, thyroid, trachea, urinary bladder, uterus, tissue masses, and gross lesions) (complete assessment for control, 175 mg/kg-day and 350 mg/kg-day groups; brain assessment also for 88 mg/kg-day females). In addition to the mortalities associated with the overdose (2 females each at 175 and 350 mg/kg-day), there were 4 additional deaths due to gavage trauma (1 male and 2 females at 22 mg/kg/day and 1 male at 350 mg/kg-day). Other deaths were observed in 5 males at 350 mg/kg-day, 1 male at 175 mg/kg-day, and 3 females at 350 mg/kg-day that were considered by the authors to be treatment-related; the causes of these deaths were not specified. Occasional hyperactivity was noted after dosing in females administered 175 and 350 mg/kg-day, and during week 12 high-dose females had periodic convulsions. There was a 20% increase in body weight in 350 mg/kg-day female rats, not seen in males. Serum cholinesterase activity in female rats receiving 175 or 350 mg/kg-day was 75% and 59% , respectively, of the control animals. Absolute liver weights significantly increased by 7.5% and 17.2% in males at 175 and 350 mg/kg-day, respectively. Relative-to-body liver weights were significantly increased by 19.9% in 350 mg/kg-day males. Absolute and relative-to-body kidney weights were increased in 350 mg/kg males by 22.7% and 24.9% respectively, compared to controls. Absolute liver weights were significantly increased in females given 44, 88, 175, or 350 mg/kg-day by 12.3% , 6.9% , 23.9% , and 83.6% , respectively, relative to control animals. Relative-to-body liver weights were significantly increased in females given 22, 44, 88, 175, or 350 mg/kg-day by 5.9% , 13.1% , 10.3% , 18.8% , and 50.6% , respectively, compared to control animals. Absolute kidney weights were significantly increased in females given 44, 88, 175, or 350 mg/kg-day by 7% , 7% , 16.9% , and 46.5% , respectively, compared to control animals. Relative-to-body kidney weights were significantly increased in females given 44, 88, 175, or 350 mg/kg-day by 9.2% , 11.1% , 13.3% , and 22.2% respectively, compared to control animals. Absolute lung weights were significantly increased by 17.5% in the 350 mg/kg-day females compared to the controls. No gross lesions attributed to treatment were observed. Histopathology was purportedly limited to the brain. Necrosis of the neurons of the hippocampus (primarily CA1) was observed in 2/10 350 mg/kg-day males, 8/10 175 mg/kg-day females, and 10/10 350 mg/kg-day females, the last of which also sustained necrosis in the thalamus. Histopathology results in other tissues were not reported. No author reported NOAEL and LOAEL values were provided. A NOEL of 22 mg/kg-day and a LOEL of 44 mg/kg-day was determined for this review based on statistically significant increases in absolute and relative liver weights in female rats in the absence of accompanying histopathology. The biological significance is unclear because liver enzyme activity was not measured. Relative liver weights were also significantly increased at 22 mg/kg-day, but the magnitude of change was small (<10%).

[6] 5469669: In a 16-week toxicity study, TCEP was administered via gavage in corn oil to B6C3F1 mice (10/sex/group) at concentrations of 0, 44, 88, 175, 350, or 700 mg/kg-day, 5 days per week. A dosing error during week 4 resulted in the 350 and 700 mg/kg-day receiving double the target dose for 3 days. Dosing was stopped on day 4 and resumed at target levels on day 5. Endpoints evaluated included mortality, clinical signs of toxicity, body weight, serum cholinesterase activity, organ weights (brain, heart, liver, lung, kidney, thymus, and testis), histopathology (adrenals, bone (including marrow), bone marrow (sternum), brain, clitoral gland, epididymis, esophagus, harderian gland, heart, kidney, large intestines (cecum, colon, rectum), liver, lung with bronchi, lymph nodes (mandibular, mesenteric), mammary glands, nasal cavity and turbinates, ovaries, pancreas, parathyroid, pituitary, preputial gland, prostate, salivary gland, seminal vesicles, skin, small intestines (duodenum, ileum, jejunum), spleen, stomach, testes, thymus, thyroid, trachea, urinary bladder, uterus, tissue masses, and gross lesions) (complete assessments were done for controls and the 700 mg/kg-day groups; kidney assessments were also done on animals from the 44, 88, 175 and 350 mg/kg-day groups). There were no deaths due to the overdose and no treatment-related deaths; however, three males (1 each at 175, 350, and 700 mg/kg-day) and two females (1 each at 175 and 300 mg/kg-day) died due to gavage trauma. The final and necropsy body weights of treated animals were comparable to controls and no differences in body weight gain were observed across groups. There were no treatment-related effects on serum cholinesterase activity. Relative-to-body liver weights were significantly increased in males receiving 88 mg/kg-day (11%) and 700 mg/kg-day (12.1%), compared to controls, but not at 175 or 350 mg/kg-day. Similarly, absolute liver weights in males were only significantly increased at 88 mg/kg-day (16%). In females, both the mean absolute and relative-to-body liver weights were significantly increased at 175, 350 and 700 mg/kg-day, but the increases were not clearly dose-related. The absolute weights were increased by 14% , 21% , and 13.1% , and the relative weights were increased by 10.6% , 17.1% , and 14.2% , respectively. Male mice receiving 700 mg/kg-day had significantly reduced absolute kidney weights, decreased by 19.4% compared to the controls. Male relative-to-body kidney weights were decreased at 175, 350, and 700 mg/kg-day by 13.3% , 16.1% , and 14.1% compared to controls. No changes in female kidney weights were observed. A significant decrease in absolute and relative testis weights of the 700 mg/kg-day males was observed compared to the controls (decreased by 16.7% and 16.6, respectively). Testes weights were not measured in the 350 mg/kg-day group (no explanation provided) and were compatible with controls at 175 mg/kg-day. Female absolute lung weight decreased 9% with 700 mg/kg-day, while relative-to-body lung weight was decreased 11.7% and 8.4% with 350 and 700 mg/kg-day, respectively, compared to controls. No gross lesions attributed to treatment were observed. Tubule epithelial cells with enlarged nuclei (cytomegaly and karyomegaly) were observed in the kidneys of high-dose (700 mg/kg) male and female mice. These lesions were observed primarily in the proximal convoluted tubules of the inner cortex and outer stripe of the outer medulla and, to a lesser extent, in the straight portion of the loops of Henle in the outer medulla.No author-reported toxicity values were provided. A NOAEL of 88 mg/kg-day and a LOAEL of 175 mg/kg-day was determined for this review based on decreased relative kidney weights in male mice. Lesions in the kidney were observed at higher doses. Female mice also exhibited increased absolute and relative liver weights; lack of both histopathological changes and measurements of liver enzyme activity make the biological significance of liver weight changes unclear.

[7] 5469669: In a 2-year toxicity study, TCEP was administered via gavage in corn oil to female and male B6C3F1 mice (60/sex/group) at concentrations of 0, 175, or 350 mg/kg-day, 5 days per week, for two years. Interim sacrifices were conducted on 10 animals/sex/group at 66 weeks. Endpoints in these animals included necropsy, hematology, clinical chemistry, organ weights (brain, liver, kidney), and histopathology. Study-wide endpoints included mortality, clinical signs of toxicity, and body weights. Necropsy was performed on all animals that died or were sacrificed at study termination and histopathology (adrenals, bone (including marrow), bone marrow (sternum), brain, clitoral gland, epididymis, esophagus, harderian gland, heart, kidney, large intestines (cecum, colon, rectum), liver, lung with bronchi, lymph nodes (mandibular, mesenteric), mammary glands, nasal cavity and turbinates, ovaries, pancreas, parathyroid, pituitary, preputial gland, prostate, salivary gland, seminal vesicles, skin, small intestines (duodenum, ileum, jejunum), spleen, stomach, testes, thymus, thyroid, trachea, urinary bladder, uterus, tissue masses, and gross lesions) was conducted on controls and animals treated with 350 mg/kg-day; harderian gland, kidney, liver, lung, stomach tissues were also examined for the 175 mg/kg-day group. No differences in mortality attributed to treatment were observed. There were no clinical signs of toxicity or significant changes in body weights at any treatment level in the 2-year animal study. In the 66-week animals, there were no treatment-related hematological or clinical chemistry changes. Although the methods specified that limited organ weights were recorded, results were not reported. Adenoma of the harderian gland was seen in two 350 mg/kg-day females. Renal karyomegaly was observed in 32% and 78% of male mice dosed at 175 and 350 mg/kg-day, respectively, compared to 4% of control animals. Karyomegaly was observed in 10% and 88% of female mice dosed at 175 and 350 mg/kg-day, respectively. These lesions were observed primarily in the proximal convoluted tubules of the inner cortex and outer stripe of the outer medulla and, to a lesser extent, in the straight portion of the loops of Henle in the outer medulla. Renal hyperplasia was observed in 6% of male mice at 350 mg/kg-day compared to 2% of control animals when combined 2-year and 66-week mice are considered. Hyperplasia was observed in 4% of female mice at 350 mg/kg-day compared to 0% of control animals when combined 2-year and 66-week mice are considered. An increase in the incidence of eosinophilic foci in the liver was observed in 350 mg/kg-day males compared to controls. Tumor assessment showed no statistically significant increased incidences of neoplasms in the kidney, additional kidney sections were prepared for microscopic examination, and in total (original results plus the additional screen) showed renal tubule neoplasms in 1/50, 1/50, and 4/50 control, 175 and 350 mg/kg-day animals, respectively. The spontaneous occurrence of these tumors are rare (0.4% in historical controls), and therefore the authors considered the findings of the current study to be equivocal. There were marginal (p = 0.055, logistic regression; p = 0.08, Fisher exact) increases in incidences

of hepatocellular adenoma compared to controls in male mice at 350 mg/kg-day, but rates of adenoma and combined adenoma or carcinoma incidence were not significantly increased, and these data are confounded by the high background of hepatocellular adenomas in this strain of mouse. Therefore, it is uncertain if the increase in eosinophilic foci and observed adenomas are related to treatment. Treated females had a marginally increased rate of neoplasms of the harderian gland (16% and 14% at 175 and 350 mg/kg-day, respectively, compared to 6% in controls), although life table, logistic regression, Cochran-Armitage, and Fisher's exact tests all lacked statistical significance. The authors did note the lack of reliable historical control data on harderian gland neoplasms because this tissue is typically not examined unless there were gross observations; therefore, the historical control data (mean 2.5%) may underestimate the true rates. Overall, based on the available data, the study authors concluded that there was equivocal evidence of carcinogenic activity in male mice based on the marginal increase in renal tubule cell neoplasms and on the marginally increased incidence of harderian gland adenomas in females. The data for hepatocellular adenomas is unclear due to the high background of tumors in controls.

[8] 5469669: In a 2-year toxicity study, TCEP was administered via gavage in corn oil to female and male Fisher-344/N rats (60/sex/group) at concentrations of 0, 44, or 88 mg/kg-day, 5 days per week, where 10 animals/sex/group were evaluated (necropsy, hematology, clinical chemistry) at 66 weeks. Endpoints evaluated included mortality, clinical signs of toxicity (monthly), body weights, hematology and clinical chemistry, organ weights (brain, kidney, and liver), and histopathology (adrenals, bone (including marrow), bone marrow (sternum), brain, clitoral gland, epididymis, esophagus, harderian gland, heart, kidney, large intestines (cecum, colon, rectum), liver, lung with bronchi, lymph nodes (mandibular, mesenteric), mammary glands, nasal cavity and turbinates, ovaries, pancreas, parathyroid, pituitary, preputial gland, prostate, salivary gland, seminal vesicles, skin, small intestines (duodenum, ileum, jejunum), spleen, stomach, testes, thymus, thyroid, trachea, urinary bladder, uterus, tissue masses, and gross lesions) (complete assessment for all groups). One female in the 88 mg/kg-day group and one control male died prior to the interim sacrifice. At the 66-week assessment, serum alkaline phosphatase and alanine transferase were significantly decreased in 88 mg/kg-day females. Mean absolute and relative liver weights were increased by 20.1% and 24.5% at 88 mg/kg-day and relative liver weights were significantly increased by 7% at 44 mg/kg-day, respectively, in males. Mean absolute and relative kidney weights were increased by 13.8% and 12.2% , respectively, also in high-dose males. At the interim sacrifice, one high-dose male had an adenoma of the renal tubule, and three high-dose females showed degenerative lesions in the brain. Survival during the 2-year study was non-significantly reduced in males and females receiving 88 mg/kg-day. Females (but not males) that died early or were sacrificed moribund frequently had brain lesions. No clinical signs of toxicity or changes in body weight were seen in treated 2-year animals compared to controls. Animal organ weights were not measured in surviving animals at study termination. The principal non-neoplastic effects associated with TCEP were observed in the brain and kidneys of male and female rats. Degenerative lesions were observed in the brain in over 40% of female rats receiving 88 mg/kg, including focal gliosis, hemorrhage, mineralization, and hemosiderin pigmentation in the brain stem and cerebrum. Hyperplasia was observed in the kidney of 48% of the males at 88 mg/kg-day and in 4% of the males at 44 mg/kg-day, compared to 0% of the control animals. Hyperplasia was observed in the kidney of 32% of the females at 88 mg/kg-day and in 6% of the females at 44 mg/kg-day, compared to 0% of the control animals. Incidences of clitoral gland duct ectasia were increased in females at 88 mg/kg-day. Incidences of hemorrhages in the lung were increased in females at 88 mg/kg-day.Statistically significant neoplastic effects were observed in the thyroid (increased incidences of follicular cell neoplasms in females 88 mg/kg-day), hematopoietic system (increased incidences of mononuclear cell leukemia in both sexes at 44 and 88 mg/kg-day), uterus (increased incidences of stromal sarcomas at 88 mg/kg-day), and kidney (increased incidences of renal tubule adenomas in males and females at 88 mg/kg-day). The incidences of renal tubule adenomas were significantly increased in high-dose males and females based on pairwise comparisons, and trend tests were also significant. In the thyroid gland, a significant trend for follicular cell carcinomas or combined adenomas and carcinomas in females was observed and significantly increased incidences were observed at 88 mg/kg-day. The incidences also fell slightly above the historical range, but the study authors indicated there was no supporting evidence of hyperplasia to indicate that these tumors were related to treatment. There was a positive trend for mononuclear cell leukemias in both sexes. The incidences were significantly increased in males at both 44 and 88 mg/kg-day and in females at 88 mg/kg-day, but they fell within the range of historical controls. Likewise, although a positive trend for uterine stromal sarcomas was observed, the incidences were not significantly different from controls and were not considered to be related to treatment. In the brain, granular cell tumors were noted in 3 high-dose males and in two low-dose females. Although these are rare in this strain of rats, the incidences were not significantly increased, relative to controls, and (in females) were not dose related. Based on the available data, the study authors indicated there was clear evidence of carcinogenicity for male and female rats based on the increased incidences of renal tubule adenomas. The thyroid follicular cell neoplasms, and mononuclear cell leukemia in male and female rats may also be related to exposure.

Tris(2-chloroethyl) phosphate (TCEP) - 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*	Citation and HERO ID
No Guideline Reported. Mouse; CD-1 - [mouse]; Female	Oral: Gavage 8 days 8 days of dosing and 8 days of observation.	**POD: 940 mg/kg (Minimal Effective Dose)–Reproductive Effects** 0, 940 mg/kg-bw/day F0 - gestation, 7-14 Day	In this reproductive study, overall, with TCEP, there are no pronounced differences between the treated and control animals.	There were some dosing errors that lead to the death of a couple of mice.	Reproductive/ Developmental: High	Hazleton Laboratories 1983 790471
Animal protocols were approved by the US EPA NHEERL Institutional Animal Care and Use Committee, and followed the 1996 NRC "Guide for the Care and Use of Laboratory Animals", the Animal Welfare Act, and the Public Health Service Policy on the Humane Care and Use of Laboratory Animals. Rat; Long-Evans - [rat]; Female	Oral: Gavage 34 days Exposure ranged from gestation day (GD) 10 to postnatal day (PND) 22. The initial high-dose was 125 mg/kg-day; this was lowered to 90 mg/kg-day after 5 days owing to overt toxicity (resulting in two dams being sacrificed moribund). The time-weighted average dose is considered 95 mg/kg-day (calculated as [125 mg/kg-day x 5/34 days] + [90 mg/kg-day x 29/34 days]).	**POD: 40 mg/kg-day (NOAEL, liver)** 0, 12, 40, 90 mg/kg-bw/day F0 - gestation, 12, F0- lactation, 22	See footnotes for full summary [1]	The number of females/group at the start of the study (i.e., presumably 14/group because 56 animals were split among three dose groups plus controls) was lower that typically used for these types of studies (e.g., prenatal developmental toxicity studies, which typically use enough females to generate about 20 litters/group). Blinding was not explicitly reported for some of the neurobehavioral tests (presumably some of the less subjective tests and/or tests that could be measured using software).	Neurological/ Behavioral, Thyroid, Reproductive/ Developmental, Hepatic/Liver: High	Moser et al. 2015 3008543

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Tris(2-chloroethyl) phosphate (TCEP) - 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*	Citation and HERO ID
Animal protocols were approved by the US EPA NHEERL Institutional Animal Care and Use Committee, and followed the 1996 NRC "Guide for the Care and Use of Laboratory Animals", the Animal Welfare Act, and the Public Health Service Policy on the Humane Care and Use of Laboratory Animals. Rat; Long-Evans - [rat]; Female	Oral: Gavage 34 days Exposure ranged from gestation day (GD) 10 to postnatal day (PND) 22. The initial high-dose was 125 mg/kg-day; this was lowered to 90 mg/kg-day after 5 days owing to overt toxicity (resulting in two dams being sacrificed moribund). The time-weighted average dose is considered 95 mg/kg-day (calculated as [125 mg/kg-day x 5/34 days] + [90 mg/kg-day x 29/34 days]).	**POD: 40 mg/kg-day (NOAEL, liver)** 0, 12, 40, 90 mg/kg-bw/day F0 - gestation, 12, F0- lactation, 22	See footnotes for full summary [2]	The number of females/group at the start of the study (i.e., presumably 14/group because 56 animals were split among three dose groups plus controls) was lower that typically used for these types of studies (e.g., prenatal developmental toxicity studies, which typically use enough females to generate about 20 litters/group). Blinding was not explicitly reported for some of the neurobehavioral tests (presumably some of the less subjective tests and/or tests that could be measured using software).	Neurological/ Behavioral, Thyroid, Reproductive/ Developmental, Hepatic/Liver: High	Moser et al. 2015 3008543
NTP's Continuous Breeding Protocol and compliant with the Food and Drug Administration's GLP Regulations Mouse; CD-1 - [mouse]; Both	Oral: Gavage 7 days/week 35 weeks Task 1 (dose range-finding): exposure for 2 weeks; Task 2 (continuous breeding of F0 animals): 18 weeks (1 week prior to cohabitation, 14 weeks cohabitation, plus a 3-week holding period) plus 3 weeks weaning of pups from last litter; Task 3: crossover mating of F0 animals (1 week prior to cohabitation, 1 week cohabitation, 3 weeks holding period); Task 4: fertility of F1 offspring (1 week prior to cohabitation, 1 week cohabitation, 5 week holding period). The crossover mating phase of the study is not included in the table. See pages 161+ of the PDF.	**POD: 175 mg/kg-day (LOAEL; decreased numbers of live F2 male pups/ litter and male pups/ total F2 pups)** 0, 175, 350, 700 mg/kg-bw/day F0- premating, 3, F0- mating, 14, F0 - gestation, 3, F0- lactation, 3, F0- post-natal, F1- premating, 1, F1- mating, 1, F1 - gestation, 3, F1- lactation, 2	See footnotes for full summary [3]	None.	Reproductive/ Developmental: High	NTP 1991 10603716

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Tris(2-chloroethyl) phosphate (TCEP) - 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*	Citation and HERO ID

* Overall Quality Determination

[1] 3008543: Pregnant Long-Evans rats (presumably 14/group) were administered TCEP (purity = 97%) in corn oil via gavage at 0 (vehicle control), 12, 40, and 125 mg/kg-day from gestation day (GD) 10 until weaning (postnatal day [PND] 22). Owing to overt toxicity at 125 mg/kg-day (tremors and overt toxicity in two rats, which resulted in them being sacrificed) the 125 mg/kg-day was reduced to 90 mg/kg-day after 5 days. The study refers to the high dose group as 90 mg/kg-day throughout the study; the actual time-weight average dose is 95 mg/kg-day (calculated as [125 mg/kg-day x 5/34 days] + [90 mg/kg-day x 29/34 days]). The following endpoints were measured in dams: mortality, body weights, liver weights, serum AchE, and serum thyroid hormone (T3 and T4) levels. The two females that failed to deliver were examined for resorptions. Endpoints measured in the offspring included developmental parameters and growth (litter size and weight, male:female ratio, viability), liver effects (liver weights at PNDs 6 and 22), thyroid effects (serum T3 and T4), and developmental neurotoxicity (brain and serum AchE, brain weights and neurobehavioral tests, including righting reflex in all pups on PNDs 2-4, standard locomotor activity in pre- and post-weaning pups and adult offspring, locomotor activity with lighting change, elevated zero maze, and modified functional observational battery (FOB) in post-weaning pups and adult offspring, and Morris water maze in adult offspring.There were no significant, treatment-related effects on maternal parameters except relative liver weight, which was significantly increased at the highest dose (9% higher than controls). Although this was $<$10% change relative to controls, the study authors called this an effect. No significant, treatment-related effects were observed in offspring for any of the following endpoints: developmental and growth parameters, liver and brain weights, thyroid hormones, brain or serum AchE activity. TCEP-treated offspring showed changes in quadrant time and middle-zone preference in the water maze; however, these changes were considered by the study authors to be minimal, not dose-related, and/or not biologically significant. The study authors stated that the data from this study do not support the potential for thyrotoxicity or developmental neurotoxicity produced by TCEP.

[2] 3008543: Pregnant Long-Evans rats (presumably 14/group) were administered TCEP (purity = 97%) in corn oil via gavage at 0 (vehicle control), 12, 40, and 125 mg/kg-day from gestation day (GD) 10 until weaning (postnatal day [PND] 22). Owing to overt toxicity at 125 mg/kg-day (tremors and overt toxicity in two rats, which resulted in them being sacrificed) the 125 mg/kg-day was reduced to 90 mg/kg-day after 5 days. The study refers to the high dose group as 90 mg/kg-day throughout the study; the actual time-weight average dose is 95 mg/kg-day (calculated as [125 mg/kg-day x 5/34 days] + [90 mg/kg-day x 29/34 days]). The following endpoints were measured in dams: mortality, body weights, liver weights, serum AchE, and serum thyroid hormone (T3 and T4) levels. The two females that failed to deliver were examined for resorptions. Endpoints measured in the offspring included developmental parameters and growth (litter size and weight, male:female ratio, viability), liver effects (liver weights at PNDs 6 and 22), thyroid effects (serum T3 and T4), and developmental neurotoxicity (brain and serum AchE, brain weights and neurobehavioral tests, including righting reflex in all pups on PNDs 2-4, standard locomotor activity in pre- and post-weaning pups and adult offspring, locomotor activity with lighting change, elevated zero maze, and modified functional observational battery (FOB) in post-weaning pups and adult offspring, and Morris water maze in adult offspring.There were no significant, treatment-related effects on maternal parameters except relative liver weight, which was significantly increased at the highest dose (9% higher than controls). Although this was <10% change relative to controls, the study authors called this an effect. No significant, treatment-related effects were observed in offspring for any of the following endpoints: developmental and growth parameters, liver and brain weights, thyroid hormones, brain or serum AchE activity. TCEP-treated offspring showed changes in quadrant time and middle-zone preference in the water maze; however, these changes were considered by the study authors to be minimal, not dose-related, and/or not biologically significant. The study authors stated that the data from this study do not support the potential for thyrotoxicity or developmental neurotoxicity produced by TCEP.

[3] 10603716: The reproductive assessment by continuous breeding (RACB) protocol consisted of 4 phases: 1) dose range-finding; 2) continuous breeding; 3) crossover mating; and 4) fertility of the F1 generation. In the dose range-finding task (Task 1), CD-1 mice (8/sex/dose) were administered TCEP via gavage in corn oil at 0, 87.5, 175, 350, or 700, or 1000 mg/kg-day for 14 days. There were no significant, treatment-related effects on mortality or, body weights. Female mice receiving 700 or 1000 mg/kg-day had significantly increased water consumption.In Task 2, CD-1 mice (20 pairs/dose and 40 pairs for controls) were administered TCEP via gavage at 0, 175, 350, or 7050 mg/kg-day for 18 weeks (including 1 week prior to cohabitation and 14 weeks cohabitation plus a 3-week holding period) plus 3 weeks weaning of the last litter (litter 5). There were no significant treatment-related effects on mortality, parental (F0) body weights, or water consumption (occasional differences in the body weights of females were likely influenced by gestational status). Reproductive/developmental parameters impacted by treatment with TCEP included: fertility (significantly decreased at 350 mg/kg-day in litter 56 and 700 mg/kg-day in litters 2-5), cumulative days to litter (significantly increased at 700 mg/kg-day for the second litter; two few litters for statistical analysis for litter 3, and no fertility at this dose with respect to the fourth and fifth litterslitters 4 and 5); mean litters/pair (significantly decreased at 350 and 700 mg/kg-day), and live F1 pups/litter (significantly decreased at 350 and 700 mg/kg-day based on males, females, and the combined sexes). There were no significant treatment-related effects on proportion of pups born alive, pup survival, or pup weights during this task (including the final litter, which was subject to a holding period for Task 4).In the crossover mating phase of the study (Task 3), CD-1 mice (20 pairs/dose) were administered TCEP via gavage at 0 or 700 mg/kg-day (1 week prior to cohabitation, 1 week cohabitation, and 3 weeks holding period); treated males were mated to untreated females and treated females were mated to untreated males (to identify the affected sex). A final group mated control males to control females. There were no significant, treatment-related effects on mortality, body weights, or water consumption. At necropsy, increased absolute and relative liver weights and liver histology (cytomegaly and a non-significant increase in hepatitis) were observed in male F0 rats (no effects in F0 females), and decreased kidneys/adrenals weights and kidney histology (cytomegaly of renal tubule cells) were observed in F0 males and females; there were no effects on brain histology in either sex. Treated males mated to untreated females showed significant reductions in matingpregnancy and fertility (without effect on these parameters in treated females mated to untreated males). Treated females showed no significant effects on cumulative days to litter or dam weights. Number of F1 live pups/litter and male F1 pups/litter were significantly decreased in treated females mated to untreated males; they were also decreased in treated males mated to untreated females but these data could not be analyzed statistically because there was only one litter. The number of live F1 female pups/litter was decreased, albeit not significantly, in treated females mated to untreated males; treated males mated to untreated females did not produce any female F1 pups. All F1 pups (both treatment groups) were born alive. Treated females mated to untreated males did not change the sex ratio of live F1 pups; all pups born to treated males mated to untreated females were males (1 litter; could not be analyzed statistically). Absolute and adjusted (to litter size) pup weights were unaffected by treatment in treated females mated to untreated males. Estrous cyclicity in treated F0 females was not affected by treatment; however, treated F0 males showed significantly reduced sperm concentration and motility, and increased abnormal sperm. F0 males showed significantly decreased absolute (but not relative) right epididymis weight and significantly decreased absolute and relative right testis weight (without significantly increased incidences of histology in these organs). Right ovary weight was increased (marginally significant) in treated females, without evidence of histology. Other reproductive organ weights (cauda epididymis, prostate, and seminal vesicles) were unaffected by treatment. To assess the fertility of the F1 generation (Task 4), CD-1 mice (from the final litter of Task 2) treated at 0, 175, or 350 mg/kg-day were cohabitated for 1 week starting at about 74 days of age (there were not enough surviving 700 mg/kg-day pups from Task 2 to use this dose in Task 4). There were no significant, treatment-related effects on mortality, parental (F1) body weights, or water consumption. At necropsy of the F1 animals, there were no significant effects on liver or kidney weights or histology of the liver, kidney, spleen, axillary lymph nodes, eye, or brain. With respect to reproductive/developmental parameters, the following parameters were unaffected by treatment at up to 350 mg/kg-day: mating, pregnancy, and fertility; cumulative days to litter, dam weights, live female F2 pups/litter, proportion of F2 pups born alive, F2 pups weights (after adjustment for litter size), estrous cyclicity (F1 females), sperm parameters (F1 males), or reproductive organ weights or histology (epididymis, testis, cauda epididymis, prostate, seminal vesicles, ovary - the toxicological significance of weight changes < 10% from controls were considered uncertain). The number of live F2 pups/litter (combined sexes) was significantly decreased at 350 mg/kg-day; live male F2 pups/litter and number of males/total F2 pups were significantly decreased at /= 175 mg/kg-day. A NOAEL was not identified; the LOAEL is 175 mg/kg-day based on decreased numbers of live male F2 pups/litter and F2 male pups/total F2 pups (i.e., a change in the sex ratio of pups).

Epidemiology Extraction Table: Immune/Hematological

Measured Effect/ Endpoints	Study Population	Exposure	Results	Overall Quality Determination	Citation and HERO ID
eczema and allergic rhinoconjunctivitis Study Design: Cross-Sectional	children (2-18y) male & female 128 elementary school children in Sapporo, Japan, 2009-2010	TCEP, Median (nmol/g standardized CR) 0.15, 25th-75th Percentile: 0.08-0.27 biomonitoringurine	Eczema: Adjusted OR for T3 vs. T1 (95% CI), 0.79 (0.25, 2.47). P-value=0.681Rhinoconjunctivitis: Adjusted OR for T3 vs. T1 (95% CI). 1.37 (0.48, 3.88). P-value=0.558	High	Araki et al. 2020 6957526
Childhood asthma Study Design: Case-Control	children (2-18y) male & female 110 asthmatic children aged 4 to 8 years from the Barn, Allergy, Milieu Stockholm Epidemiology (BAMSE) cohort in Sweden; 110 matched healthy children controls	TCEP for cases: median = 102 ng/g dust (25th-75th percentile: 49-263 ng/g dust); TPP for controls: median = 107 ng/g dust (25th-75th percentile: 52-207 ng/g dust) indoor dust	Dust collected from mattresses of the mothers of children who would develop asthma contained similar amounts of TCEP (p=0.096)	Medium	Canbaz et al., 2015 2994738

Epidemiology Extraction Table: Cancer/Carcinogenesis

Measured Effect/ Endpoints	Study Population	Exposure	Results	Overall Quality Determination	Citation and HERO ID
Diagnosis of papillary thyroid cancer; pathological characterization of tumors Study Design: Case-Control	adults male & female 70 cases of papillary thyroid cancer and 70 age- and gender-match controls recruited from Duke Cancer Institute or Duke University hospital between April 2014 and January 2016	TCEP, median 400 ng/g in household dust (visual inspection of data presented graphically)Dust used as a proxy for exposure for TCEP. No biological measurements for organohalogenated FRs. household dust	Diagnosis of papillary thyroid cancer positively associated with TCEP concentrations above the median; OR = 2.42 (CI 1.10 - 5.33). Indicators of tumor aggressiveness associated with TCEP exposure above the median; presence of extrathyroidal extension OR = 4.14 (CI 1.01 - 17.0), T-stage 2, 3, or 4 (tumor size >2 cm, >4cm, or any size and extended by thyroid) OR = 3.18 (CI 1.08 - 9.38), and N-stage 1 (spread to lymph nodes) OR = 4.06 (CI 1.18 - 13.9)	High	Hoffman et al. 2017 4161719
Gastrointestinal cancer Study Design: Case-Control	adults male & female Cancer patients (n=74) and cancer-free controls (n=62) in Wuhan, China, 43-75 years old	TCEP, control mean (ng/mL) 0; gastric cancer mean (ng/mL) 1.90; colorectal cancer mean (ng/mL) 1.98 biomonitoringblood, serum, or plasma	Odds of gastric and colorectal cancer positively associated with TCEP levels; OR=148.487 (CI: not reported) for gastric; OR=100 (CI: not reported) for colorectal	Medium	Li et al. 2020 6747922

Epidemiology Extraction Table: Endocrine

Measured Effect/ Endpoints	Study Population	Exposure	Results	Overall Quality Determination	Citation and HERO ID
Diagnosis of papillary thyroid cancer; pathological characterization of tumors Study Design: Case-Control	adults male & female 70 cases of papillary thyroid cancer and 70 age- and gender-match controls recruited from Duke Cancer Institute or Duke University hospital between April 2014 and January 2016	TCEP, median 400 ng/g in household dust (visual inspection of data presented graphically). Dust used as a proxy for exposure for TCEP. No biological measurements for organohalogenated FRs. household dust	Diagnosis of papillary thyroid cancer positively associated with TCEP concentrations above the median; OR = 2.42 (CI 1.10 - 5.33). Indicators of tumor aggressiveness associated with TCEP exposure above the median; presence of extrathyroidal extension OR = 4.14 (CI 1.01 - 17.0), T-stage 2, 3, or 4 (tumor size >2 cm, >4cm, or any size and extended by thyroid) OR = 3.18 (CI 1.08 - 9.38), and N-stage 1 (spread to lymph nodes) OR = 4.06 (CI 1.18 - 13.9)	High	Hoffman et al. 2017 4161719

Epidemiology Extraction Table: Lung/Respiratory

Measured Effect/ Endpoints	Study Population	Exposure	Results	Overall Quality Determination	Citation and HERO ID
wheeze Study Design: Cross-Sectional	children (2-18y) male & female 128 elementary school children in Sapporo, Japan, 2009-2010	TCEP, Median (nmol/g standardized CR) 0.15, 25th-7th Percentile: 0.08-0.27 biomonitoringurine	Wheeze: Adjusted OR for T3 vs. T1 (95% CI), 1.61 (0.46, 5.61). P-value=0.457	High	Araki et al. 2020 6957526

Epidemiology Extraction Table: Reproductive/Developmental

Measured Effect/ Endpoints	Study Population	Exposure	Results	Overall Quality Determination	Citation and HERO ID
Gestational weight gain among pregnant women; infant gestational age at delivery; infant anthropometric measurements at birth and 6 weeks postpartum, including birth weight and length, head and abdominal circumference, and four body composition (iliac, subscapular, triceps, and thigh skinfold thickness). Study Design: Cohort (Prospective)	pregnant women, infants (birth to 2y) male & female 56 mother-infant pairs enrolled from Women & Infants Hospital of Rhode Island (WIHRI) between July and December 2014.	BCEP (TCEP metabolites), individual level in pooled urine samples measured. biomonitoringurine	BCEP levels were similar among women with appropriate GWG and women with limited GWG. No strong association between BCEP and gestational age at delivery, birth weight and length, birth head and abdominal circumference. BCEP was positively associated with measures of infant body composition, and thigh skinfold thickness among all infants, and subscapular skinfold thickness in males.	High	Crawford et al. 2020 7274557
Infant feeding behaviors including general appetite, enjoyment of food, food responsiveness, slowness in eating, and satiety responsiveness. Study Design: Cohort (Prospective)	infants (birth to 2y) male & female 56 mother-infant pairs enrolled from Women & Infants Hospital of Rhode Island (WIHRI) between July and December 2014.	BCEP (TCEP metabolite), individual level in pooled urine samples measured. biomonitoringurine	BCEP does not impact infant feeding behaviors in any traits.	High	Crawford et al. 2020 7274557