

# MATERIAL SAFETY DATA SHEET

(According to Regulation EC No 1907/2006 - REACH)

## PROPYLENE GLYCOL (MPG) USP/EP GRADE

1. PRODUCT IDENTIFICATION		
<b>Company:</b> REPSOL QUIMICA, S.A.  <b>Address:</b> Paseo de la Castellana, 280 28046 MADRID  <b>Tel#</b> +34 91 348 80 00  <b>Fax#</b> +34 91 348 94 94 <b>e-mail address:</b> SDSChemicals@repsol.com	<b>Commercial name:</b> PROPYLENE GLYCOL (MPG) USP/EP GRADE  <b>Chemical name:</b> 1,2-propanediol	
	<b>Synonyms:</b> 1,2-dihydroxypropane, Methylethylene glycol.	
	<b>Molecular formula:</b> C <sub>3</sub> H <sub>8</sub> O <sub>2</sub>	<b>CAS #:</b> 57-55-6
<b>Emergency Telephone #:</b> <b>Puertollano:</b> +34 926 41 95 00 <b>Tarragona:</b> +34 977 75 91 00	<b>EC (EINECS)#:</b> 200-338-0	<b>Annex I (Dir. 67/548/EEC)#:</b> NP

2. HAZARDS IDENTIFICATION	
PHYSICAL / CHEMICAL	TOXICITY (SYMPTOMS)
When heated, it emits toxic and irritant fumes.	<b>Inhalation:</b> It is not frequent due its low volatility, though prolonged exposures to saturated atmospheres may cause irritation of respiratory system.  <b>Ingestion/Aspiration:</b> May cause adverse effects on central nervous system . Other effects may include excitation, euphoria, headache, dizziness, drowsiness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma and even death by respiratory arrest. May also cause kidney damage and blood changes (hemoglobinuric nephrosis). It reduces intraocular pressure by raising osmotic pressure of blood. LD <sub>50</sub> : 20g/kg (oral-rat).  <b>Contact skin/eyes:</b> In contact with skin may cause irritation, probably due dehydration; reddening, itching and inflammation. May be absorbed through the skin. In some cases by repeated contact may result in allergic skin reaction and severe irritation with erythema, edema and vesicles due, probably, to sweat retention. Slightly irritating. May cause slight irritation, lacrimation and a burning sensation in the eyes. LD <sub>50</sub> : 20.8 g/kg (skin-rabbit).  <b>General toxic effects:</b> Inhalation or ingestion causes adverse effects on health. In contact with skin or eyes may cause irritation.
It tends to oxidize at high temperatures.	
Reaction with metals may produce hydrogen gas.	

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### 3. COMPOSITION

**General composition:** 1,2-propanediol with a degree of purity over 99%.

Dangerous components	Range %	Classification	S Phrases
NP			

### 4. FIRST-AID MEASURES

**Inhalation:** Remove the affected person to fresh air; keep warm and quiet.

**Ingestion/Aspiration:** If affected person is conscious, give water. Do not induce vomiting. Do not give anything by mouth to an unconscious or convulsing person. Call for medical attention.

**Contact skin/eyes:** Flush affected areas with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. In contact with eyes hold eyelids open and flush with plenty of water for at least 15 minutes. Get medical attention.

**General measures:** If he symptoms do not disappear, obtain medical attention.

## 5. FIRE-FIGHTING MEASURES

**Extinguishing agents:** Antialcohol foam, dry chemical powder, CO<sub>2</sub>, water spray.

**Non suitable extinguishing agents:** NP

**Combustion products:** CO<sub>2</sub>, H<sub>2</sub>O and CO (in absence of air).

**Special measures:** Move container from fire area if you can do it without risk. Water spray gently applied to the surface, cause a frothing that will extinguish the fire. Consult and follow existing emergency standard procedures.

**Special hazards:** The product must be preheated before ignition can occur. Irritating or toxic substances may be emitted upon thermal decomposition.

**Protective equipment:** Heat-resistant suit and gloves. At high concentrations of vapours or heavy fumes, self-contained breathing equipment.

## 6. ACCIDENTAL RELEASE MEASURES

**Environmental precautions:** Avoid spillages to sewer and drains. Avoid dispersion of the product.

**Personal precautions:** Avoid contact with liquid and inhalation of vapours from hot product.

**Cleanup methods:** Ventilate area of spills or leaks. Isolate and remove discharged material with adsorbent dry sand. Remove surplus with plenty of water.

**Personal protection:** In presence of vapours use respiratory protective mask if it necessary. Wear goggles, impervious gloves and other resistant clothing, to avoid contact with liquid.

## 7. HANDLING AND STORAGE

### Handling:

*General precautions:* Wear appropriate protective clothing to avoid contact or prolonged inhalation of the vapours. Do not smoke, drink, or eat during handling of product. Wash hands using liquid detergent. Eliminate all sources of ignition from areas where the material is handled or used; no sparks, flames, static electricity.

*Specific conditions:* Good local exhaust ventilation.

*Specific Use:* Consult technical information.

### Storage:

*Temperature and decomposition products:* At high temperatures the product decomposes producing toxic and irritant fumes.

*Dangerous reactions:* NP

*Storage conditions:* storage at room temperature. opaque and product resistant containers, properly labelled and closed, placed in cool and well-ventilated areas, and protected from sun light.

*Incompatible materials:* Oxidant materials, metals.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Personal protection:**

*Eye protection:* Safety goggles or face-shield to avoid splashes.

*Respiratory protection:* In presence of high concentrations of vapours respiratory protective mask is recommended with filter against organic vapours.

*Skin protection:* Gloves and appropriate clothing and shoes.

*Other protective equipment:* Eyes washers and showers in working area.

**General precautions:** Local exhaust ventilation. Do not smoke and avoid all ignition sources. Avoid contact with skin or eyes and inhalation of vapours.

**Specific hygiene measures:** Good work practices and the adoption of good personal hygiene measures reduce unnecessary exposures. Washing/Showering facilities with a non-solvent based skin cleaner, hot water and soap must be provided and used. Overalls should be changed frequently and dry cleaned. Grossly contaminated clothing should be changed immediately. The condition of gloves should be checked before use for signs of internal contamination. Use skin reconditioning cream after work.

**Exposure controls:** Threshold Limit Value has not been established for this product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Liquid

**pH:** NP

**Colour:** Colourless

**Odour:** Odourless

**Boiling point:** 189 °C

**Melting/Freezing point:** -60 °C

**Flash point:** 98.9 °C

**Autoignition temperature:** 400 °C

**Explosive properties:** Lower explosive limit: 2.6%  
Upper explosive limit: 12.6%

**Oxidizing properties:** NP

**Vapour pressure:** 0.07 mm Hg (20 °C)

**Density:** 1.0361 g/cm<sup>3</sup> at 20 °C

**Surface tension:** 40.1 dynes/cm at 25°C

**Viscosity:** 0.581 Poise at 20 °C

**Vapour density:** 2.62 (air:1)

**Partition coefficient (n-octanol/water):** log K<sub>octanol/water</sub>: -0.92

**Water solubility:** soluble

**Solubility:** Ether, benzene, alcohol, acetone, chloroform.

**Other data:** Molecular weight: 76.11 g/mol  
Heat of vaporization: 168.6 Cal/g

## 10. STABILITY AND REACTIVITY

**Stability:** Material stable at room temperature, although it tends to oxidize at high temperatures.

**Conditions to avoid:** High temperatures and sunlight exposures.

**Materials to avoid:** Oxidant materials, metals.

**Hazardous decomposition/combustion products:** Thermal decomposition produces toxic and irritant fumes. Combustion product: CO (in defect of oxygen), CO<sub>2</sub>, H<sub>2</sub>O.

**Polymerization risk:** NP

**Conditions to avoid:** NP

## 11. TOXICOLOGICAL INFORMATION

**Routes of exposure:** Inhalation of vapours and mists (only when the material is heated or violently agitated). Other ways are skin and eyes from direct contact. Exposure by ingestion resulting from its accidental use.

**Acute and chronic effects:** Exposures to saturated atmospheres may cause irritation of respiratory tract. Accidental ingestion may cause adverse effects on health. Also, contact with skin or eyes may cause irritation.

LD<sub>50</sub>: 20 g/kg (oral-rat) LD<sub>50</sub>: 20.8 g/kg (skin-rabbit).

**Carcinogenicity:** NP

**Reproductive toxicity:** There are data available which suggest that the product may cause adverse effects for reproduction. However, from data cannot be to conclude that this chemical is toxic for reproduction of humans.

TDL<sub>0</sub>: 100 mg/kg (intraperitoneal-mouse): Effects on fertility.

**Medical conditions which increase hazard to exposure:** Dermatological problems.

## 12. ECOLOGICAL INFORMATION

### Pollutant potential:

*Persistence and degradability:* If released to the atmosphere, it is rapidly degraded in vapour-phase (half-life of 32hr). Physical removal from air by rainfall is possible. If released to water or soil, relatively rapid biodegradation may occur. Leaching in soil may happen, however, biodegradation occurs rapidly enough to diminish the importance of leaching. Evaporation from dry surfaces may take place; however, volatilization from moist soils is not significant.

*Mobility/bioaccumulative potential:* Its estimated bioconcentration factor is <1, therefore it does not accumulate in living organisms. It is completely miscible in water, and due its octanol/water partition coefficient, is expected to have high mobility in soil. Bioconcentration and adsorption to sediment are not significant.

**Ecotoxicological effects:** Monopropylene glycol is expected to degrade relatively rapidly via biodegradation. BOD: 5-day 64%. There are data which indicate that the product is not toxic to aquatic organisms.

LC<sub>50</sub> >1 g/l/24h/48h (*Oryzias latipes*).

LC<sub>50</sub> >10 g/l/48h (*Daphnia magna*).

### 13. DISPOSAL CONSIDERATIONS

**Disposal methods (surplus):** Recycling and recovery of the material when possible.

**Waste:** Liquids and solids from industrial processes.

*Disposal:* Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped and scrubber.

*Handling:* Labelled and sealed containers.

*Provisions:* Companies which recover, dispose, store, transport or handle waste should comply with Dir. 91/156/EEC on waste or other local, national or community provisions.

### 14. TRANSPORT INFORMATION

**Special precautions:** Stable at room temperature and during transport. To avoid spilling, transport in secure containers. Store in cool well ventilated areas. Use properly labelled and sealed containers.

**Additional information:**

UN Number: NP

ADR/RID: NP

Hazard identification number: NP

IATA-DGR: NP

Proper shipping name: NP

IMDG: NP

### 15. REGULATORY INFORMATION

**CLASSIFICATION**

NP

**LABELLING**

**Symbols:** NP

**Phrases R**  
NP

**Phrases S**  
NP

**Other regulations:** This product is listed in Chemical Inventory TSCA (EPA) and Canadian DSL (Domestic Substances List).

## 16. OTHER INFORMATION

### Data Bases consulted

EINECS: European Inventory of Existing Commercial Substances.  
TSCA: Toxic Substances Control Act, US Environmental Protection Agency  
HSDB: US National Library of Medicine.  
RTECS: US Dept. of Health & Human Services

### R phrases shown in the document:

### Legislation consulted

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).  
Dir. 67/548/EEC about classification, labelling and packaging of dangerous substances (including amendments and adaptations in force).  
Dir. 1999/45/EC about classification, labelling and packaging of dangerous preparations (including amendments and adaptations in force).  
Dir. 91/689/EEC dangerous waste; Dir. 91/156/EEC waste management.  
Royal Decree 363/95: Regulation about notification of new substances and classification, packaging and labelling of dangerous substances.  
Royal Decree 255/2003: Regulation about classification, packaging and labelling of dangerous preparations.  
European Agreement concerning the international carriage of dangerous goods by road (ADR).  
Regulation on the international transport of dangerous goods on the railway. (RID)  
International maritime code of dangerous goods. (IMDG)  
International Air Transport Association (IATA) regulation pertaining to air shipment.

### Glossary

CAS: Chemical Abstract Service  
IARC: International Agency for Research on Cancer  
ACGIH: American Conference of Governmental Industrial Hygienists.  
TLV: Threshold Limit Value  
TWA: Time Weighted Average  
STEL: Short-term Exposure Level  
REL: Recommendable Exposure Limit  
PEL: Permissible Exposure Limit  
INSHT: Instituto Nal. de Seguridad e Higiene en el Trabajo

VLA-ED: Valor Límite Ambiental – Exposición Diaria  
VLA-EC: Valor Límite Ambiental – Exposición Corta  
LD<sub>50</sub>: Lethal Dose Medium  
LC<sub>50</sub>: Lethal Concentration Medium  
EC<sub>50</sub>: Effective Concentration Medium  
IC<sub>50</sub>: Inhibitory Concentration Medium  
BOD: Biological Oxygen Demand.  
NP: Not Pertinent  
| : Changes from the last revision

The information given in this document has been compiled based on the best existing information sources, latest available knowledge and according to the current requirements on classification, packaging and labelling of hazardous substances. It does not imply the information is exhaustive or accurate in all cases. It is the user's responsibility to determine the validity of the information contained in this Material Safety Data Sheet to apply depending on the case.