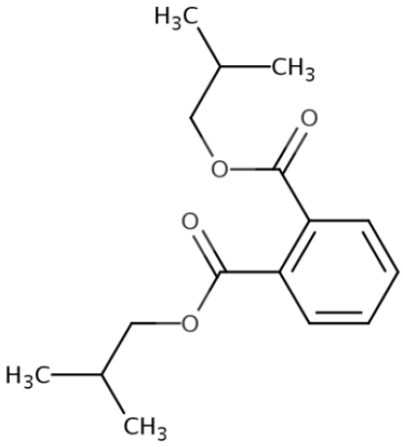
EPA Document# EPA-740-S-25-007
December 2025
Office of Chemical Safety and
Pollution Prevention

United States
Environmental Protection Agency

Nontechnical Summary of the TSCA Risk Evaluation for Diisobutyl Phthalate (DIBP)



$C_{16}H_{22}O_4$ (CASRN: 84-69-5)

Why Is EPA Providing This Document?

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

What Is DIBP and How Is It Used?

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

How Can Persons and the Environment Be Exposed to DIBP?

Workers can be exposed to DIBP when making or using DIBP-containing products, which can also result in releases to water. Most DIBP released into water ends up in the sediment of nearby lakes and rivers. DIBP 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 DIBP. In indoor environments, DIBP released from products over time can also adhere to dust. Consumers may be exposed from use of DIBP-containing products. EPA evaluated all these exposures to determine if there was unreasonable risk of injury to human health and the environment.

Can DIBP Harm People Who Are Exposed?

Based on findings in laboratory animals, DIBP 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) effect results from decreased fetal testicular testosterone levels, causing what is known as "phthalate syndrome."

Can DIBP Harm the Environment?

DIBP can be harmful to the environment if exposure is at a level that causes toxicity. EPA assessed risks to aquatic vertebrates; aquatic, sediment-dwelling, and soil invertebrates; aquatic plants and algae; and terrestrial mammals and plants. Based on the scientific evidence, DIBP causes an unreasonable risk of injury to the environment due to exposure to algae and chronic exposure to aquatic vertebrates from direct discharge to surface water. Although DIBP 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 DIBP 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:

[1] These groups may have higher exposures to DIBP or be more likely (predisposed) to be harmed by exposure to DIBP.

- workers, including those who manufacture, process, distribute, or use DIBP 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 DIBP;
- 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 DIBP and five other phthalates that can all cause phthalate syndrome.[2] The cumulative risk assessment (CRA) describes analyses considering DIBP 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 DIBP alone, but also in conjunction with other phthalate exposures that (1) may be experienced by the U.S. population, and (2) cannot be attributed to a specific COU under TSCA.

In July 2025, EPA released the *Draft Risk Evaluation for Diisobutyl Phthalate (DIBP)* for public comment. This completed 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 risk evaluations, including technical support documents for DIBP.

What Is EPA's Final Risk Determination for Diisobutyl Phthalate Under TSCA?

DIBP presents an unreasonable risk of injury to human health driven by risk to workers through four COUs, including risk to "occupational non-users" (ONUs[5]) for two of these COUs. EPA did not identify contributions to unreasonable risk of injury due to exposure to consumers or the general population under any COU.

DIBP presents an unreasonable risk of injury to the environment through seven COUs driven by risk to aquatic vertebrates as a result of direct discharges of DIBP to surface waters.

The following four COUs significantly contribute to unreasonable risk of injury to the health of workers through inhalation exposure:

- Industrial use – adhesives and sealants – two-component glues and adhesives; transportation equipment manufacturing (workers);
- Industrial use – paints and coatings – paints and coatings (workers and ONUs);
- Commercial use – adhesives and sealants – two-component glues and adhesives (workers); and
- Commercial use – paints and coatings – paints and coatings (workers and ONUs).

The following seven COUs significantly contribute to unreasonable risk of injury to the environment, specifically DIBP exposure to

[2] The six phthalates included in the cumulative assessment are butyl benzyl phthalate (BBP), dibutyl phthalate (DBP), dicyclohexyl phthalate (DCHP), diethylhexyl phthalate (DEHP), 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.

algae and chronic exposure to aquatic vertebrates through surface water:

- Industrial use – paints and coatings;
- Commercial use – paints and coatings;
- Processing – incorporation into article – plasticizers (plastic product manufacturing; transportation equipment manufacturing);
- Processing – incorporation into formulation, mixture, or reaction product – plasticizer (adhesive manufacturing; plastic product manufacturing);
- Processing – incorporation into formulation, mixture, or reaction product – solvents (which become part of product formulations or mixture) (plastic material and resin manufacturing; paints and coatings);
- Processing – incorporation into formulation, mixture, or reaction product – processing aids, not otherwise listed; and
- Processing – incorporation into formulation, mixture, or reaction product – pre-catalyst manufacturing (*e.g.*, catalyst component for polyolefins production).

A total of 19 COUs do *not* significantly contribute to unreasonable risk for DIBP, nor do cumulative exposures contribute to unreasonable risks—including 2 related to manufacturing, 5 to processing, 1 to distribution, 4 to industrial and commercial uses, 6 associated with consumer uses, and 1 related to disposal of DIBP. These are described in the *Risk Evaluation for Diisobutyl Phthalate (DIBP)*.

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

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