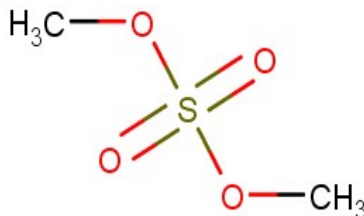


1. General Statement

Dimethyl sulfate is a colorless oily liquid, odorless to a faint onion-like odor. It is very toxic by inhalation. It is a combustible liquid. Slightly soluble in water and gets hydrolyzed in water.

2. Chemical identity

Name : Dimethyl sulphate
 CAS number(s) : 77-78-1
 EC number : 201-058-1
 Molecular formula : C₂H₆O₄S
 Structure :



3. Uses and Benefits

Dimethyl sulphate (DMS) is a methylating agent used industrially in the synthesis of pharmaceuticals, dyestuffs, perfumes, and pesticides. It is also used medically for chemical cleavage of DNA sequences.

4. Physical / chemical properties

Property	Value
Physical state :	Liquid
Colour :	Colourless.
Odour :	Characteristic odour.
pH :	No data available
Melting point	-32 °C
Boiling point :	188 °C (When heated it decomposes)
Flash point :	83 °C
Density :	1330 kg/m ³
Solubility in Water:	Water: 2.8 g/100ml (18 °C)

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Dimethyl sulphate

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5. Health Effects

Effect Assessment	Result
Acute toxicity (Oral / inhalation / dermal)	Toxic if swallowed or fatal if inhaled.
Irritation / corrosion Skin / eye/ respiratory tract	Causes serious eye damage,it can cause severe skin burns.
Respiratory or skin sensitisation	May cause an allergic skin reaction.
Toxicity after repeated exposure Oral / inhalation / dermal	NA
Genotoxicity / Mutagenicity	Suspected of causing genetic defects.
Carcinogenicity	It may cause cancer.
Toxicity for reproduction	No

6. Environmental Effects

Effect Assessment	Result
Aquatic toxicity	No
Fate and behavior	Result
Persistence and degradability	Inherently biodegradable.
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

7. Exposure

Human health

The substance may cause cancer , suspected of causing genetic defects, serious eye damage and 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. 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.

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).

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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

Organizational	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.	
Protection	Eye protection:	Safety glasses
	Skin and body protection:	Wear suitable protective clothing (Avoid inhalation or skin contact)
	Respiratory protection:	High concentration or prolonged activity: self contained breathing apparatus. In the case of vapor formation: use a respirator with an approved filter
Engineering controls	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.	
Environment protective measures		
Product must not be released into water without pre-treatment.		

9. First-aid measures

First-aid measures after inhalation : Get medical advice/attention if you feel unwell. Allow the affected person to breathe fresh air.

First-aid measures after skin contact : Wash skin with plenty of water. Get immediate medical advice/attention. Wash contaminated clothing before reuse.

First-aid measures after eye contact : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Get medical advice/attention if you feel unwell.

First-aid measures after ingestion : Rinse mouth out with water. Do not induce vomiting. Call a poison center or a doctor if you feel unwell.

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10. Fire-fighting measures

Extinguishing media

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

Unsuitable extinguishing media : NA

Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : On heating/burning: release of (highly) toxic gases/vapours (sulphur oxides, carbon monoxide - carbon dioxide).

Advice for firefighters

Precautionary measures fire : Eliminate all ignition sources if safe to do so. Keep the container closed when not in use. Keep the container tightly closed and away from heat, sparks and flame.

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

11. Accidental release measures

Protective equipment :Wear Safety glasses. 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 entry to sewers and public waters. Avoid discharge to the atmosphere. Do not allow entering drains or water courses.

For containment : Stop leak without risks if possible. Collect spillage. Do not touch or walk on the spilled product.

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.

13. Handling and storage

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Avoid contact with skin, eyes and clothing. Eliminate all ignition sources if safe to do so. Handle and open the container with care. Handle carefully. Wear personal protective equipment.




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Hygiene measures : Always wash hands after handling the product. Remove contaminated clothes. Wear personal protective equipment.

14. Classification and Labeling

Hazard pictograms (CLP)	:			
		GHS05	GHS06	GHS08
Signal word (CLP)	:	Danger		
Hazard statements (CLP)	:	H301 - Toxic if swallowed. H314 - Causes severe skin burns and eye damage. H317 - May cause an allergic skin reaction. H330 - Fatal if inhaled. H341 - Suspected of causing 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

Dimethyl sulfate is a colorless oily liquid and very toxic by inhalation. The substance may cause cancer , 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

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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.