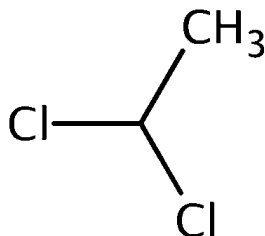




Nontechnical Summary of the TSCA Risk Evaluation for 1,1-Dichloroethane



C₂H₄Cl₂ (CASRN: 75-34-3)

Why Is EPA Providing This Document?

EPA evaluated the risks of 1,1-dichloroethane to human health and the environment under the Toxic Substances Control Act ([TSCA](#)). This document summarizes the results of the [completed risk evaluation for 1,1-dichloroethane](#).

What Is 1,1-Dichloroethane and How Is It Used?

1,1-Dichloroethane is a clear, oily liquid. It is primarily used to manufacture and process other chlorinated solvents that are used in industrial applications such as plastics manufacturing. Every year, over 100 million pounds of 1,1-dichloroethane are manufactured and processed across the United States. It is not imported. No commercial or consumer products containing 1,1-dichloroethane were identified. Small amounts of 1,1-dichloroethane are used in laboratories.

How Can Persons and the Environment be Exposed to 1,1-Dichloroethane?

Workers can be exposed to 1,1-dichloroethane when manufacturing or using 1,1-dichloroethane. Manufacturing, processing, distributing, using, or disposing of 1,1-dichloroethane can release it into the environment—including air, water/sediment, and land. EPA evaluated all

these exposures to determine if there was unreasonable risk to human health and the environment.

Can 1,1-Dichloroethane Harm People Who Are Exposed?

Based on findings in laboratory animals, 1,1-dichloroethane can cause kidney damage through daily ingestion. It also can harm the upper respiratory tract¹ and male reproductive system as well as cause cancer through inhalation. EPA used 1,2-dichloroethane as an analog² to 1,1-dichloroethane to estimate health effects in humans. Based on the evidence in 1,2-dichloroethane animal studies, EPA believes that repeated inhalation exposure to 1,1-dichloroethane in workers over a lifetime can cause cancer. As discussed below, EPA found that exposures to certain populations of workers contribute to risk, but the Agency did not find contributions to risk for the general population due to exposures to 1,1-dichloroethane.

Can 1,1-Dichloroethane Harm the Environment?

1,1-Dichloroethane is not expected to be harmful to the environment. The final risk evaluation assessed risks to the environment (evaluating effects on aquatic vertebrates, invertebrates, and algae) based on data from 1,1-dichloroethane and chemical analogs.³ It also assessed risks to land animals that could be exposed to 1,1-dichloroethane. EPA found that 1,1-dichloroethane is not expected to persist in water, sediment, or soil. Although 1,1-dichloroethane can also be present in air, concentrations are expected to be well below those that could cause harm to the environment.

¹ The upper respiratory tract includes the nose, nasal cavity, mouth, and throat.

² Because EPA did not find adequate data for 1,1-dichloroethane, the Agency used hazard data for the closely related analog chemical [1,2-dichloroethane](#)—

recognizing it to be a conservative and therefore health protective approach for the TSCA risk evaluation.

³ EPA used environmental hazard data for the analogs [1,1,2-trichloroethane](#) and [1,2-dichloropropane](#).

How Has EPA Assessed 1,1-Dichloroethane Under TSCA?

The final risk evaluation assessed risks to human health and the environment and risks to the following groups of people, including potentially exposed or susceptible subpopulations (PESS)⁴:

- workers, including those who manufacture, process, distribute, or use 1,1-dichloroethane in the workplace;
- members of the general population who may be exposed through releases of 1,1-dichloroethane to the environment;
- people who may be at greater risk to 1,1-dichloroethane, including because of their age, genetic predispositions, and pre-existing health conditions (*i.e.*, PESS); and
- subsistence fishers and tribal populations whose diets include large amounts of fish.

In July 2024, EPA released the [Draft Risk Evaluation for 1,1-Dichloroethane](#) for public comment and peer review. This final risk evaluation reflects changes made as the result of public comment and external peer review by the Science Advisory Committee on Chemicals (SACC).⁵

What Is EPA's Final Risk Determination for 1,1-Dichloroethane Under TSCA?

1,1-Dichloroethane presents an unreasonable risk of injury to human health driven by risk to workers through workplace inhalation exposure under three processing "conditions of use" (COUs).⁶ EPA did not identify contributions to unreasonable risk of injury due to exposure to "occupational non-users" (ONUs)⁷ or the general population, under any TSCA COU.

EPA did not identify contributions to unreasonable risk of injury to the environment under any TSCA COU.

The following three COUs, representing the majority of the U.S. production of 1,1-dichloroethane, significantly contribute to the unreasonable risk of injury to the health of workers through inhalation—but not dermal—exposure:

- Processing – as a reactant as an intermediate in all other basic organic chemical manufacturing;
- Processing – as a reactant as an intermediate in all other chemical product and preparation manufacturing; and
- Processing – recycling.

Inhalation risk to workers is mitigated when specific respirators or other workplace controls are in place (*i.e.*, the risk for workers would no longer be unreasonable).

The following five COUs do not significantly contribute to the unreasonable risk determination for 1,1-dichloroethane:

- Manufacturing as an isolated intermediate (domestic manufacture);
- Processing – repackaging;
- Distribution in commerce;
- Commercial use in laboratory chemicals; and
- Disposal.

How Will EPA Protect Human Health from 1,1-Dichloroethane Under TSCA?

Following this final determination of unreasonable risk, TSCA requires EPA to propose a regulation to mitigate the unreasonable risk of 1,1-dichloroethane. After taking public comment on the proposed regulation, TSCA requires EPA to finalize risk management regulations for 1,1-dichloroethane. Such regulations could include requirements for worker protection, labeling, recordkeeping, or restricting 1,1-dichloroethane for specific uses.

⁴ These groups may have higher exposures to 1,1-dichloroethane or be more likely (predisposed) to be harmed by exposure to 1,1-dichloroethane.

⁵ See [EPA-HQ-OPPT-2024-0114](#) for further information about and a full list of materials reviewed by the SACC.

⁶ 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."

⁷ 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 substance.