



SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: Propylene Glycol Industrial Grade
Product Description: 1,2-Propanediol
Chemical Formula: C₃H₈O₂
Recommended Use: Solvent

COMPANY IDENTIFICATION

Supplier: UNION PETROCHEMICAL PUBLIC COMPANY LIMITED
728 Union House Building, Baromratchonnani Rd.,
Bangbunru, Bangplad, Bangkok 10700
Supplier General Contact: +662 881 8288

This (M)SDS is a generic document with no country specific information included.

SECTION 2 HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

This product is not hazardous per the Globally Harmonized System of Classification and Labelling (GHS).

Precautionary Statements:

Prevention: Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. protective gloves/ protective clothing/ eye protection/ face protection. Avoid release to the environment.

Response: IF ON SKIN: Wash with plenty of soap and water.
IF IN EYES: Rinse cautiously with water for several minutes.

Storage: Store in a dry place. Store in a closed container.

Disposal: Dispose of contents/container in accordance with local regulation.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a substance.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Component	CASRN	Concentration
Propylene glycol	57-55-6	> 99.5 %

SECTION 4 FIRST AID MEASURES

INHALATION

Move person to fresh air; if effects occur, consult a physician.

SKIN CONTACT

Wash off with plenty of water.



EYE CONTACT

Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

INGESTION

No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5

FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media:

Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture

Hazardous combustion products

During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards

Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

Special protective equipment for firefighters

Wear positive-pressure self-contained breathing apparatus (SCBA) and protective firefighting clothing (includes firefighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

SECTION 6

ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Keep personnel out of low areas. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.



Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible.

Small spills: Any absorbent material. Collect in suitable and properly labeled open containers. Wash the spill site with large quantities of water. Large spills: Dike area to contain spill. Pump into suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage

Store away from direct sunlight or ultraviolet light. Keep container tightly closed when not in use. Protect from atmospheric moisture. Store in the following material(s): Stainless steel. Aluminum. Container lined with phenolic or epoxy-phenolic FDA food contact approved coating. 316 stainless steel. Opaque HDPE plastic container. No special storage conditions required.

Storage stability

Shelf life: Use within 12 Month

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters/Exposure limits:

Exposure limits/standards (Note: Exposure limits are not additive)

Component	Regulation	Type of listing	Value/Notation
Propylene glycol	US WEEL	TWA	10 mg/m ³

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields). If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles.

Skin protection

Hand protection: Chemical protective gloves should not be needed when handling this material. Consistent with general hygienic practice for any material, skin contact should be minimized.

Other protection: No precautions other than clean body-covering clothing should be needed

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.



SECTION 9	PHYSICAL AND CHEMICAL PROPERTIES
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Appearance	
Physical state	Liquid.
Color	Colorless
Odor	Odorless
Odor Threshold	No test data available
pH	Not applicable
Melting point/range	< -20 °C EU Method A.1 (Melting / Freezing Temperature)
Freezing point	< -20 °C EC Method A1
Boiling point	(760 mmHg) 184 °C at 752.46 mmHg Literature
Flash point, closed cup at 104 °C	1,000.1 hPa EC Method A9 (PMCC)
Evaporation Rate (Butyl Acetate)	0.01 Estimated.= 1
Flammability (solid, gas)	Not applicable to liquids
Lower explosion limit	2.6 % vol Estimated.
Upper explosion limit	12.5 % vol Estimated.
Vapor Pressure	20 Pa at 25 °C EC Method A4
Relative Vapor Density (air = 1)	2.62 Literature
Relative Density (water = 1)	1.03 at 20 °C / 20 °C EU Method A.3 (Relative Density)
Water solubility	1,000 g/L at 20 °C Regulation (EC) No. 440/2008, Annex, A.6
Partition coefficient:	log Pow: -1.07 Measured
n- octanol / water	
Auto-ignition temperature	> 400 °C at 100.01 kPa EC Method A15
Decomposition temperature	No test data available
Dynamic Viscosity	43.4 mPa.s at 25 °C Literature
Kinematic Viscosity	No test data available
Explosive properties	Not explosive
Oxidizing properties	No
Liquid Density	1.03 g/cm ³ at 20 °C Literature
Molecular weight	No data available
Pour point	< -57 °C Literature

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10	STABILITY AND REACTIVITY
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STABILITY: Stable under recommended storage conditions. See Storage, Section 7. Hygroscopic

CONDITIONS TO AVOID: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Avoid direct sunlight or ultraviolet sources.

MATERIALS TO AVOID: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aldehydes. Alcohols. Ethers. Organic acids.

POSSIBILITY OF HAZARDOUS REACTIONS: Polymerization will not occur.

SECTION 11	TOXICOLOGICAL INFORMATION
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Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

LD50, Rat, > 20,000 mg/kg



Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

LD50, Rabbit, > 2,000 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity

At room temperature, exposure to vapor is minimal due to low volatility. Mist may cause irritation of upper respiratory tract (nose and throat).

LC50, Rabbit, 2 Hour, dust/mist, 317.042 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation

Prolonged contact is essentially nonirritating to skin.

Repeated contact may cause flaking and softening of skin.

Serious eye damage/eye irritation

May cause slight temporary eye irritation.

Corneal injury is unlikely.

Mist may cause eye irritation.

Sensitization

Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization: No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

Carcinogenicity

Did not cause cancer in laboratory animals.

Teratogenicity

Did not cause birth defects or any other fetal effects in laboratory animals.

Reproductive toxicity

In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Mutagenicity

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

SECTION 12

ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material – Not expected to be harmful to aquatic organisms.

Material – Not expected to demonstrate chronic toxicity to aquatic organisms.

MOBILITY

Material -- Expected to remain in water or migrate through soil.

PERSISTENCE AND DEGRADABILITY

Biodegradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation may occur under anaerobic conditions (in the absence of oxygen).

10-day Window: Pass

Biodegradation: 81 %

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

10-day Window: Not applicable

Biodegradation: 96 %

Exposure time: 64 d

Method: OECD Test Guideline 306 or Equivalent

Theoretical Oxygen Demand: 1.68 mg/mg

Chemical Oxygen Demand: 1.53 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	69.000 %
10 d	70.000 %
20 d	86.000 %

ECOLOGICAL DATA

Ecotoxicity

Test	Duration	Organism Type	Test Results
Aquatic – Acute Toxicity	96 hour(s)	rainbow trout	LC50 40,613 mg/
Aquatic – Acute Toxicity	48 hour(s)	water flea	LC50 18,340 mg/l
Aquatic – Acute Toxicity	96 hour(s)	green algae	ErC50 19,000 mg/l
Aquatic – Acute Toxicity	18 hour(s)	bacteria	> 20,000 mg/l

Persistence, Degradability and Bioaccumulation Potential

Media	Test Type	Duration	Test Results
Water	Ready Biodegradability	28 day(s)	Percent Degraded 28
Octanol-Water	Calculated		Log Kow -1.07
BCF			Estimated

Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Other adverse effects

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**SECTION 13****DISPOSAL CONSIDERATIONS****DISPOSAL METHODS**

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device.

SECTION 14**TRANSPORT INFORMATION****Classification for ROAD and Rail transport**

Not regulated for transport

Classification for SEA transport (IMO-IMDG)

Not regulated for transport

Transport in bulk

according to Annex I or II

of MARPOL 73/78 and the

IBC or IGC Code

Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO)

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15**REGULATORY INFORMATION****Thailand: Notification of Department of Labour Protection and Welfare (List of Hazardous Chemicals)**

All components of this product are not listed.

Thailand: Munitions Control Act B.E.2530

All components of this product are not listed.

Hazardous Substance Act B.E. 2535

Not applicable

Emergency Decree on Controlling the Use of Volatile Substances B.E. 2533

Not applicable

SECTION 16**OTHER INFORMATION****Product Literature**

Additional information on this and other products may be obtained by visiting our web page.



Revision

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Legend

TWA	8-hr TWA
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of

Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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