



中海壳牌石油化工有限公司
CNOOC and Shell Petrochemicals Company Limited



Material Safety Data Sheet

Dipropylene glycol (DPG)

SECTION 1: IDENTIFICATION/PREPARATION AND COMPANY	
Product Name	Dipropylene glycol (DPG)
Product Type	DPG is used in the manufacture of unsaturated polyester resins and benzoate plasticizers.
Common Name	
Product Code	U1521
Supplier	CNOOC and Shell Petrochemicals Marketing Company Ltd
Address	Room 1205-1207, Goldlion Digital Network Centre, 138 Ti Yu Dong Road Guangzhou, 510620
Post Code	510620
Contact Telephone	
Material Safety Sheet Coding	
Emergency Telephone (National)	(86) 0532 388 9090
Valid From	June 25,2004

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS	
Purified Material <input checked="" type="checkbox"/>	Compound <input type="checkbox"/>
Formal Name	Oxydipropanol
Chemical family	
Synonyms	DPG
Injurant Component	Dipropylene glycol
Content	100%
CAS Number	25265-71-8

SECTION 3: HAZARDS IDENTIFICATION	
Class	
Approach of Inrush	
Human Health Hazards	May cause moderate irritation to skin. Moderately irritating to eyes.
Safety Hazards	Not classified as flammable but will burn.
Environmental Hazards	

SECTION 4: FIRST AID MEASURES	
Symptoms and Effects	Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision.
First Aid - Inhalation	Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.
First Aid - Skin	Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available.
First Aid - Ingestion	If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

First Aid - Eyes	Flush eyes with water while holding eyelids open. Rest eyes for 30 minutes. If redness, burning, blurred vision, or swelling persist, transport to the nearest medical facility for additional treatment.
Advice to Physicians	Treat symptomatically. Following cases of gross over-exposure, investigation of liver, kidney and eye function may be advisable. Records of such incidents should be maintained for future reference.
Protection of First Aiders	Wear full protective clothing and self-contained breathing apparatus.

SECTION 5: FIRE FIGHTING MEASURES

Specific Hazards	Clear fire area of all non-emergency personnel. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Will only burn if enveloped in a pre-existing fire. Hazardous combustion products may include: Carbon monoxide.
Extinguishing Media	Large fires should only be fought by properly trained fire fighters. Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	Do not use water in a jet.
Protective Equipment	Full protective clothing and self-contained breathing apparatus.
Other Information	All storage areas should be provided with adequate fire fighting facilities. Keep adjacent containers cool by spraying with water.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions	Avoid inhaling vapour and/or mists. Avoid contact with the skin. Extinguish any naked flames. Do Not smoke. Remove ignition sources. Avoid sparks. Remove all possible sources of ignition in the surrounding area. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Use appropriate containment to avoid environmental contamination. Ventilate contaminated area thoroughly.
Personal Protection	For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet.
Environmental Precautions	Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Use appropriate containment to avoid environmental contamination. Ventilate contaminated area thoroughly.
Clean-up methods – small spillage	For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
Clean-up methods – large spillage	For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
Other Information	Proper disposal should be evaluated based on regulatory status of this material (refer to Section 13), potential contamination from subsequent use and spillage, and regulations governing disposal in the local area. Observe all relevant local regulations.

SECTION 7: HANDLING AND STORAGE	
General Precautions	Avoid breathing of or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Handling	In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. Use local exhaust extraction over processing area. For lines and fittings, avoid copper, copper alloys, zinc. Avoid contact with skin, eyes, and clothing. Air-dry contaminated clothing in a well-ventilated area before laundering. Extinguish any naked flames. Do Not smoke. Remove ignition sources. Avoid sparks. Do not empty into drains. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
Handling Temperatures	Ambient.
Storage	Prevent all contact with water and with moist atmosphere. Tanks must be clean, dry and rust-free. Must be stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat. Nitrogen blanket recommended for large tanks (capacity 100 m ³ or higher). Drums should be stacked to a maximum of 3 high. Keep container tightly closed. Keep dry. Must be stored in a well-ventilated area, away from sunlight, ignition sources and other sources of heat. Prevent ingress of water. Maximum storage time: 6 months
Storage temperatures	40°C maximum.
Product Transfer	Lines should be purged with nitrogen before and after product transfer. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Keep containers closed when not in use.
Tank Cleaning	
Recommended Materials	

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION	
Occupational exposure standards (TLV/ACGIH)	None established.
Supervision Method	
Engineering Control Measures	No exposure controls are ordinarily required under normal conditions of use. It is good general industrial hygiene practice to minimize exposure to the material.
Hygiene Measures	Wash hands before eating, drinking, smoking and using the toilet. Air-dry contaminated clothing in a well-ventilated area before laundering. Launder overalls and undergarments regularly Dispose of soiled gloves.
Respiratory Protection	No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material.
Hand Protection	Where hand contact with the product may occur the use of gloves approved to relevant standards made from the following materials may provide suitable chemical protection: Incidental contact/Splash protection: PVC. Neoprene rubber. Nitrile rubber. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Thin disposable gloves should be avoided for long term use. When worn, use once and dispose
Eye Protection	Chemical splash goggles (chemical monogoggles).
Body Protection	Skin protection not ordinarily required beyond standard issue work clothes.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Colourless Liquid
Colour	Colourless
Odour	Odourless
Boiling Point	228 - 236 °C
Melting / Freezing Point	-40 °C
Flash Point	>=118 °C
Auto-Ignition Temperature	310 °C
Explosion/Flammability Limits (air)	Lower: 2.9% (v/v); Upper: 12.6% (v/v)
Vapour Pressure	<1 Pa at 20 °C
Vapour Density (Air = 1)	4.6 At 20 °C
Liquid Density	1,020-1,025 kg/m ³ at 20 °C
Solubility in Water	Completely miscible. Readily soluble in various organic solvents.
N-octanol/Water Partition coefficient (log Pow)	-0.69
Odour threshold	
Surface tension	
Dynamic viscosity / Kinematic viscosity	116 mPa.s at 20 °C
Molecular weight	192 g/mol
Electrical Conductivity/ Thermal conductivity	

SECTION 10: STABILITY / REACTIVITY

Stability	Stable. Hygroscopic.
Conditions to avoid	Heat, flames, and sparks. Temperatures above 40°C
Materials to avoid	Strong oxidising agents. Strong acids
Polymerization Hazards	Hygroscopic.
Hazardous Decomposition Products	Carbonyl and dioxolane derivatives may be formed.

SECTION 11: TOXICOLOGICAL INFORMATION

Basis for Assessment	Information given is based on product testing, and/or similar products, and/or components.
Acute Toxicity Oral	Low toxicity: LD50 >2000 mg/kg, Rat
Acute Toxicity Dermal	Low toxicity: LD50 >2000 mg/kg, Rabbit
Acute Toxicity Inhalation	Expected to be of low toxicity: LC50 greater than near-saturated vapour concentration.
Skin Irritation	May cause moderate skin irritation (but insufficient to classify).
Eye Irritation	Expected to be moderately irritating to eyes (but insufficient to classify).
Skin Sensitisation	Not a skin sensitiser.
Respiratory irritation	Not expected to be a respiratory irritant.
Repeated Dose Toxicity	Low systemic toxicity on repeated exposure.
Development toxicity	Not a developmental toxicant
Fertility impairment	Does not impair fertility.
Mutagenicity	Not mutagenic.
Carcinogenicity	Not carcinogenic in animal studies.
Human effects	

SECTION 12: ECOLOGICAL INFORMATION	
Mobility	If product enters soil, it will be highly mobile and may contaminate groundwater. Dissolve in water
Persistence/Degradability	Inherently biodegradable.
Bioaccumulation	Does not bioaccumulate significantly
Acute Toxicity - Fish	Low toxicity: LC/EC/IC50 > 100 mg/l
Acute Toxicity- Invertebrates	Low toxicity: LC/EC/IC50 > 100 mg/l
Acute toxicity - algae	Low toxicity: LC/EC/IC50 > 100 mg/l
Acute toxicity-other organisms	
Acute Toxicity - Bacteria	Expected to have low toxicity: LC/EC/IC50 > 100 mg/l
Sewage Treatment	

SECTION 13: DISPOSAL CONSIDERATIONS	
Waste Character	Toxic Waste <input type="checkbox"/> Dangerous Waste <input checked="" type="checkbox"/> Industry Solid Waste <input type="checkbox"/>
Precautions	Refer to Section 7 before handling the product or containers.
Waste Disposal	Recover or recycle if possible.
Product Disposal	Recover or recycle if possible.
Container Disposal	Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Send to drum recoverer or metal reclaimer
Local Legislation	Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be complied with.

SECTION 14: TRANSPORT INFORMATION	
Hazardous Goods Coding	
UN No.	
Hazard symbol	
Package Classification	This material is not classified as dangerous under IMDG regulations.
Package Method	Package Drum/In Bulk
Precautions	Avoid Straight Sunlight, Heat and Flame (Spark)
Proper shipping name	

SECTION 15: REGULATORY INFORMATION	
EC Label/EC Number	
EC Label Name	
EC Classification	Not classified as dangerous under EC criteria.
EC Symbols	
EC Risk Phrases	
EC Safety Phrases	
TSCA (USA)	Listed
EINECS (EC)	Listed 200-338-0
EC Annex I number	
MITI (Japan)	
DSL (Canada)	Listed
China Related Laws	Safely Use, Store, Transport, Loading, Classification and Labels are given in Laws and Regulations as below: <ul style="list-style-type: none"> • Environmental Protection Law of the People's Republic of China • Hazardous Chemicals Safety Management Ordinance (1-26-2002 issued by The PRC State Council) • Classification and Labels of Dangerous Chemical Substances

Other Information	<p>Commonly Used (GB13690-1992)</p> <ul style="list-style-type: none"> • The Principle of Classification of Transport Packaging Groups of Dangerous Goods (GB/T15098-1994) • General Specifications for Transport Packages of Dangerous Goods (GB12463-1990) • Packaging Labels of Dangerous Goods (GB190-1990) • General Rules of Dangerous Chemical Store (GB15603-1995) • National Catalogue of Hazardous Waste (1-4-1998 promulgated by the national environmental agency and other department)
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SECTION 16: OTHER INFORMATION	
Uses and Restrictions	Advice in this document relates only to product as originally supplied. Other derivative chemicals will have different properties and hazards. Advice should be sought on their safe handling and use. Do not use in theatrical fogs. Use for the manufacture of polyurethane products.
Technical Contact Point	For further information, contact your supplier or local agents
Filled Date	June 24,2004
Prepared by	CMSC CSPC
Reviewed by	MFHSE CSPC
Modification Explanation	
Reference	Manual of Petrochemical Toxicant (issued by SINOPEC safety supervision department 1992) SHELL international MSDS
Safety Data Sheet Distribution	This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters and should be made available to all who may handle the product

DISCLAIMER

This information is based on our current knowledge and is intended to describe the product for the purposes of Health, Safety and Environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.