

### 1. General Statement

Diethyl sulfate is a highly toxic and likely carcinogenic chemical compound. It occurs as a colorless, oily liquid with a faint peppermint odor and is corrosive. Diethyl sulfate is a moisture sensitive liquid. Heating can lead to the release of irritating gases and vapors.

### 2. Chemical identity

Name : diethyl sulphate  
 CAS number(s) : 64-67-5  
 EC number : 200-589-6  
 Molecular formula : C<sub>4</sub>H<sub>10</sub>O<sub>4</sub>S  
 Structure :



### 3. Uses and Benefits

The primary use of diethyl sulfate is as a chemical intermediate (ethylating agent) in the synthesis of ethyl derivatives of phenols, amines, and thiols; as an accelerator in the sulfation of ethylene; and in some sulfonation processes. It is used to manufacture dyes, pigments, carbonless paper, and textiles. It is an intermediate in the indirect hydration (strong acid) process for the preparation of synthetic ethanol from ethylene.

### 4. Physical / chemical properties

Property	Value
Physical state :	Liquid
Colour :	Colorless
Odour :	No data available
pH :	No data available
Melting point	-24.4 °C
Boiling point :	209.5 °C decomposes
Flash point :	104 °C
Density :	1.18 g/cm <sup>3</sup>

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Solubility in Water:	No data available
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### 5. Health Effects

Effect Assessment	Result
Acute toxicity (Oral / inhalation / dermal )	Harmful if swallowed, in contact with skin or if inhaled.
Irritation / corrosion Skin / eye/ respiratory tract	Causes severe skin burns, it causes serious eye damage
Respiratory or skin sensitisation	NA
Toxicity after repeated exposure Oral / inhalation / dermal	NA
Genotoxicity / Mutagenicity	May cause genetic defects.
Carcinogenicity	May cause cancer.
Toxicity for reproduction	NA

### 6. Environmental Effects

Effect Assessment	Result
Aquatic toxicity	No
Fate and behavior	Result
Persistence and degradability	No additional information available
Bioaccumulative potential	No additional information available

### 7. Exposure

#### Human health

The substance May cause cancer , May cause genetic defects, cause serious eye damage and also it may cause an allergic skin reaction.

The most likely route of human exposure (workers) is through skin. In industrial settings, ingestion is not an anticipated route of exposure.

The probability of exposure to workers is expected to be low because this product is manufactured in an enclosed controlled environment and is transported in well sealed containers.

Workers may be exposed during (un)loading, mixing, sampling, analysis or maintenance operations and particularly in case of batch processes. The exposure must be kept as minimum as possible by the use of appropriate risk management measures as suitable collective and personal protective equipment, good industrial hygiene practices and risk communication through appropriate training of workers.

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Careless handling or accidental spillage of the chemical could result in exposure to potentially hazardous levels of chemicals.

Industrial workers should ensure that they follow the advice found in the extended safety data sheet (SDS).

### Environment

Care should be taken to avoid releases of these products to sewage, drainage systems and water bodies. Spillage shall be quickly collected in the event of an accidental release. More information about release measures and accidental release measures are available in the extended safety data sheet.

## 8. Risk Management Recommendations

### Human health measures

<b>Organizational</b>	A basic standard of occupational hygiene is recommended. Ensure operatives are well informed of the hazards and trained to minimise exposures. Ensure regular inspection and maintenance of equipment and machines. Handle and store according to the indications of the Safety Data Sheet.	
<b>Protection</b>	Eye protection:	Safety glasses
	Skin and body protection:	Wear suitable protective clothing
	Respiratory protection:	Wear an appropriate mask. Self-contained breathing apparatus
<b>Engineering controls</b>	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure good ventilation of the work station.	
<b>Environment protective measures</b>		
Product must not be released into water without pre-treatment.		

## 9. First-aid measures

**First-aid measures after inhalation** : Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell.

**First-aid measures after skin contact** : Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

**First-aid measures after eye contact** : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

**First-aid measures after ingestion** : Rinse mouth out with water. Get immediate medical advice/attention.

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### 10. Fire-fighting measures

#### **Extinguishing media**

Suitable extinguishing media :Water spray. Dry powder. Foam. Carbon dioxide.

Unsuitable extinguishing media : NA

Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : On heating/burning: release of toxic and corrosive gases/vapours (sulphur oxides).

#### **Advice for firefighters**

Precautionary measures fire : Keep container tightly closed and away from heat, sparks and flame. Stop leak if safe to do so.

Firefighting instructions : Do not enter a fire area without proper protective equipment, including respiratory protection. Prevent fire fighting water from entering the environment. Fight fire from a safe distance and protected location.

### 11. Accidental release measures

**Protective equipment** :Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Total impervious protective suits, gloves, and boots must be worn to prevent any contact with the product. Wear recommended personal protective equipment.

**Environmental precautions:** Prevent liquid from entering sewers, watercourses, underground or low areas. Avoid release to the environment.

**For containment** : Stop leak without risks if possible. Collect spillage.

### 12. Disposal consideration

**Regional legislation (waste)** : Disposal must be done according to official regulations.

**Waste treatment methods** : Dispose of contents/container in accordance with licensed collector's sorting instructions.

**Sewage disposal recommendations** : Disposal must be done according to official regulations.

Product/Packaging disposal recommendations : Do not burn empty packaging. Do not cut using a blowtorch. Beware of residues or vapours which remain in the drums. Dispose in a safe manner in accordance with local/national regulations.

### 13. Handling and storage

**Precautions for safe handling** : Ensure good ventilation of the work station. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Take all necessary technical

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measures to avoid or minimize the release of the product in the workplace. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Provide local exhaust or general room ventilation. Wear personal protective equipment. Floors, walls and other surfaces in the hazard area must be cleaned regularly. Do not get in eyes, on skin, or on clothing.

**Hygiene measures** : Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 14. Classification and Labeling

#### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)

:



GHS05

GHS07

GHS08

Signal word (CLP)

: Danger

Hazard statements (CLP)

: H302+H312+H332 - Harmful if swallowed, in contact with skin or if inhaled.  
H314 - Causes severe skin burns and eye damage.  
H340 - May cause genetic defects.  
H350 - May cause cancer.

Precautionary statements (CLP)

: P201 - Obtain special instructions before use.  
P202 - Do not handle until all safety precautions have been read and understood.  
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.  
P264 - Wash hands, forearms and face thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P271 - Use only outdoors or in a well-ventilated area.

### 15. Conclusion

The substance May cause cancer and genetic defects, cause serious eye damage and also it may cause an allergic skin reaction. Care should be taken to avoid releases of these products to sewage, drainage systems and water bodies. The exposure must be kept as minimum as possible by the use of appropriate risk management measures as suitable collective and personal protective equipment, good industrial hygiene practices and risk communication through appropriate training of workers.

### 16. Contact Information within company

#### **Manufacturer**

Aarti Industries Limited

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This GPS safety summary is intended to give general information about the health, safety and environmental and not intended to provide in-depth details. To obtain the most accurate and current information, consult the appropriate Safety Data Sheet (SDS) prior to use of the material named herein.