

## SAFETY DATA SHEET

Version 1.0  
Revision Date 11/06/2019  
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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Dimethyl disulfide

Product Number : 471569  
Brand : Aldrich  
CAS-No. : 624-92-0

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Synthesis of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich Inc.  
3050 Spruce Street  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

**1.4 Emergency telephone number**

Emergency Phone # : +1-703-527-3887

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable liquids (Category 2), H225  
Acute toxicity, Oral (Category 4), H302  
Acute toxicity, Inhalation (Category 3), H331  
Eye irritation (Category 2A), H319  
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335  
Short-term (acute) aquatic hazard (Category 2), H401  
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

<b>Hazard statement(s)</b>	
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.
<b>Precautionary statement(s)</b>	
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P311	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Stench.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Synonyms	: DMDS Methyl disulfide
Formula	: C <sub>2</sub> H <sub>6</sub> S <sub>2</sub>
Molecular weight	: 94.20 g/mol
CAS-No.	: 624-92-0

Aldrich - 471569

Page 2 of 11

EC-No. : 210-871-0

Component	Classification	Concentration
<b>Dimethyl disulphide</b>	Flam. Liq. 2; Acute Tox. 4; Acute Tox. 3; Eye Irrit. 2A; Skin Sens. 1; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H225, H302, H331, H319, H317, H335, H400, H410 M-Factor - Aquatic Acute: 1 - Aquatic Chronic: 10	<b>&lt;= 100 %</b>

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

## **5.2 Special hazards arising from the substance or mixture**

Carbon oxides, Sulphur oxides

## **5.3 Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

## **5.4 Further information**

Use water spray to cool unopened containers.

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## **SECTION 6: Accidental release measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

For personal protection see section 8.

### **6.2 Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### **6.3 Methods and materials for containment and cleaning up**

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

### **6.4 Reference to other sections**

For disposal see section 13.

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## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

### **7.2 Conditions for safe storage, including any incompatibilities**

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Storage class (TRGS 510): 3: Flammable liquids

### **7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## **SECTION 8: Exposure controls/personal protection**

### **8.1 Control parameters**

**Components with workplace control parameters**

Component	CAS-No.	Value	Control parameters	Basis
Dimethyl disulphide	624-92-0	TWA	0.5 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Central Nervous System irritation Danger of cutaneous absorption		

## 8.2 Exposure controls

### Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

### Personal protective equipment

#### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Fluorinated rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 30 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

#### Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and

components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### **Control of environmental exposure**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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## **SECTION 9: Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

a) Appearance	Form: clear, liquid Colour: light yellow
b) Odour	Stench.
c) Odour Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	Melting point/range: -85 °C (-121 °F) - lit.
f) Initial boiling point and boiling range	109 °C 228 °F - lit.
g) Flash point	15 °C (59 °F) - closed cup
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	Upper explosion limit: 16 %(V) Lower explosion limit: 1.1 %(V)
k) Vapour pressure	153 hPa at 55 °C (131 °F) 38.1 hPa at 25 °C(77 °F) 22 hPa at 20 °C(68 °F) - OECD Test Guideline 104
l) Vapour density	3.25 - (Air = 1.0)
m) Relative density	1.046 g/cm <sup>3</sup> at 25 °C (77 °F) - lit.
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	log Pow: 1.77 -
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

### **9.2 Other safety information**

Relative vapour density	3.25 - (Air = 1.0)
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## **SECTION 10: Stability and reactivity**

### **10.1 Reactivity**

No data available

### **10.2 Chemical stability**

Stable under recommended storage conditions.

### **10.3 Possibility of hazardous reactions**

Vapours may form explosive mixture with air.

### **10.4 Conditions to avoid**

Heat, flames and sparks.

### **10.5 Incompatible materials**

Strong bases, Strong oxidizing agents, Strong reducing agents

### **10.6 Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulphur oxides

Other decomposition products - No data available

In the event of fire: see section 5

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## **SECTION 11: Toxicological information**

### **11.1 Information on toxicological effects**

#### **Acute toxicity**

LD50 Oral - Rat - female - > 300 - 2,000 mg/kg

(OECD Test Guideline 423)

LC50 Inhalation - Rat - male and female - 4 h - 5.05 mg/l

(OECD Test Guideline 403)

LD50 Dermal - Rat - male and female - > 5,000 mg/kg

(US-EPA)

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: Mild skin irritation - 4 h

(OECD Test Guideline 404)

#### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Eye irritation

(OECD Test Guideline 405)

#### **Respiratory or skin sensitisation**

Local lymph node assay (LLNA) - Mouse

Result: positive

(OECD Test Guideline 429)

#### **Germ cell mutagenicity**

No data available

Ames test

Escherichia coli/Salmonella typhimurium

Result: negative

Mutagenicity (mammal cell test): chromosome aberration.

Human lymphocytes  
Result: negative  
HGPRT (cell forward mutation assay)  
Chinese hamster ovary cells  
Result: negative  
OECD Test Guideline 474  
Rat - male and female - Bone marrow  
Result: negative  
OECD Test Guideline 486  
Rat - male - Liver cells  
Result: negative

### **Carcinogenicity**

No data available

- IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
- NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

### **Reproductive toxicity**

No data available

### **Specific target organ toxicity - single exposure**

May cause respiratory irritation. - Respiratory system

### **Specific target organ toxicity - repeated exposure**

No data available

### **Aspiration hazard**

No data available

### **Additional Information**

RTECS: JO1927500

Nausea, Headache, Vomiting, anemia

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

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## **SECTION 12: Ecological information**

### **12.1 Toxicity**

Toxicity to fish	semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) - 0.97 mg/l - 96 h (US-EPA)
Toxicity to daphnia and other aquatic invertebrates	semi-static test EC50 - Daphnia magna (Water flea) - 1.82 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Anabaena flos-aquae (cyanobacterium) - 6.7 mg/l



- 96 h  
(OECD Test Guideline 201)

static test ErC50 - *Skeletonema costatum* (marine diatom) - 3.9 mg/l  
- 96 h  
(OECD Test Guideline 201)

Toxicity to bacteria     static test EC50 - activated sludge - > 1,000 mg/l - 3 h  
(OECD Test Guideline 209)

## 12.2 Persistence and degradability

Biodegradability     aerobic - Exposure time 28 d  
Result: < 10 % - Not readily biodegradable.  
(OECD Test Guideline 301D)  
aerobic - Exposure time 28 d  
Result: 50 - 60 % - Partially biodegradable.  
(OECD Test Guideline 310)

## 12.3 Bioaccumulative potential

## 12.4 Mobility in soil

## 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

## 12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life with long lasting effects.

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

#### Contaminated packaging

Dispose of as unused product.

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## SECTION 14: Transport information

### DOT (US)

UN number: 2381     Class: 3 (6.1)     Packing group: II

Proper shipping name: Dimethyl disulfide

Reportable Quantity (RQ):

Marine pollutant: yes     Poison Inhalation Hazard: No

### IMDG

UN number: 2381     Class: 3 (6.1)     Packing group: II

EMS-No: F-E, S-D

Proper shipping name: DIMETHYL DISULPHIDE

Marine pollutant : yes

Marine pollutant : yes

**IATA**

UN number: 2381 Class: 3 (6.1) Packing group: II

Proper shipping name: Dimethyl disulphide

IATA Passenger: Not permitted for transport

IATA Cargo: Not permitted for transport

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**SECTION 15: Regulatory information**

**SARA 302 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

Dimethyl disulphide	CAS-No. 624-92-0	Revision Date 1994-04-01
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**Pennsylvania Right To Know Components**

Dimethyl disulphide	CAS-No. 624-92-0	Revision Date 1994-04-01
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**New Jersey Right To Know Components**

Dimethyl disulphide	CAS-No. 624-92-0	Revision Date 1994-04-01
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**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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**SECTION 16: Other information**

**Further information**

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