

Fast Facts

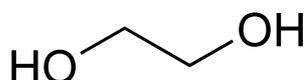
MONOETHYLENE GLYCOL (MEG) (Monoethylene Glycol / MEG)

Monoethylene glycol (MEG) in its pure form, it is an odorless, colorless, syrupy liquid with a sweet taste.

Ethylene Glycol:
HOCH₂CH₂OH

CAS Registry Number:
107-21-1

Synonyms:
1, 2-Ethanediol
Glycol
EG
Monoethylene glycol



Ethylene glycol is produced from ethylene, via the intermediate ethylene oxide. Ethylene oxide reacts with water to produce ethylene glycol according to the chemical equation



This reaction can be catalyzed by either acids or bases, or can occur at neutral pH under elevated temperatures. The highest yields of ethylene glycol occur at acidic or neutral pH with a large excess of water. Under these conditions, ethylene glycol yields of 90% can be achieved. The major byproducts are the ethylene glycol oligomers diethylene glycol, triethylene glycol, and tetraethylene glycol.

MANUFACTURING PROCESS:

MEGlobal's advanced manufacturing process is based on more than 70 years of experience, and is characterized by seamless integration, catalyst efficiency, and local access to feedstock. With our total approach to continuous improvement in quality and quality systems, we fully meet the stringent ISO 9001 series of standards, allowing us to deliver high-quality products.

SUPPLY CHAIN:

Optimum performance demands a quality product, and that is what we deliver. Our vast distribution system of plants, terminals, tankers, barges, tankcars and trucks helps to ensure delivery of ethylene glycol and diethylene glycol when and where you need it.

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APPLICATIONS OF MONOETHYLENE GLYCOL

Mono-ethylene Glycol (MEG) can be used for applications that require chemical intermediates for resins, solvent couplers, freezing point depression, solvents, humectants and chemical intermediates. These applications are vital to the manufacture of a wide range of products, including resins; deicing fluids; heat transfer fluids; automotive antifreeze and coolants; water-based adhesives, latex paints and asphalt emulsions; electrolytic capacitors; textile fibers; paper and leather.

PROPERTIES/CHARACTERISTICS	APPLICATIONS/USES
Chemical Intermediate for Resins	<ul style="list-style-type: none"> • Polyester resins (fibers, containers and films) • Resin esters as plasticizers (adhesives, lacquers and enamels) • Alkyd-type resins (synthetic rubbers, adhesives, surface coatings)
Solvent Coupler	<ul style="list-style-type: none"> • Stabilizer against gel formation • Freezing Point Depression • Deicing fluids • Heat transfer fluids (gas compressors, heating, ventilating, air conditioning, process chillers, ice rinks) • All-weather automotive antifreeze and coolants • Water-based formulations (adhesives, latex paints, asphalt emulsions)
Solvent	<ul style="list-style-type: none"> • Medium for suspending conductive salt in electrolytic capacitors
Humectant	<ul style="list-style-type: none"> • Textile fibers • Paper • Leather • Adhesives • Glue
Chemical Intermediate	<ul style="list-style-type: none"> • Solvents

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PHYSICAL PROPERTIES OF MEG

	Scientific	Common
Autoignition Temperature	427°C	801°F
Critical Pressure	8,200 kPa	61,505 mm Hg
Critical Specific Volume	0.191 L/gmol	3.06 ft ³ /lbmol
Critical Temperature	446.85°C	836.33°F
Dielectric Constant at 25°C	37.7	37.7
Electrical Conductivity at 20°C	1.07 x 10⁻⁶ mhos/cm	1.07 micromhos/cm
Evaporation Rate (Butyl Acetate = 1)	0.01	0.01
Flash Point, Closed Cup (Pensky-Martens Closed Cup ASTM D93)	126.7°C	260°F
Flash Point, Open Cup (Cleveland Open Cup ASTM D92)	137.8°C	280°F
Heat of Combustion at 25°C	-1,053 kJ/gmol	-7,297 Btu/lb
Heat of Formation at 25°C	-460 kJ/gmol	-3,188 Btu/lb
Heat of Fusion	9.96 kJ/gmol	69 Btu/lb
Heat of Vaporization at 1 atm	53.2 kJ/gmol	369 Btu/lb
Molecular Weight	62.07 g/mol	62.07 g/mol
Normal Boiling Point	197.1°C	386.8°F
BP/Δ P (750 to 770 mm Hg)	0.337°C/kPa	0.045°C/mm Hg
Normal Freezing Point	-13°C	8.6°F
Onset of Initial Decomposition	240°C	464°F
Refractive Index, n _D , at 25°C	1.4306	1.4306
Solubility in Water at 20°C	100 wt%	100 wt%
Solubility of Water in Ethylene Glycol at 20°C	100 wt%	100 wt%
Specific Gravity (20/20°C)	1.1153	1.1153
Specific Gravity/Δ T (10 to 40°C)	0.00070 per °C	0.00039 per °F
Surface Tension at 25°C	48.0 mN/m	48.0 dynes/cm
Vapor Density (air = 1)	2.1	2.1
Vapor Pressure at 20°C	0.0075 kPa	0.06 mm Hg

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NON-SUPPORTED USES OF ETHYLENE GLYCOL FROM MEGLOBAL

The following applications are NOT supported by MEGlobal for ethylene glycol or where its use is restricted by regulation. This non-inclusive list of applications does not imply a MEGlobal warranty or MEGlobal support of uses in applications not covered by this list.

- *The production of tobacco and in the manufacture of tobacco products (including but not limited to additives, humectants, filters, inks, and paper).*
- *The generation of artificial smoke/theatrical fogs/mist. This includes application such as artificial / e-cigarettes.*
- *As ingredient in fuel for warming foods (Sterno™-like application) or in fuel for heating an enclosed space where human exposure.*
- *In fire extinguishing sprinkler systems.*
- *In the manufacture of munitions.*
- *In the production of deicers for use on roadways, sidewalks and in aircraft lavatories.*
- *As a component of heat transfer fluids in systems where the heat transfer fluids could infiltrate (i.e., via an exchanger leak, backflow prevention failure, or other means) a potable water system.*
- *As a non-reacted component in a formulation for direct internal or external human /animal contact, including but not limited to ingestion, inhalation, and skin contact and in medical / veterinary devices and medical / veterinary applications (Examples of some such applications are uses as a direct component in foods, beverages, pharmaceuticals, cosmetics, or personal care products.).*
- *For consumer or hospital usage for deodorizing or air “purifying” purposes by spraying as an aerosol.*
- *As a non-reacted component in adhesives, plasticizers, and softening agents for packaging that has direct contact with food or beverage.*
- *As a non-reacted component in the formulation of glues, pastes, ice / heat packs or other items where the potential for significant human contact and/or ingestion exists (including but not limited to children’s school glue/paste or arts/craft glue/paste, toys, children products).*
- *As a fluid for pressure testing of pipelines.*
- *As a non-reacted component in the production of freezer gel packs used in lunch boxes, thermal food carriers or other related applications which allows for the possibility of glycol being exposed to food products or available for ingestion.*
- *For the use in the treatment of wood rot and fungus in marine applications.*

The reasons for these limitations include areas which MEGlobal has decided not to pursue for general business reasons and to minimize unnecessary risk and liabilities to the company.

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To enter into new applications beyond the traditional standard industrial use applications, MEGlobal utilizes a risk assessment process whereby the application will be reviewed and a determination will be made as to whether the application meets MEGlobal's requirements and can therefore be supported by MEGlobal. Because use conditions and applicable laws may differ from one location to another and may change with time, when an application is supported by MEGlobal, MEGlobal does not warrant and is not responsible for the use in such applications.

Ends

For Further Information:

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