Product Safety Assessment

*Methoxypolyglycol Basic*


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**Names**
- Methoxypolyglycol Basic
- Polyethylene glycol monomethyl ether
- MPG Basic
- CAS No. 161907-79-5/EC# 310-289-8
- CAS No. 9004-74-4/EC# Polymer

**Product Overview**
- Methoxypolyglycol (MPG Basic) is a tan-to-brown-colored liquid product composed of higher molecular weight ethylene glycol methyl ethers. This product is recovered as a byproduct of the manufacture of diethylene glycol monomethyl ether.¹ For further details, see Product Description.
- MPG Basic is further reprocessed by our customers and the recovered components are used almost exclusively in brake-fluid formulations.² For further details, see Product Uses.
- MPG Basic is not sold for direct consumer use, although it could be a component of brake fluids that are handled by consumers. The most likely route of exposure is dermal contact while adding brake fluid to vehicles.³ For further details, see Exposure Potential.
- The health hazards listed for MPG Basic represent the most significant hazards associated with any of the pure components. The major components in this product demonstrate low hazard potential for human health and the environment.⁴ However, proper handling reduces the potential of exposure and the associated hazards. Eye contact with this material may cause chemical burns or severe irritation with corneal injury, which may result in permanent impairment of vision, even blindness. Brief skin contact may cause severe skin irritation. Prolonged contact may cause skin burns with pain, severe local redness, swelling, and tissue damage, but is unlikely to result in absorption of harmful amounts.¹ For further details, see Health Information.
- Based on component data, MPG Basic is expected to be biodegradable, unlikely to accumulate in the food chain, and slightly toxic to practically nontoxic to fish and other aquatic organisms. For further details, see Environmental Information.
- MPG Basic is stable under recommended storage and use conditions, but oxidation or decomposition can occur at elevated temperatures. This material is incompatible with strong acids and strong oxidizers.¹ For further details, see Physical Hazard Information.

¹ For further details, see Product Uses.
² For further details, see Product Uses.
³ For further details, see Exposure Potential.
⁴ For further details, see Health Information.
⁵ For further details, see Environmental Information.

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Manufacture of Product

- **Capacity** – Dow manufactures MPG at its Taft, Louisiana (USA) glycol ether production facility.
- **Process** – MPG Basic is a byproduct of the manufacture of glycol ethers from ethylene oxide and methanol.

Product Description

MPG Basic is a tan-to-brown-colored liquid product of higher molecular weight glycol ethers recovered as a byproduct of the manufacture of diethylene glycol monomethyl ether. The product typically includes the components identified below:

Product Uses

MPG Basic is further reprocessed by our customers and the recovered components are used almost exclusively in brake-fluid formulations. A very small fraction (less than 5%) may be used for other purposes, such as asphalt anti-stripping applications or as a chemical intermediate in other industrial processes.

Exposure Potential

MPG Basic is used in the production of industrial and consumer products. Based on the uses for this product, the public could be exposed through:

- **Workplace exposure** – Exposure can occur either in a manufacturing facility or in the various industrial or manufacturing facilities that use or formulate this material. It is produced, distributed, stored, and consumed in closed systems. Those working with MPG Basic 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 and safety equipment in place to limit unnecessary exposure. See Health Information.

- **Consumer exposure to products containing Methoxypolyglycol Basic** – Dow does not sell this material for direct consumer use, although it could be a component of brake fluids that are handled by professional mechanics or consumers. The most likely route of exposure is dermal contact while adding brake fluid to vehicles. See Health Information.

- **Environmental releases** – MPG Basic may be released into the environment as a component of products available to the consumer (e.g., brake fluids). It is miscible in water, and once introduced it will tend to remain dissolved in water. MPG Basic is biodegradable and will be removed by sewage treatment plants. In the event of a spill, the focus is on containing the spill to prevent contamination of soil and surface or ground water. Absorb small spills of MPG Basic with sand or vermiculite. Collect in suitable and properly labeled containers and dispose of properly. The maincomponents of this material are considered slightly toxic to practically nontoxic to aquatic organisms on an acute basis. See Environmental, Health, and Physical Hazard Information.

- **Large release** – Industrial spills or releases are infrequent and generally contained. If a large spill does occur, the material should be contained, captured, and collected. Pump recovered material into suitable and properly labeled containers and dispose according to applicable governmental requirements. Respiratory protection is recommended for emergency work. See Environmental, Health, and Physical Hazard Information.
In case of fire – Deny any unnecessary entry into the area and consider the use of unmanned hose holders. Use water fog or fine spray, dry-chemical or carbon-dioxide extinguishers, or foam to extinguish 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. Follow emergency procedures carefully. See Health and Physical Hazard Information.

For more information, see the relevant Safety Data Sheet.

Health Information

The health hazards listed for MPG Basic represent the most significant hazards associated with any of the components, including minor ones such as sodium methoxide. Proper handling reduces the potential of exposure and the associated hazards. The major components in this product demonstrate low hazard potential for human health and the environment.

The Organisation for Economic Co-Operation and Development (OECD) has determined that the two major components in this product (tetraethylene glycol monomethyl ether and triethylene glycol monomethyl ether) have low hazard potential for human health and the environment.

Eye contact – Eye contact may cause chemical burns or severe irritation with corneal injury, which may result in permanent impairment of vision, even blindness. Effects are associated with the alkalinity of the product.

Skin contact – Brief skin contact may cause severe irritation due to the high pH of the product due to the presence of alkalinity which can cause corrosivity to skin and may cause chemical burns with pain, severe local redness, swelling, and tissue damage. Prolonged skin contact with MPG Basic is unlikely to result in absorption of harmful amounts.

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

Ingestion – MPG Basic has low toxicity if swallowed. However, swallowing may result in burns of the mouth, throat, and gastrointestinal tract based on available data for sodium methoxide.

Other – The main components have been toxic to the fetus of lab animals at doses that were toxic to the mother; however, fetal malformations were not associated with exposure. In vitro and in vivo genetic toxicity studies on components were negative.

For more information, see the relevant Safety Data Sheet.

Environmental Information

Ethylene glycol ethers (tetraethylene glycol monomethyl ether, triethylene glycol monomethyl ether, polyethylene glycol monomethyl ether) – The ethylene glycol constituents have very low volatility and are miscible in water. When introduced to water, these chemicals will have a tendency to remain in water. They have minimal tendency to bind to soil or sediment. The ethylene glycol constituents are biodegradable under aerobic conditions and will be removed by sewage treatment plants. They have a low potential to accumulate in the food chain and are practically nontoxic to fish and other aquatic organisms on an acute basis.
Alkalinity – MPG Basic will cause alkalinity by addition of water. The substance is readily biodegradable which suggests the chemical will be rapidly and completely removed from water and soil environments, including biological wastewater treatment plants. The chemical is not likely to accumulate in the food chain (bioconcentration potential is low) and is slightly toxic to fish and other aquatic organisms on an acute basis.

The OECD SIDS Initial Assessment Profiles for tetraethylene glycol monomethyl ether and triethylene glycol monomethyl ether concluded that these chemicals are currently of low priority for further work based on a low hazard potential.4

For more information, see the relevant Safety Data Sheet.

Physical Hazard Information

Methoxypolyglycol Basic is stable under recommended storage and use conditions, but oxidation or decomposition can occur at elevated temperatures. Generation of gases during decomposition can cause pressure build-up in closed systems. Decomposition products can include aldehydes, ketones, and organic acids.

This material is incompatible with strong acids and strong oxidizers.

For more information, see the relevant Safety Data Sheet.

Regulatory Information

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

Additional Information

- Safety Data Sheet (http://www.dow.com/webapps/msds/msdssearch.aspx)
- Contact Us (http://www.dow.com/oxysolvents/contact/index.htm)

For more business information about DOW™ Methoxypolyglycol Basic, visit the Dow Oxygenated Solvents web site at http://www.dow.com/oxysolvents/index.htm.
References

1 Methoxypolyglycol Basic Material Safety Data Sheet, The Dow Chemical Company.

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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