27 March 2025

Chemical profile

# 1,2-Dichloroethane

## Summary

* 1,2-Dichloroethane is predominately used as a chemical feedstock for the manufacture of polyvinyl chloride (PVC) plastics. It has minor uses as a solvent and processing aid.
* The Commonwealth environmental risk assessment concluded that 1,2-dichloroethane is persistent, not bioaccumulative and not toxic. The chemical may undergo long-range transport to locations far from its place of release.

## Introduction and use of 1,2-dichloroethane in Australia

In Australia 1,2-dichloroethane may be used as an extraction and cleaning solvent, a processing aid, and as a feedstock to prepare other chemicals (NICNAS 2014).

The primary use of 1,2-dichloroethane worldwide is as a chemical feedstock to produce vinyl chloride, which is used to manufacture polyvinyl chloride (PVC) plastics (NICNAS 2014). Australia no longer manufactures vinyl chloride; the last facility closed in 2016 (NPI 2017). The chemical has been detected in groundwater due to contamination from the Orica ChlorAlkali plant at Botany, NSW, which was decommissioned in 2007 (NSW Health 2013).

The chemical has previously been used as a leaded fuel additive (NICNAS 2014).

## Controls under international conventions

The industrial use of 1,2-dichloroethane is not subject to any controls under international conventions.

1,2-Dichloroethane is listed on Annex III of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. The listing, however, only applies to use as a pesticide and is not applicable to the trade of the chemical for industrial uses.

## Chemical identity

* **Chemical name:** Ethane, 1,2-dichloro-
* **CAS registry number**: 107-06-2
* **Synonyms:** 1,2-dichloroethane, ethylene dichloride, EDC, Dutch oil, Dutch liquid, glycol dichloride, dichloroethylene



Figure 1. Chemical structure of 1,2-dichloroethane

## Hazards and risks to the environment

The National Industrial Chemicals Notification and Assessment Scheme (NICNAS), published an environmental risk assessment of 1,2-dichloroethane in 2014 (NICNAS 2014). The assessment concluded that the current industrial uses of the chemical are not expected to pose an unreasonable risk to the environment.

This chemical is not expected to have any major emission pathways to air, water, soil or sediment. If accidental emission occurs to any of these compartments the chemical is likely to move to the atmosphere. The exception is groundwater; if the chemical contaminates groundwater it is likely to remain in this compartment (NICNAS 2014).

The chemical is not bioaccumulative and not toxic according to Australian PBT criteria (DCCEEW 2022). It has been classified under the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) as Aquatic Chronic Category 2 (toxic with long lasting effects) (NICNAS 2014).

1,2-Dichloroethane is expected to undergo long-range transport due to its high volatility and long lifetime in the atmosphere (NICNAS 2014).

## Additional information: regulation of 1,2-dichloroethane in Australia

1,2-Dichloroethane is not currently subject to environmental regulation in Australia.

The chemical is subject to reporting under the National Pollutant Inventory (NPI). Annual reporting for emissions of more than 10 tonnes is required (NPI 2022).

The chemical has been identified as a risk to workplace safety: it is on Safe Work Australia’s list of non-threshold genotoxic carcinogens, a subset of genotoxic carcinogens for which no safe exposure threshold or dose can currently be established (SWA 2018). Despite this, Safe Work Australia has set a workplace exposure limit of 10 ppm (40 mg/m3) as a maximum eight-hour time weighted average (SWA 2020).

## References

DCCEEW 2022, [Australian Environmental Criteria for Persistent, Bioaccumulative and/or Toxic Chemicals](https://www.dcceew.gov.au/environment/protection/chemicals-management/national-standard/australian-pbt-criteria), Department of Climate Change, Energy, the Environment and Water, accessed 10 February 2025.

NICNAS 2014, [Ethane, 1,2-dichloro-: Environment tier II assessment](https://www.industrialchemicals.gov.au/sites/default/files/Ethane%2C%201%2C2-dichloro-_%20Environment%20tier%20II%20assessment.pdf), 27 November 2014, National Industrial Chemicals Notification and Assessment Scheme, Department of Health, accessed 12 December 2024.

NPI 2017, [2015/2016 report for Australian Vinyls Corporation PTY LTD, Australian Vinyls Laverton Plant – Laverton, VIC, National Pollutant Inventory](https://www.npi.gov.au/npidata/action/load/individual-facility-detail/criteria/state/VIC/year/2016/jurisdiction-facility/00007093), Department of Climate Change, Energy, the Environment and Water, accessed 10 February 2025.

NPI 2022, [Substance lists and thresholds, National Pollutant Inventory](https://www.dcceew.gov.au/environment/protection/npi/substances/substance-list-and-thresholds), Department of Climate Change, Energy, the Environment and Water, accessed 25 November 2024.

NSW Health 2013, [Groundwater contamination by EDC at Botany](https://www.health.nsw.gov.au/environment/factsheets/Pages/groundwater-edc.aspx#:~:text=1%2C2%2DDichloroethane%2C%20also,pleasant%20smell%20and%20sweet%20taste.), NSW Government – NSW Health, accessed 25 November 2024.

SWA 2018, [WES Review 2018 – Non-threshold based genotoxic carcinogens, Australian workplace exposure standards and advisory notations](https://www.safeworkaustralia.gov.au/system/files/documents/1806/non-threshold_based_genotoxic_carcinogens_-_accessory_document_to_recommending_health-based_workplace_exposure_standards_and_notations.pdf), Safe Work Australia, accessed 25 November 2024.

SWA 2020, [Hazardous Chemical Information System (HCIS) – Exposure Standard Details – Ethylene dichloride](https://hcis.safeworkaustralia.gov.au/ExposureStandards/Details?exposureStandardID=1089), Safe Work Australia, accessed 13 January 2025.

## More information

Email ichems.enquiry@dcceew.gov.au

Web <https://www.dcceew.gov.au/environment/protection/chemicals-management/national-standard>