



## DATASHEET

**MPG-INDUSTRIAL**

## PO &amp; DERIVATIVES

U1511

Revised December 2019

MPG-Industrial is a high purity grade of monopropylene glycol (MPG). It is a clear, colourless and practically odourless, hygroscopic liquid, completely soluble in water.

MPG-Industrial is miscible in all proportions with low molecular weight aliphatic alcohols and ketones. It is slightly to moderately soluble in aromatic hydrocarbon solvents, and only slightly miscible with aliphatic hydrocarbon solvents.

MPG-Industrial, as produced, meets the volatile organic compound (VOC) exemption criteria and definition of LVP-VOC as established in CARB's Consumer Products Regulation; in the USEPA's National Volatile Organic Compound Emissions Standards for Consumer Products; and in the Model Rule for Consumer Products as adopted by the Ozone Transport Commission (OTC). Due to their low volatility and photochemical reactivity, these LVP-VOCs are fully exempt and non-reportable VOCs in calculations of the VOC contents of regulated consumer product categories.

Other chemical names for MPG are: 1,2-dihydroxy propane; 1,2-propanediol; 1,2-propylene glycol

HO-CH<sub>2</sub>-CH(OH)-CH<sub>3</sub>

**TYPICAL PROPERTIES**

PROPERTY	TEST METHOD	UNIT	VALUE
Purity	ASTM E-202	% (m/m)	99.5 min
Colour	ASTM E-202	Pt-Co	10 max
Water	ASTM E-202	% (m/m)	0.2 max
Acidity as Acetic Acid	USP	% (m/m)	0.005 max
Chlorides	USP	mg/kg	1.0 max
Sulphate	USP	mg/kg	60 max
Iron	ASTM E-202	mg/kg	0.5 max
Heavy metals	USP	mg/kg	5.0 max
Molecular weight		g/mol	76.09
Density @ 20 °C		Kg/m <sup>3</sup>	1036
Viscosity @ 20 °C		mPa.s	55
Coefficient of cubic expansion @ 20 °C		10 <sup>-4</sup> °C	6.95
Refractive index @ 20 °C			1.4326
Pour point		°C	-59.5
Boiling point		°C	187.4
Flash point		°C	99
Vapour pressure @ 20 °C		kPa	0.0067
Vapour pressure @ 50 °C		kPa	0.0893
Surface tension @ 20°C		mN/m	36
Specific heat @ 20 °C		kJ/kg/°C	2.48

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Latent heat of vaporization @ 20 °C		kJ/kg	976.5
Thermal conductivity @ 20 °C		W/m/°C	0.187
Heat of combustion at 25 °C		kJ/kg	23982
Electrical conductivity @ 20 °C		µS/m	4.4
Dielectric constant			32.0

The above typical properties are published as a guide to potential users of the product. A sales specification is published separately.

### Application

MPG-Industrial finds its major application as a building block in unsaturated polyester resins. Other major applications are as a component in heat transfer liquids, de-icers for aircraft, grinding aids in cement industry, and intermediates for chemical products like propylene glycol based ethers, surfactants and plasticisers.

### Test Methods

Copies of copyrighted test methods can be obtained from the issuing organisations:

American Society for Testing and Materials (ASTM) : [www.astm.org](http://www.astm.org)

US Pharmacopoeia Inc (USP): [www.usp.org](http://www.usp.org)

For routine quality control analyses, local test methods may be applied that are different from those mentioned in this datasheet. Such methods have been validated and can be obtained through your local Shell Chemicals company.

### Storage and Handling

MPG-Industrial is slightly hygroscopic and must be stored under such conditions that contamination with water and absorption of moisture are prevented.

Storage of MPG-Industrial at ambient temperature will not create hazardous conditions. For quality reasons the storage temperature should not exceed 40°C. Under freezing conditions the product viscosity may become too high to be pumped.

MPG-Industrial is a stable product. It is not expected to deteriorate significantly provided it is stored as indicated. As a good industrial practice, however, it is recommended that MPG-Industrial be used within 12 months from opening of the sealed package.

### Bulk

Tanks should be of stainless or mild steel, free of mill-scale or rust, and maintained in a rust-free condition. The tank may be lined with an epoxy or phenolic resin paint that is approved for this service.

Small tanks must be fitted with silica gel breathers, that are inspected and regenerated at regular intervals.

Large tanks (>300m<sup>3</sup>) should be fitted for blanketing with dry nitrogen.

If heating of the product is necessary the heating coil skin temperature must not exceed 40°C.

Lines should be of stainless or mild steel, and maintained in a rust-free condition.

Hoses should be of Polypropylene or stainless steel, and labelled "Propylene glycol only".

### Drums

MPG-Industrial should be stored in dry conditions, away from direct heat sources, and preferably in the original containers. Opened drums must be closed tightly immediately after use.

For further advice on Storage and Handling please refer to the Safety Data Sheet on [www.shell.com/chemicals](http://www.shell.com/chemicals).

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### Hazard Identification

Low order of acute toxicity by the oral or percutaneous routes. Slightly irritating to the eyes and skin. This product is not in the 'flammable' range, but will burn. Before handling the product, please refer to the Safety Data Sheet.

PROPERTY	TEST METHOD	UNIT	VALUE
Flash point (PMCC)	ASTM D93	°C	99
Lower explosive limit in air		% (v/v)	2.6
Upper explosive limit in air		% (v/v)	12.6
Auto ignition temperature		°C	421

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