

## Material Safety Data Sheet Diethyl Sulfate

### Section 1: Chemical Product and Company Identification

Product Name : Diethyl Sulfate  
Chemical Formula :  $(C_2H_5O)_2SO_2$   
Company Identification : Tradeasia International Pte Ltd  
Email : contact@chemtradeasia.com

### Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by weight
Diethyl Sulfate	64-67-5	100

### Section 3: Hazards Identification

#### EMERGENCY OVERVIEW

Danger! Harmful if absorbed through the skin. Moisture sensitive. Cancer suspect agent. Causes eye and skin burns. Causes digestive and respiratory tract burns. May be harmful if swallowed or inhaled. May cause heritable genetic damage. Target Organs: Lungs, eyes, skin, mucous membranes.

#### Potential Health Effects

**Eye :** Causes eye burns.

**Skin :** Harmful if absorbed through the skin. Causes skin burns.

**Ingestion :** Causes gastrointestinal tract burns. May cause systemic effects.

**Inhalation :** Causes chemical burns to the respiratory tract. May be harmful if inhaled.

**Chronic :** May cause fetal effects. May cause cancer in humans. Effects may be delayed. Chronic exposure may cause lung damage. Laboratory experiments have resulted in mutagenic effects. Prolonged exposure may cause corneal erosion, conjunctivitis, and possible blindness.

### Section 4: First Aid Measures

#### Eyes:

Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

#### Skin:

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

#### Ingestion:

Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

#### Inhalation:

Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

### Notes to Physician:

Persons with asthma, chronic respiratory disease, skin disorders, eye problems or allergies may be at increased risk from exposure to this substance. Treat symptomatically and supportively.

## Section 5: Fire and Explosion Data

### General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

### Extinguishing Media:

In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam.

**Autoignition Temperature** : 436°C ( 816.80°F)

**Flash Point** : 104°C ( 219.20°F)

**Explosion Limits** : Lower: 4.1 vol %  
Upper: Not available

**NFPA Rating** : health: 3; flammability: 1; instability: 1;

## Section 6: Accidental Release Measures

### General Information:

Use proper personal protective equipment as indicated in Section 8.

### Spills/Leaks:

Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

## Section 7: Handling and Storage

### Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Discard contaminated shoes.

### Storage:

Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep refrigerated. (Store below 4°C/39°F.) Material darkens in color during storage. Store protected from moisture.

## Section 8: Exposure Controls/Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Diethyl Sulfate	None listed	None listed	None listed

**OSHA Vacated PELs:** Diethyl sulfate: None listed

### Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

### Exposure Limits

## Personal Protective Equipment

**Eyes** : Wear chemical splash goggles.  
**Skin** : Wear appropriate protective gloves to prevent skin exposure.  
**Clothing** : Wear appropriate protective clothing to prevent skin exposure.  
**Respirators** : A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

## Section 9: Physical and Chemical Properties

**Physical State** : Oil  
**Color** : colorless  
**Odor** : peppermint odor - ethereal odor  
**pH** : Not available  
**Vapor Pressure** : 0.29 mm Hg @ 25°C  
**Vapor Density** : 5.3 (air=1)  
**Evaporation Rate** : Not available  
**Viscosity** : 1.79 cP @ 20°C  
**Boiling Point** : 208°C ( 406.40°F)  
**Freezing/Melting Point** : -24°C ( -11.20°F)  
**Decomposition Temperature** : Not available  
**Solubility in water** : 0.7% @20°C. Dec in hot water.  
**Specific Gravity/Density** : 1.1795  
**Molecular Formula** : C<sub>4</sub>H<sub>10</sub>O<sub>4</sub>S  
**Molecular Weight** : 154.19 g/mol

## Section 10: Stability and Reactivity Data

**Chemical Stability:** Stable under normal temperatures and pressures. Decomposed by hot water into monoethyl sulfate (corrosive) and ethanol (flammable).

**Conditions to Avoid:** Moisture, excess heat.

**Incompatibilities with Other Materials:** Strong oxidizing agents, strong acids, strong bases.

**Hazardous Decomposition Products:** Carbon monoxide, oxides of sulfur, carbon dioxide, ethyl alcohol.

**Hazardous Polymerization:** Has not been reported.

## Section 11: Toxicological Information

**RTECS#** : CAS# 64-67-5: WS7875000  
**RTECS:**  
CAS# 64-67-5: Oral, mouse: LD<sub>50</sub> = 647 mg/kg;  
Oral, rat: LD<sub>50</sub> = 880 mg/kg;  
**LD<sub>50</sub>/LC<sub>50</sub>** : Skin, rabbit: LD<sub>50</sub> = 600 uL/kg;  
Other: Inhalation LC<sub>50</sub> rat: >250 ppm/4H, 0/6 killed.; Inhalation LC<sub>50</sub> rat: < 500 ppm /4H, 6/6 killed (Union Carbide).

Carcinogenicity : Diethyl sulfate - California: carcinogen, initial date 1/1/88 NTP: Suspect carcinogen

IARC : Group 2A carcinogen

Other : No information found.

## **Section 12: Ecological Information**

**Ecotoxicity:** Not available

## **Section 13: Disposal Considerations**

Dispose of in a manner consistent with federal, state, and local regulations.

## **Section 14: Transport Information**

**US DOT**

**Shipping Name:** DIETHYL SULFATE

**Hazard Class:** 6.1

**UN Number:** UN1594

**Packing Group:** II

**Canada TDG**

**Shipping Name:** Not available

**Hazard Class:**

**UN Number:**

**Packing Group:**

**USA RQ:** CAS# 64-67-5: 10 lb final RQ; 4.54 kg final RQ

## **Section 15: Other Regulatory Information**

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: T

Risk Phrases:

R 45 May cause cancer.

R 46 May cause heritable genetic damage.

R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

R 34 Causes burns.

Safety Phrases:

S 53 Avoid exposure - obtain special instructions before use.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 64-67-5: 2

Canada

CAS# 64-67-5 is listed on Canada's DSL List

Canadian WHMIS Classifications: D2A, D1B, E

This product has been classified in accordance with the hazard criteria of the Controlled Products

**Regulations**

and the MSDS contains all of the information required by those regulations.

CAS# 64-67-5 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

CAS# 64-67-5 is listed on the TSCA

Inventory.

**Section 16: Other Information**

**References:** Not available.

**Other Special Considerations:** Not available.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall Tradeasia International Pte. Ltd. Be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Tradeasia International Pte. Ltd. has been advised of the possibility of such damages.