



# 1,2-DIMETHOXYETHANE

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## 1. Product Identification

**Synonyms:** Ethylene glycol dimethyl ether; Dimethyl cellosolve®

**CAS No.:** 110-71-4

**Molecular Weight:** 90.12

**Chemical Formula:** CH<sub>3</sub>OCH<sub>2</sub>CH<sub>2</sub>OCH<sub>3</sub>

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## 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Ethylene Glycol Dimethyl Ether	110-71-4	90 - 100%	Yes

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## 3. Hazards Identification

### Emergency Overview

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**WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED OR INHALED. AFFECTS CENTRAL NERVOUS SYSTEM. MAY AFFECT BLOOD AND BLOOD FORMING ORGANS, REPRODUCTIVE SYSTEM, LIVER AND KIDNEYS. MAY FORM EXPLOSIVE PEROXIDES IN AIR. POSSIBLE BIRTH DEFECT HAZARD. MAY CAUSE BIRTH DEFECTS BASED ON ANIMAL DATA. MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE IRRITATION TO EYES AND RESPIRATORY TRACT.**

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Health Rating: 2 - Moderate (Life)

Flammability Rating: 3 - Severe (Flammable)

Reactivity Rating: 2 - Moderate

Contact Rating: 2 - Moderate (Life)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD;  
PROPER GLOVES; CLASS B EXTINGUISHER

Storage Color Code: Red (Flammable)

**Potential Health Effects**

There is limited information concerning the human health hazards of this substance. Health effects are expected to be similar to those of structurally-related compounds (Ethylene Glycol Monomethyl Ether, CAS 109-86-4, and Ethylene Glycol Monoethyl Ether, CAS 110-80-5). The health hazards listed below reflect both the known hazards of this substance and the hazards of the related compounds.

**Inhalation:**

May cause irritation to the respiratory tract. Symptoms may include coughing, sore throat, labored breathing, and chest pain. High concentrations have a narcotic effect.

**Ingestion:**

May cause nausea, vomiting and abdominal pain. Central nervous system symptoms may develop or damage to blood, liver and kidneys may occur after the ingestion of large amounts.

**Skin Contact:**

May be absorbed through the skin with possible systemic effects.

**Eye Contact:**

May cause irritation, redness and pain.

**Chronic Exposure:**

Prolonged exposure may cause injury to bone marrow, blood cells, kidney, liver and reproductive system. A suspected human reproductive and birth defect hazard.

**Aggravation of Pre-existing Conditions:**

Persons with pre-existing blood or central nervous system disorders may be more susceptible to the effects of this substance.

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## 4. First Aid Measures

**Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:**

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

**Skin Contact:**

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention.

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## 5. Fire Fighting Measures

**Fire:** Flash point: -2C (28F) CC

Autoignition temperature: 202C (396F) Flammable.

**Explosion:**

Above the flash point, explosive vapor-air mixtures may be formed. Contact with strong oxidizers may cause fire. Sealed containers may rupture when heated. Vapors can flow along surfaces to distant ignition source and flash back. Sensitive to static discharge.

**Fire Extinguishing Media:**

Water spray, dry chemical, alcohol foam, or carbon dioxide. Water spray may be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

## 6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities.

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## 7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Be aware of possible peroxide formation. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

None established.

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### **Personal Respirators (NIOSH Approved):**

For conditions of use where exposure to the substance is apparent and engineering controls are not feasible, consult an industrial hygienist. For emergencies, or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

### **Eye Protection:**

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

**Appearance:** Clear, colorless liquid.

**Odor:** Sharp, ethereal odor.

**Solubility:** Miscible in water.

**Specific Gravity:** 0.86 @ 20C/4C

**pH:** No information found.

**% Volatiles by volume @ 21C (70F):** 100

**Boiling Point:**

82 - 83C (180 - 181F)

**Melting Point:** -58C (-72F)

**Vapor Density (Air=1):** 3.1

**Vapor Pressure (mm Hg):** 48 @ 20C (68F)

**Evaporation Rate (BuAc=1):** No information found.

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## 10. Stability and Reactivity

### **Stability:**

Stable under ordinary conditions of use and storage. Contact with air may form explosive peroxides that may detonate when heated or shocked.

**Hazardous Decomposition Products:**

Carbon dioxide and carbon monoxide may form when heated to decomposition.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Strong oxidizers.

**Conditions to Avoid:**

Heat, flame, ignition sources, air, incompatibles

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## 11. Toxicological Information

**Toxicological Data:**

Investigated as a reproductive effector.

**Reproductive Toxicity:**

Has shown teratogenic effects in laboratory animals. Structurally related compounds have caused damage to the reproductive systems of laboratory animals.

-----\Cancer Lists\-----

Ingredient Category	---NTP Carcinogen---		IARC
	Known	Anticipated	
Ethylene Glycol Dimethyl Ether None (110-71-4)	No	No	

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## 12. Ecological Information

**Environmental Fate:**

No information found.

**Environmental Toxicity:**

No information found.

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## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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## 14. Transport Information

### Domestic (Land, D.O.T.)

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**Proper Shipping Name:** 1,2-DIMETHOXYETHANE  
**Hazard Class:** 3  
**UN/NA:** UN2252  
**Packing Group:** II  
**Information reported for product/size:** 4L

### International (Water, I.M.O.)

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**Proper Shipping Name:** 1,2-DIMETHOXYETHANE  
**Hazard Class:** 3  
**UN/NA:** UN2252  
**Packing Group:** II  
**Information reported for product/size:** 4L

### International (Air, I.C.A.O.)

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**Proper Shipping Name:** 1,2-DIMETHOXYETHANE  
**Hazard Class:** 3  
**UN/NA:** UN2252  
**Packing Group:** II  
**Information reported for product/size:** 4L

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## 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----  
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Ingredient TSCA EC Japan  
Australia  
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Ethylene Glycol Dimethyl Ether (110-71-4) Yes Yes Yes  
Yes

-----\Chemical Inventory Status - Part 2\-----  
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Ingredient Korea --Canada--  
Phil. DSL NDSL  
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Ethylene Glycol Dimethyl Ether (110-71-4) Yes Yes No  
Yes

-----\Federal, State & International Regulations - Part 1\-----  
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313-----	-SARA 302-	-----SARA
Ingredient	RQ	TPQ
Chemical Catg.	List	
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Ethylene Glycol Dimethyl Ether (110-71-4)	No	No
ether	No	Glycol
-----\Federal, State & International Regulations - Part 2\-----		
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	-RCRA-	-
TSCA-		
Ingredient	CERCLA	261.33
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Ethylene Glycol Dimethyl Ether	1	No
110-71-4)		No
Chemical Weapons Convention: No	TSCA 12(b): No	CDTA: No
SARA 311/312: Acute: Yes	Chronic: Yes	Fire: Yes
Reactivity: Yes	(Pure / Liquid)	Pressure: No

**Australian Hazchem Code:** 2[S]E

**Poison Schedule:** None allocated.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: 2 Flammability: 3 Reactivity: 2

**Label Hazard Warning:**

WARNING! FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED OR INHALED. AFFECTS CENTRAL NERVOUS SYSTEM. MAY AFFECT BLOOD AND BLOOD FORMING ORGANS, REPRODUCTIVE SYSTEM, LIVER AND KIDNEYS. MAY FORM EXPLOSIVE PEROXIDES IN AIR. POSSIBLE BIRTH DEFECT HAZARD. MAY CAUSE BIRTH DEFECTS BASED ON ANIMAL DATA. MAY BE HARMFUL IF ABSORBED THROUGH SKIN. MAY CAUSE IRRITATION TO EYES AND RESPIRATORY TRACT.

**Label Precautions:**

- Avoid breathing vapor or mist.
- Avoid contact with eyes, skin and clothing.
- Keep away from heat, sparks and flame.
- Wash thoroughly after handling.
- Use only with adequate ventilation.
- Keep container tightly closed.

**Label First Aid:**

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases, get

medical attention.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

MSDS Section(s) changed since last revision of document include: 3.

**Disclaimer:**

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