
Product Safety Assessment

Ethylene Glycol Monohexyl Ether

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Names¹

- CAS No. 112-25-4
- EINECS No. 203-951-1
- Ethylene glycol monohexyl ether
- Glycol monohexyl ether
- n-Hexyl glycol
- EGHE
- Hexyl CELLOSOLVE™ Solvent
- Ethanol, 2-(hexyloxy)-
- 2-Hexyloxyethanol

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Product Overview

- Ethylene glycol monohexyl ether is a colorless liquid with a pungent odor. It is an ethylene-series (or E-series) glycol ether and is sold by The Dow Chemical Company and its global affiliates under the trade name Hexyl CELLOSOLVE™ Solvent.² For further details, see [Product Description](#).
- Ethylene glycol monohexyl ether has with excellent oil-solubility characteristics and is useful in both consumer and industrial cleaner applications. It is also useful as a coalescent and solvent for water-borne latex-based coatings and specialty printing inks.² For further details, see [Product Uses](#).
- Consumer exposure to ethylene glycol monohexyl ether may occur through the use of latex-based coatings and cleaning products. Check the product label for ventilation requirements. Use gloves that are chemically resistant to this material when prolonged or frequently repeated contact could occur.^{3,4} For further details, see [Exposure Potential](#).
- Eye contact may cause severe eye irritation. Brief skin contact may cause severe burns with symptoms of pain, severe local redness, and tissue damage. Prolonged or widespread skin contact may result in absorption of harmful amounts. Exposure to vapors is unlikely at room temperature.^{3,5} For further details, see [Health Information](#).
- Ethylene glycol monohexyl ether is readily biodegradable, and its bioconcentration potential is low. Its potential for mobility in soil is very high, and is practically nontoxic to aquatic organisms on an acute basis.^{3,6} For further details, see [Environmental Information](#).
- Ethylene glycol monohexyl ether is thermally stable at typical storage and use temperatures, but can decompose at elevated temperatures. Gas generation during decomposition can

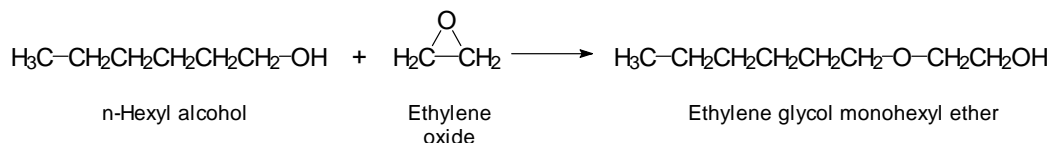
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cause pressure build-up in closed systems.³ For further details, see [Physical Hazard Information](#).

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Manufacture of Product⁷

- **Capacity** – The Dow Chemical Company and its global affiliates have production facilities for E-series glycol ethers in Taft and Plaquemine, Louisiana; Freeport and Seadrift, Texas.
- **Process** – Ethylene glycol monoethyl ether is produced by reacting dry n-hexyl alcohol with ethylene oxide, using a continuous closed reactor. The reaction is shown below.



Product Description^{2,3,8}

Ethylene glycol monoethyl ether is a clear liquid with a pungent odor. It has limited water solubility, excellent oil-solubility characteristics, and a slow evaporation rate. It is an ethylene-series (or E-series) glycol ether and is manufactured and marketed by The Dow Chemical Company and its global affiliates under the trade name Hexyl CELLOSOLVE™ Solvent.

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Product Uses^{2,9}

Ethylene glycol monoethyl ether has excellent oil-solubility characteristics that make it useful in both consumer (household) and industrial cleaner applications. Ethylene glycol monoethyl ether is also used as a coalescent for water-borne latex-based coatings and plays an important role in specialty printing inks, especially the silk-screening process, where its limited water solubility and slow evaporation rate prevent premature setting of the ink.

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Exposure Potential^{3,4}

Ethylene glycol monoethyl ether is used in the production of industrial and consumer products. Based on these uses, the public could be exposed through:

- **Workplace exposure** – Exposure can occur either in facilities that manufacture glycol ethers or in the various industrial or manufacturing facilities that use these products. Those working with glycol ethers in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each manufacturing facility should have a thorough training program for employees and appropriate work processes, ventilation, and safety equipment in place to limit exposure. See [Health Information](#).
- **Consumer exposure to products containing glycol ethers** – Small amounts of ethylene glycol monoethyl ether can be found in some latex-based coatings and cleaning products used by consumers. Use protective clothing and gloves that are chemically resistant to this material if prolonged or repeated contact could occur. Read product labels carefully for content. Follow product instructions carefully to minimize the risk of exposure. See [Health Information](#).
- **Environmental releases** – In the event of a spill, the focus is on containing the spill to prevent contamination of soil, surface water, or ground water. Small amounts of ethylene glycol monoethyl ether may be released to the air by evaporation from cleaners, coatings, or other products containing it. It gradually photodegrades in the atmosphere. However,

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because ethylene glycol monohexyl ether is partially water soluble, once introduced to water, it will tend to remain dissolved in water. Because it is readily biodegradable, ethylene glycol monohexyl ether will be removed by wastewater-treatment facilities. Absorb small spills with materials such as sand or vermiculite. Collect spillage in suitable and properly labeled containers. See [Environmental](#), [Health](#), and [Physical Hazard Information](#).

- **Large release** – Industrial spills or releases are infrequent and generally contained. If a large spill does occur, ethylene glycol monohexyl ether should be collected in suitable and properly labeled containers and disposed of according to applicable governmental requirements. When relevant in scale or risk, the community should be notified of the hazards associated with the specific release event. See [Environmental](#), [Health](#), and [Physical Hazard Information](#).
- **In case of fire** – Immediately withdraw all personnel from the area. Deny any unnecessary entry into the area and consider the use of unmanned hose holders. Use water spray or fog, carbon-dioxide or dry-chemical extinguishers, or foam to fight the fire. Alcohol-resistant foams are preferred. Use of a direct water stream may spread the fire. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. Fight the fire from a protected location or safe distance. If glycol ethers are present in a fire situation, they can produce toxic gases. See [Environmental](#), [Health](#), and [Physical Hazard Information](#).

For more information, see the relevant [Safety Data Sheet](#).

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Health Information^{3,5}

Eye contact – Contact may cause severe irritation and slight corneal injury. Effects may include pain, marked redness, and swelling.

Skin contact – Brief contact may cause severe skin burns. Symptoms may include pain, severe local redness, and tissue damage. Prolonged or widespread skin contact may result in absorption of harmful amounts.

Inhalation – At room temperature, exposure to vapor is minimal due to low volatility. A single exposure is unlikely to be hazardous.

Ingestion – Ethylene glycol monohexyl ether has a low toxicity if swallowed. However, swallowing may result in burns to the mouth and throat. Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

Repeated exposure – Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Other – In animal testing ethylene glycol monohexyl ether did not cause birth defects or other effects to the fetus. Repeated exposures of a similar material had no effect on reproduction except at doses that were toxic to the parents. In vitro genetic toxicity was negative.

For more information, see the relevant [Safety Data Sheet](#).

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Environmental Information^{3,6}

Ethylene glycol monohexyl ether does not evaporate easily, but small amounts may evaporate from paints, coatings, or other products containing it. It gradually photodegrades in the atmosphere. Because ethylene glycol monohexyl ether is partially soluble in water, once introduced to water, it has a tendency to remain there. Ethylene glycol monohexyl ether has minimal tendency to bind to soil or sediment.

Ethylene glycol monoethyl ether is unlikely to persist in the environment. It is readily biodegradable (OECD 301E test: 96.8% biodegraded after 20 days), which suggests that the compound will be removed from water and soil environments, including biological wastewater-treatment facilities.

Ethylene glycol monoethyl ether is not likely to accumulate in the food chain (bioconcentration potential is low), and is practically nontoxic to fish and other aquatic organisms on an acute basis (LC₅₀ is >100 mg/L for most sensitive species tested.)

Additional environmental information for ethylene glycol monoethyl ether is available in the [Ecological and Toxicological Data of Dow Glycol Ethers](#) brochure.

For more information, see the relevant [Safety Data Sheet](#).

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Physical Hazard Information³

Ethylene glycol monoethyl ether is a combustible liquid that is thermally stable at typical storage and use temperatures, but can decompose (oxidize) at elevated temperatures. Gas generation during decomposition can cause pressure build-up in closed systems. Decomposition products can include aldehydes, ketones, and organic acids.

Do not store ethylene glycol monoethyl ether in aluminum, copper, galvanized-iron, galvanized-steel, Viton, neoprene, nitrile, or natural-rubber containers. Avoid contact with strong acids, bases, and oxidizers.

Spills of ethylene glycol monoethyl ether on hot fibrous insulation may reduce the autoignition temperature of the material, resulting in the potential for spontaneous combustion.

For more information, see the relevant [Safety Data Sheet](#).

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Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of ethylene glycol monoethyl ether. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant [Safety Data Sheet](#), [Technical Data Sheet](#), or [Contact Us](#).

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Additional Information

- Safety Data Sheet (<http://www.dow.com/webapps/msds/msdssearch.aspx>)
- Contact Us (<http://www.dow.com/oxysolvents/contact/index.htm>)
- Hexyl CELLOSOLVE™ Solvent *Technical Data Sheet*, The Dow Chemical Company, Form No. 110-00971-0812
- *Glycol Ethers*, The Dow Chemical Company, Form No. 110-00965-1101 AMS, Nov. 2001, (http://msdssearch.dow.com/PublishedLiteratureDOWCOM/dh_0032/0901b80380032bc8.pdf?filepath=oxysolvents/pdfs/noreg/110-00965.pdf&fromPage=GetDoc)
- "Monoethylene Glycol Ethers Category: CAS No. 2807-30-9, 111-76-2, 112-07-2, 112-25-4," *Screening Information Data Set (SIDS) Initial Assessment Report for SIAM 19*, Organisation for Economic Co-operation and Development (OECD), United Nations Environment Programme (UNEP): Berlin, Germany, October 19–22, 2004 (<http://www.inchem.org/documents/sids/sids/MonoethyleneGlycolEthers.pdf>)
- *Ecological and Toxicological Data of Dow Glycol Ethers*, The Dow Chemical Company, Form No. 170-00761-0304, March 2004, (<http://www.dow.com/webapps/lit/litorder.asp?filepath=oxysolvents/pdfs/noreg/110-00761.pdf&pdf=true>)
- Chinn, Henry, et al, "Marketing Research Report: Glycol Ethers," *Chemical Economics Handbook (CEH)*, SRI Consulting, Report 663.5000 A, November 2010 (<http://chemical.ihs.com/CEH/Public/Reports/663.5000/>)

For more information about ethylene glycol monohexyl ether (Hexyl CELLOSOLVE™ solvent), visit the Dow [Oxygenated Solvents](http://www.dow.com/oxysolvents) web site at www.dow.com/oxysolvents.

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References

- ¹ "Monoethylene Glycol Ethers Category: CAS No. 2807-30-9, 111-76-2, 112-07-2, 112-25-4," *Screening Information Data Set (SIDS) Initial Assessment Report for SIAM 19*, Organisation for Economic Co-operation and Development (OECD), United Nations Environment Programme (UNEP): Berlin, Germany, October 19–22, 2004, page 9.
- ² *Hexyl CELLOSOLVE™ Solvent Technical Data Sheet*, The Dow Chemical Company, Form No. 110-00971-0812
- ³ *Hexyl CELLOSOLVE™ Solvent Safety Data Sheet for the USA*, The Dow Chemical Company
- ⁴ "Monoethylene Glycol Ethers Category: CAS No. 2807-30-9, 111-76-2, 112-07-2, 112-25-4," *SIAR for SIAM 19*, OECD, UNEP: Berlin, Germany, October 19–22, 2004, pages 6–7 and 15.
- ⁵ "Monoethylene Glycol Ethers Category: CAS No. 2807-30-9, 111-76-2, 112-07-2, 112-25-4," *SIAR for SIAM 19*, OECD, UNEP: Berlin, Germany, October 19–22, 2004, pages 4–5 and 16–29.
- ⁶ "Monoethylene Glycol Ethers Category: CAS No. 2807-30-9, 111-76-2, 112-07-2, 112-25-4," *SIAR for SIAM 19*, OECD, UNEP: Berlin, Germany, October 19–22, 2004, pages 6, 12–14 and 29–31.
- ⁷ Chinn, Henry, et al, "Marketing Research Report: Glycol Ethers," *Chemical Economics Handbook (CEH)*, SRI Consulting, Report 663.5000 A, November 2010, pages 6, 14-16, and 19.
- ⁸ Chinn, Henry, et al, "Marketing Research Report: Glycol Ethers," *Chemical Economics Handbook (CEH)*, SRI Consulting, Report 663.5000 A, November 2010, pages 48–49.
- ⁹ Chinn, Henry, et al, "Marketing Research Report: Glycol Ethers," *Chemical Economics Handbook (CEH)*, SRI Consulting, Report 663.5000 A, November 2010, page 8.
- ¹⁰ Estimates by The Dow Chemical Company.



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NOTICES:

As part of its 2015 Sustainability Goals, Dow has committed to make publicly available safety assessments for its products globally. This product safety assessment is intended to give general information about the chemical (or categories of chemicals) addressed. It is not intended to provide an in-depth discussion of health and safety information. Additional information is available through the relevant Safety Data Sheet, which should be consulted before use of the chemical. This product safety assessment does not replace required communication documents such as the Safety Data Sheet.

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