

**Final Goal and Scope for the Design for the Environment (DfE)
 Alternatives to Certain Phthalates Partnership
 February 7, 2012**

The goal of this project is to inform substitution to safer alternatives for certain phthalates by evaluating the hazard associated with functional alternatives, and to provide other relevant information pertaining to alternatives assessment, in keeping with DfE principles, making this information available to decision-makers and the public.

This project scope was developed by EPA in consultation with the multi-stakeholder workgroup for the Partnership on Alternatives to Certain Phthalates. The partnership was convened at an August 24, 2011 kick-off meeting with the goal of evaluating phthalates and potential functional alternatives based on a range of human health and environmental endpoints, and providing this information to stakeholders for informed decision making.

This alternatives assessment is a part of ongoing work to enhance EPA's chemical management program. As part of the Phthalates Action Plan,¹ DfE will evaluate:

- The eight chemicals identified in the action plan (listed below), and
- Known and potential functional, application-based plasticizers and solvents (including other phthalates).

The evaluation will focus on health and environmental attributes. The assessment will also capture basic information about known and potential functional use and applications using phthalates or the alternatives, and to the extent that this information is available, technical and performance attributes, technical feasibility, commercial availability, and relative cost, based on the seven key principles of alternatives assessment (Lavoie et al., 2010, available at: <http://pubs.acs.org/doi/abs/10.1021/es1015789>).

CASRN	CA Index Name	Acronym	Common Name
84-74-2	1,2-Benzenedicarboxylic acid, 1,2-dibutyl ester	DBP	Dibutyl phthalate
84-69-5	1,2-Benzenedicarboxylic acid, 1,2-bis-(2-methylpropyl)	DIBP	Diisobutyl phthalate
85-68-7	1,2-Benzenedicarboxylic acid, 1-butyl 2- (phenylmethyl) ester	BBP	Butyl benzyl phthalate
131-18-0	1,2-Benzenedicarboxylic acid, 1,2-dipentyl ester	DnPP	Di- <i>n</i> -pentyl phthalate
117-81-7	1,2-Benzenedicarboxylic acid, 1,2-bis(2-ethylhexyl) ester	DEHP	Di(2-ethylhexyl) phthalate
117-84-0	1,2-Benzenedicarboxylic acid, 1,2-dioctyl ester	DnOP	Di- <i>n</i> -octyl phthalate
28553-12-0 68515-48-0	1,2-Benzenedicarboxylic acid, 1,2-diisononyl ester 1,2-Benzenedicarboxylic acid, di-C8-C10-branched alkyl esters, C9-rich	DINP	Diisononyl phthalate Di-(C9-rich branched C8-C10-alkyl) phthalate
26761-40-0 68515-49-1	1,2-Benzenedicarboxylic acid, 1,2-diisodecyl ester 1,2-Benzenedicarboxylic acid, di-C9-C11-branched alkyl esters, C10-rich	DIDP	Diisodecyl phthalate Di-(C10-rich branched C9-C11-alkyl) phthalate

¹ <http://www.epa.gov/opptintr/existingchemicals/pubs/actionplans/phthalates.html> Specifically, The EPA will “conduct a Design for the Environment and Green Chemistry alternatives assessment by 2012. The information developed could be used to encourage industry to move away from phthalates in a non-regulatory setting to expand risk management effects beyond whatever regulatory action might be taken under TSCA or could be used as input to a regulatory action. The alternatives assessment would build upon existing knowledge and would consider exposures for all human subpopulations, as well as environmental exposure.” See Action Plan page 11, http://www.epa.gov/opptintr/existingchemicals/pubs/actionplans/phthalates_ap_2009_1230_final.pdf

Components of the DfE Alternatives Assessment for Certain Phthalates

1. The partnership will identify a list of possible phthalate alternatives with the potential to meet functional uses and applications associated the eight phthalates identified above.
2. DfE will evaluate alternatives using the DfE Methodology for Alternatives Assessment². The evaluation component of the report will focus on the health and environmental profiles for each chemical, which will be based on:
 - a. Public literature review;
 - b. Structure activity relationship modeling; and
 - c. Proprietary information shared by stakeholders (if available).
3. These profiles will include, as specified in the DfE Alternatives Assessment Criteria for Hazard Evaluation³:
 - a. Physical chemical properties;
 - b. Human health and ecotoxicity endpoints;
 - c. Persistence and bioaccumulation; and
 - d. Fate and environmental transport.

This information from the partnership will be made available to decision-makers and the public in a manner that protects proprietary information where necessary.

4. For each chemical included in the report, the partnership will also identify, for informational purposes and *to the extent that this information is available*:
 - a. Known or potential functional uses (e.g., plasticizer, solvent, etc.); and
 - b. Known or potential materials and applications (e.g., plastic automotive trim, electronics cable, carrier for fragrance, etc.).

A tabular display of functional uses, applications and materials will help decision makers understand which chemicals may satisfy each functional need and application.

5. For a subset of chemical additives used as phthalate alternatives included in the report, the partnership will identify, *to the extent that this information is reliably available*, for the purpose of providing additional context to decision-makers and the public:
 - a. Technical and performance factors
 - b. Economic/cost factors
 - c. Technological feasibility and commercial availability

² http://epa.gov/dfe/alternative_assessments.html

³ http://www.epa.gov/dfe/alternatives_assessment_criteria_for_hazard_eval.pdf