

# Material Safety Data Sheet



## 1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

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24-Hour Emergency Phone Number: 989-636-4400

Product: DOWANOL\* PM GLYCOL ETHER

Product Code: 22473

Effective Date: 06/06/03      Date Printed: 06/07/03      MSD: 000051

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

1-Methoxy-2-propanol	CAS# 000107-98-2	99% min.
2-Methoxy-1-propanol	CAS# 001589-47-5	<0.5%

## 3. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

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\* Clear, colorless liquid. Ether odor. Flammable. Vapors may travel \*  
\* a long distance; ignition and/or flash back may occur. Warn public \*  
\* of downwind explosion hazard. \*  
\*\*\*\*\*

POTENTIAL HEALTH EFFECTS (See Section 11 for toxicological data.)

EYE: May cause slight temporary eye irritation. Corneal injury is unlikely.

SKIN: Prolonged or repeated contact may cause skin irritation. Prolonged skin contact with very large amounts may cause dizziness or drowsiness.

INGESTION: Very low toxicity if swallowed. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

INHALATION: The odor is objectionable at 100 ppm; higher levels produce eye, nose, and throat irritation and are intolerable at 1000 ppm. Anesthetic effects are seen at or above 1000 ppm.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Symptoms of excessive

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exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Observations in animals include liver and kidney effects.

CANCER INFORMATION: Did not cause cancer in laboratory animals.

TERATOLOGY (BIRTH DEFECTS): Did not cause birth defects in laboratory animals. Has been toxic to the fetus in lab animals only at doses toxic to the mother.

REPRODUCTIVE EFFECTS: In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

#### 4. FIRST AID

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

SKIN: Wash skin with plenty of water.

INGESTION: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

INHALATION: Move person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

NOTE TO PHYSICIAN: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

#### 5. FIRE FIGHTING MEASURES

##### FLAMMABLE PROPERTIES

FLASH POINT: 88.0F, 31.1C

METHOD USED: Setaflash

AUTOIGNITION TEMPERATURE: 549F, 287C

##### FLAMMABILITY LIMITS

LFL: 1.5 vol% @ 151C

UFL: 13.74 vol% @ 151C

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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.

OTHER FLAMMABILITY INFORMATION: 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. When product is stored in closed containers a flammable atmosphere can develop. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Flammable mixtures may exist within the vapor space of containers at room temperature. Flammable concentrations of vapor can accumulate at temperatures above flash point, see Section 9.

EXTINGUISHING MEDIA: Water fog or fine spray, dry chemical fire extinguishers, carbon dioxide fire extinguishers, foam. Do not use direct water stream. Straight or direct water streams may not be effective to extinguish fire. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

FIRE FIGHTING INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water may not be effective in extinguishing fire. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. Fight fire from protected location or safe distance. Consider use of unmanned hose holder or monitor nozzles. Immediately withdraw all personnel from 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. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect protect personnel and minimize property damage.

PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full

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chemical resistant fire fighting clothing with SCBA. If this is not available, wear full chemical resistant clothing with SCBA and fight fire from a remote location. For protective equipment in post-fire or non-fire clean up situations, refer to the relevant sections.

#### 6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory Information)

**PROTECT PEOPLE:** Isolate area. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Use appropriate safety equipment. For large spills, warn public of downwind explosion hazard. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Vapor explosion hazard, keep out of sewers. Check area with combustible gas detector before reentering area. For additional information, refer to Section 8, Exposure Controls/Personal Protection.

**PROTECT THE ENVIRONMENT:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

**CLEANUP:** Contain spilled material if possible. Use non-sparking tools in cleanup operations. Ground and bond all containers and handling equipment. Absorb with material such as clay or sand. If available, use foam to smother or suppress vapors. See Section 13, Disposal Considerations for additional information. Pump with explosion-proof equipment. If available, use foam to smother or suppress.

#### 7. HANDLING AND STORAGE

**HANDLING:** Keep away from heat, sparks, and flame. Avoid breathing vapor. Keep container closed. Use with adequate ventilation. Never use air pressure for transferring product. No smoking, open flames or sources of ignition in handling and storage area. Electrically ground and bond all equipment. Never use air pressure for transferring product. Use of non-sparking or explosion proof equipment may be necessary, depending upon the type of operation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, drill, grind, weld, or perform similar operations on or near empty containers. See Section 8, Exposure Controls/Personal Protection. Spills of these organic materials on hot fibrous

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insulations may lead to lowering of the autoginition temperatures possibly resulting in spontaneous combustion.

STORAGE: Store in the following materials(s): carbon steel, stainless steel, Teflon. Minimize sources of ignition, such as static buildup, heat, spark or flame. Keep containers closed.

#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

##### PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION: Use safety glasses.

SKIN PROTECTION: When prolonged or frequently repeated contact could occur, use chemically protective clothing resistant to this material. Selection of specific items such as faceshield, gloves, boots, apron, or full-body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required, use an approved air-purifying or positive-pressure supplied-air respirator depending on the potential airborne concentration. For emergency and other conditions where the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure airline with auxiliary self-contained air supply.

EXPOSURE GUIDELINES: Propylene glycol monomethyl ether: ACGIH TLV is 100 ppm TWA, 150 ppm STEL.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE: Colorless liquid  
ODOR: Ether; objectionable @ 100 ppm or higher  
VAPOR PRESSURE: 11.829 mmHg @ 25C

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VAPOR DENSITY: 3.12  
BOILING POINT: 248.3F, 120C  
SOLUBILITY IN WATER/MISCIBILITY: Infinitely  
SPECIFIC GRAVITY OR DENSITY: 0.919 @ 25/25C  
VOLATILE ORGANIC COMPOUNDS (VOC) CONTENT: 919 g/L or 7.65 lb/gal  
as per Rule 443.1 of California SCAQMD

#### 10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Thermally stable at typical use temperatures.

CONDITIONS TO AVOID: Product can oxidize at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

INCOMPATIBILITY WITH OTHER MATERIALS: 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, ketones, organic acids.

HAZARDOUS POLYMERIZATION: Will not occur.

#### 11. TOXICOLOGICAL INFORMATION (See Section 3 for Potential Health Effects. For detailed toxicological data, write or call the address or non-emergency number shown in Section 1)

SKIN: The LD50 for skin absorption in rabbits is approximately 13,000 mg/kg (12 ml/kg).

INGESTION: The oral LD50 for rats is 7200 mg/kg (6.6 ml/kg.).

MUTAGENICITY: In vitro mutagenicity studies were negative.

#### 12. ECOLOGICAL INFORMATION (For detailed Ecological data, write or call the address or non-emergency number shown in Section 1)

##### ENVIRONMENTAL FATE

MOVEMENT & PARTITIONING: Bioconcentration potential is low (BCF less than 100 or Log Pow less than 3). Log octanol/water partition coefficient (log Pow) is estimated using structural fragment method to be -0.49. Soil organic carbon partition coefficient (log Koc) is estimated to be 0.2-1.0. Potential for

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mobility in soil is very high (Koc between 0 and 50). Henry's Law Constant (H) is estimated to be 1.40E-06 atm-m<sup>3</sup>/mole.

DEGRADATION & PERSISTENCE: Biodegradation reached in Modified OECD Screening Test (OECD Test No. 301 E) after 28 days: 96%. 20-Day biochemical oxygen demand (BOD20) is 1.14 p/p. 5-Day biochemical oxygen demand (BOD5) is below detection limits.  
Tropospheric half-life is estimated to be 3.1-7.8 hr.  
Inhibitory concentration (IC50) in OECD Activated Sludge Respiration Inhibition Test (OECD Test No. 209) is >1000 mg/L.  
Theoretical oxygen demand (ThOD) is calculated to be 1.95 p/p. Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

ECOTOXICITY: Material is practically non-toxic to aquatic organisms on an acute basis (LC50 or EC50 >100 mg/L in most sensitive species tested).  
Acute LC50 in fathead minnow (*Pimephales promelas*) is 20,800 mg/L.  
Acute LC50 in water flea *Daphnia magna* is 23,300 mg/L.  
Growth inhibition EC50 in green alga *Selenastrum capricornutum* is >1000 mg/L.  
Acute LC50 for golden orfe (*Leuciscus idus*) is 4600-10,000 mg/L.

### 13. DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

DISPOSAL: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal methods 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. THE DOW CHEMICAL COMPANY HAS 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 2 (Composition/Information On Ingredients).

FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: recycler, reclaimer, incinerator or other thermal destruction device.

As a service to its customers, Dow can provide names of information resources to help identify waste management

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companies and other facilities which recycle, reprocess or manage chemicals or plastics, and that manage used drums. Telephone Dow's Customer Information Center at 800-258-2436 or 989-832-1556 for further details.

14. TRANSPORT INFORMATION

DEPARTMENT OF TRANSPORTATION (D.O.T.): For D.O.T. regulatory information, if required, consult transportation regulations, product shipping papers or contact your Dow representative.

CANADIAN TDG INFORMATION: For TDG regulatory information, if required, consult transportation regulations, product shipping papers or contact your Dow representative.

15. REGULATORY INFORMATION (Not meant to be all-inclusive--selected regulations represented)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

U.S. REGULATIONS

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SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

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SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

- A delayed health hazard
- A fire hazard

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REGULATORY INFORMATION (CONTINUED)

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TOXIC SUBSTANCES CONTROL ACT (TSCA):

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

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The CAS Number for TSCA is 107-98-2.

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STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
2-PROPANOL, 1-METHOXY-	000107-98-2	NJ3 PA1

NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).

PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

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OSHA HAZARD COMMUNICATION STANDARD:

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CANADIAN REGULATIONS  
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WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

- B2 - flammable liquid with a flash point less than 37.8C
  - D2B - eye or skin irritant
- Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employer's workplace education program.

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## REGULATORY INFORMATION (CONTINUED)

CPR STATEMENT: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

HAZARDOUS PRODUCTS ACT INFORMATION: This product contains the following ingredients which are Controlled Products and/or on the Ingredient Disclosure List (Canadian HPA section 13 and 14):

COMPONENTS:	CAS #	AMOUNT(%w/w)
1-METHOXY-2-PROPANOL	000107-98-2	99% min.
1-METHOXY-1-PROPANOL	001589-47-5	<0.5%

## CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA):

All substances in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

## 16. OTHER INFORMATION

MSDS STATUS: Revised Sections 3, 4, 6, 7, 8,

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Health	1
Flammability	3
Reactivity	0

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The Information Herein Is Given In Good Faith, But No Warranty,  
Express Or Implied, Is Made. Consult The Dow Chemical Company  
For Further Information.