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Office of Chemical Safety and
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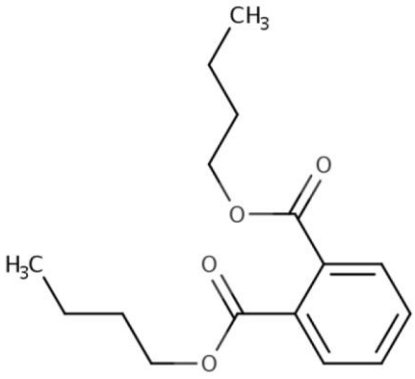
Nontechnical Summary of the TSCA Risk Evaluation for Dibutyl Phthalate (DBP)



$C_{16}H_{22}O_4$ (CASRN: 84-74-2)

Why Is EPA Providing This Document?

EPA evaluated the risks of DBP to human health and the environment under the Toxic Substances Control Act (TSCA). This document summarizes the results of the completed *Risk Evaluation for Dibutyl Phthalate (DBP)*.

What Is DBP and How Is It Used?

DBP is a clear, oily liquid. Produced and imported DBP is primarily used as a plasticizer or stabilizing agent in the manufacture of adhesives, sealants, paints, coatings, and rubbers. DBP is also used in PVC (polyvinyl chloride) and non-PVC plastic products across consumer, commercial, and industrial applications.

How Can Persons and the Environment Be Exposed to DBP?

Exposure may occur in and near workplaces when making or using DBP-containing products, which can also result in releases to water. Most DBP released into water ends up in the sediment of nearby lakes and rivers. DBP released in the air can attach to dust particles and deposit on land or into water. Such emissions can contribute to the exposure of the general population to DBP. In indoor environments, DBP released from products over time can also adhere to dust. Consumers may be exposed from use of DBP-containing products. EPA evaluated all these exposures to determine if there was unreasonable risk of injury to human health and the environment.

Can DBP Harm People Who Are Exposed?

Based on findings in laboratory animals, DBP can cause a range of non-cancer health effects in people if exposure is at a level that causes toxicity. The most sensitive adverse (harmful) effects are on the developing male reproductive system, causing what is known as "phthalate syndrome."

Can DBP Harm the Environment?

DBP can be harmful to the environment if exposure is at a level that causes toxicity. The Agency assessed risks to aquatic organisms, aquatic-dependent mammals, land mammals, sediment-dwelling invertebrates, soil invertebrates, aquatic plants and algae, and terrestrial plants. Based on the scientific evidence, DBP causes an unreasonable risk of injury to the environment through chronic exposure to aquatic vertebrates, and through exposure to aquatic plants and algae, during disposal. These findings are based on releases from wastewater treatment plants, which include treatment-related removal of DBP. Although DBP can also be present in air, soil, and sediment, concentrations are expected to be below those that could cause harm to the environment.

How Has EPA Assessed DBP Under TSCA?
EPA assessed risks to human health and the environment. As required by law, the Agency identified and evaluated potentially exposed or susceptible subpopulations (PESS[1]), which include the following:

- workers, including those who manufacture, process, distribute, or use DBP in the workplace;
- females of reproductive age;
- pregnant women, infants, children, and adolescents;
- people who frequently use consumer products and/or articles containing high concentrations of DBP;
- people living in close proximity to releasing facilities ("fenceline" communities); and
- subsistence fishers and tribal populations whose diets include large amounts of fish.

EPA also evaluated risks from cumulative exposures to DBP and five other phthalates that can all cause phthalate syndrome.[2] The cumulative risk assessment (CRA) describes analyses considering DBP exposure under the TSCA conditions of use (COUs[3]) as the "individual assessment" or "single chemical assessment" and analyses also considering background exposure to other phthalates as the "cumulative assessment."

The multi-chemical aspect of the evaluation is derived from the addition of *background phthalate exposure* as estimated from National Health and Nutrition Examination Survey (NHANES) biomonitoring data. Thus, risks are characterized not only for occupational and consumer exposures to DBP alone, but also in conjunction with cumulative phthalate exposure that (1) may be experienced by the U.S. population, and (2) cannot be attributed to a specific COU under TSCA.

In May 2025, EPA released the *Draft Risk Evaluation for Dibutyl Phthalate (DBP)* for public comment. The final risk evaluation reflects changes made as the result of public comment and external peer review by the Science Advisory Committee on Chemicals (SACC[4]), who provided feedback across draft phthalate TSCA risk evaluations, including DBP.

What Is EPA's Final Risk Determination for Dibutyl Phthalate Under TSCA?
DBP presents an unreasonable risk of injury to human health driven by risk to workers through five COUs. EPA identified contributions to unreasonable risk of injury due to exposure to "occupational non-users" (ONUs[5]) but not to the general population, under any COU.

DBP presents an unreasonable risk of injury to the environment through one COU driven by risk to aquatic vertebrates, plants, and algae as a result of release from wastewater treatment plants.

The following five COUs significantly contribute to unreasonable risk of injury to the health of workers:

- Manufacturing – domestic manufacturing (aggregate [inhalation combined with dermal] exposure to workers);
- Industrial use – construction, paint, electrical, and metal products – paints and

[1] These groups may have higher exposures to DBP or be more likely (predisposed) to be harmed by exposure to DBP.
[2] The six phthalates included in the cumulative assessment are butyl benzyl pthalate (BBP), DBP, dicyclohexyl phthalate (DCHP), diethylhexyl phthalate (DEHP), diisobutyl phthalate (DIBP), and diisononyl phthalate (DINP).
[3] Under TSCA, COUs are the specific circumstances, "as determined by the Administrator, under which a chemical substance is intended, known, or reasonably foreseen to be manufactured, processed, distributed in commerce, used, or disposed of."
[4] See EPA-HQ-OPPT-2024-0551 for further information about and a full list of materials reviewed by the SACC.
[5] ONUs are employed persons who do not directly handle the chemical substance but may be indirectly exposed to it as part of their employment due to their proximity to the chemical.

coatings (inhalation exposure to workers; inhalation exposure to ONUs);
- Commercial use – construction, paint, electrical, and metal products – paints and coatings (inhalation exposure to workers; inhalation exposure to ONUs);
- Commercial use – packaging, paper, plastic, toys, hobby products – ink, toner, and colorant products (inhalation exposure to workers; inhalation exposure to ONUs); and
- Commercial use – other uses – inspection penetrant kit (inhalation exposure to workers).

The following COU significantly contributes to the unreasonable risk of injury to the environment:

- Disposal (aquatic vertebrates, plants, and algae).

A total of 38 COUs do *not* significantly contribute to unreasonable risk for DBP, nor do cumulative exposures contribute to unreasonable risks—including 1 related to manufacturing, 7 to processing, 1 to distribution, 16 to industrial and commercial uses, and 13 associated with consumer uses of DBP. These are described in the *Risk Evaluation for Dibutyl Phthalate (DBP*).

How Will EPA Protect Human Health and the Environment from Dibutyl Phthalate Under TSCA?

Following this final determination of unreasonable risk, TSCA requires EPA to propose a regulation to mitigate the unreasonable risk of DBP. After taking public comment on the proposed regulation, TSCA requires the Agency to finalize risk management regulations for DBP. Such regulations could include requirements for worker protection, labeling, recordkeeping, or restricting DBP for specific uses.