



# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 08/20/2013

Version 1.1

## SECTION 1. Identification

### Product identifier

Product number	814179
Product name	Disulfur dichloride for synthesis

### Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Chemical for synthesis
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### Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation   290 Concord Road, Billerica, MA 01821, United States of America   SDS Phone Support: +1-978-715-1335   General Inquiries: +1-978-715-4321   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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## SECTION 2. Hazards identification

### GHS Classification

Acute toxicity, Category 4, Inhalation, H332  
Acute toxicity, Category 3, Oral, H301  
Skin corrosion, Category 1A, H314  
Acute aquatic toxicity, Category 1, H400

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

### GHS-Labeling

#### Hazard pictograms



*Signal Word*  
Danger

#### Hazard Statements

H301 Toxic if swallowed.  
H332 Harmful if inhaled.  
H314 Causes severe skin burns and eye damage.  
H335 May cause respiratory irritation.

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H400 Very toxic to aquatic life.

## Precautionary Statements

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

## OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

## Other hazards

Water Reactive

## SECTION 3. Composition/information on ingredients

Formula	S <sub>2</sub> Cl <sub>2</sub>	Cl <sub>2</sub> S <sub>2</sub> (Hill)
CAS-No.	10025-67-9	
Molar mass	135.04 g/mol	

## Hazardous ingredients

*Chemical Name ( Concentration)*

CAS-No.

disulfur dichloride ( >= 90 % - <= 100 % )

10025-67-9

## SECTION 4. First aid measures

### Description of first-aid measures

#### Inhalation

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

#### Skin contact

After skin contact: wash off with plenty of water. Immediately remove contaminated clothing. If available swab with polyethylene glycol 400. Call a physician immediately.

#### Eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

#### Ingestion

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation!). Call a physician immediately. Do not attempt to neutralize.

Never give anything by mouth to an unconscious person.

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

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Irritation and corrosion, Cough, Shortness of breath  
Risk of corneal clouding., Risk of blindness!

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

No information available.

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## SECTION 5. Fire-fighting measures

### Extinguishing media

*Suitable extinguishing media*  
Carbon dioxide (CO<sub>2</sub>), Dry powder

*Unsuitable extinguishing media*  
Water, Foam

### Special hazards arising from the substance or mixture

Combustible material  
Vapors are heavier than air and may spread along floors.  
Forms explosive mixtures with air on intense heating.  
Development of hazardous combustion gases or vapors possible in the event of fire.  
May not get in touch with:  
Water  
Fire may cause evolution of:  
Hydrogen chloride gas, Sulfur oxides, hydrogen sulfide

### Advice for firefighters

*Special protective equipment for fire-fighters*  
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.  
  
*Further information*  
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

### Environmental precautions

Do not empty into drains.

### Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.  
Observe possible material restrictions (see sections 7 and 10).  
Take up with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.  
Unsuitable cleaning agents Water

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## SECTION 7. Handling and storage

### Precautions for safe handling

Keep workplace dry. Do not allow product to come into contact with water.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

Observe label precautions.

### Conditions for safe storage, including any incompatibilities

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at +15°C to +25°C (+59°F to +77°F).

## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

#### Ingredients

Basis	Value	Threshold limits	Remarks
<i>disulfur dichloride 10025-67-9</i>			
ACGIH	Ceiling Limit Value:	1 ppm	
NIOSH/GUIDE	Ceiling Limit Value and Time Period (if specified):	1 ppm 6 mg/m <sup>3</sup>	
OSHA_TRANS	PEL:	1 ppm 6 mg/m <sup>3</sup>	
Z1A	Ceiling Limit Value:	1 ppm 6 mg/m <sup>3</sup>	

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

### Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

### Eye/face protection

Tightly fitting safety goggles

### Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

### Other protective equipment:

Acid-resistant protective clothing.

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## *Respiratory protection*

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## SECTION 9. Physical and chemical properties

Physical state	liquid
Color	yellow-orange
Odor	malodorous
Odor Threshold	No information available.
pH	No information available.
Melting point	-76 °C
Boiling point/boiling range	280 °F ( 138 °C)
Flash point	> 266 °F ( > 130 °C) Method: DIN 51758
Evaporation rate	No information available.
Flammability (solid, gas)	not applicable
Lower explosion limit	4.2 %(V)
Upper explosion limit	32.5 %(V)
Vapor pressure	14.7 hPa at 68 °F ( 20 °C)
Relative vapor density	4.66
Relative density	1.68 g/cm <sup>3</sup> at 68 °F ( 20 °C)
Water solubility	at 68 °F ( 20 °C) (rigorous decomposition)
Partition coefficient: n-octanol/water	No information available.
Autoignition temperature	No information available.
Decomposition temperature	ca. 572 °F ( 300 °C)

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Viscosity, dynamic	0.9 mPa.s at 68 °F ( 20 °C)
Explosive properties	Not classified as explosive.
Ignition temperature	734 °F ( 390 °C) Method: DIN 51794

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### SECTION 10. Stability and reactivity

#### Reactivity

hydrolyzes  
Forms explosive mixtures with air on intense heating.

#### Chemical stability

sensitive to moisture

#### Possibility of hazardous reactions

Violent reactions possible with:

Water, Aluminum, antimony, sodium, mercury oxide, alkenes, dimethyl sulfoxide, Potassium, chromyl chloride, Peroxides, Oxides of phosphorus, Strong oxidizing agents

#### Conditions to avoid

Strong heating (decomposition).  
A range from approx. 15 Kelvin below the flash point is to be rated as critical.  
Moisture.

#### Incompatible materials

various plastics, various alloys, various metals  
i.a., Aluminum, Copper, Mild steel, Nickel

#### Hazardous decomposition products

in the event of fire: See section 5.

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### SECTION 11. Toxicological information

#### Information on toxicological effects

##### *Likely route of exposure*

Inhalation, Eye contact, Skin contact

##### *Target Organs*

Eyes

Skin

Respiratory system

##### *Acute oral toxicity*

LD50 rat: 132 mg/kg (RTECS)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

absorption

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### *Acute inhalation toxicity*

LC50 rat: 2.5 mg/l; 4 h (RTECS)

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract, After a latency period:, Inhalation may lead to the formation of oedemas in the respiratory tract.

absorption

Corrosive to respiratory system

### *Skin irritation*

rabbit

Result: Causes burns.

(IUCLID)

Causes severe burns.

### *Eye irritation*

Lacrimal irritation due to vapors. Risk of corneal clouding.

Causes serious eye damage.

Risk of blindness!

### *Genotoxicity in vitro*

Ames test

Result: negative

(IUCLID)

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

The substance or mixture is not classified as specific target organ toxicant, single exposure.

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

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

### *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

## **Carcinogenicity**

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

## **Further information**

Decomposition of the substance with tissue moisture.

Further data:

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This substance should be handled with particular care.

## SECTION 12. Ecological information

### Ecotoxicity

#### *Toxicity to fish*

LC50 Danio rerio (zebra fish): 3,000 mg/l; 96 h (IUCLID)

#### *Toxicity to bacteria*

EC50 Bacteria: 10,000 mg/l; 3 h

OECD Test Guideline 209

### Persistence and degradability

No information available.

### Bioaccumulative potential

No information available.

### Mobility in soil

No information available.

#### *Additional ecological information*

Biological effects: Forms corrosive mixtures with water even if diluted.

Further information on ecology

Discharge into the environment must be avoided.

## SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

## SECTION 14. Transport information

### Land transport (DOT)

UN number	UN 1828
Proper shipping name	SULPHUR CHLORIDES
Class	8
Packing group	I
Environmentally hazardous	--

### Air transport (IATA)

UN number	UN 1828
Proper shipping name	SULPHUR CHLORIDES
Class	8
Packing group	I
Environmentally hazardous	--



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Special precautions for user	yes
IATA ( Passenger)	Not permitted for transport
Sea transport (IMDG)	
UN number	UN 1828
Proper shipping name	SULPHUR CHLORIDES
Class	8
Packing group	I
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-A S-B

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## SECTION 15. Regulatory information

### United States of America

#### OSHA Hazards

Toxic by inhalation.  
Toxic by ingestion  
Corrosive to skin  
Corrosive to eyes  
Corrosive by inhalation.  
Target organ effects

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

#### SARA 311/312 Hazards

Acute Health Hazard  
Chronic Health Hazard

#### SARA 313

SARA 313: 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 302

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

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## Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

### *Ingredients*

disulfur dichloride

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

### *Ingredients*

disulfur dichloride

## DEA List I

Not listed

## DEA List II

Not listed

## US State Regulations

### Massachusetts Right To Know

#### *Ingredients*

disulfur dichloride

### Pennsylvania Right To Know

#### *Ingredients*

disulfur dichloride

### New Jersey Right To Know

#### *Ingredients*

disulfur dichloride

### California Prop 65 Components

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

## Notification status

TSCA:

All components of the product are listed in the TSCA-inventory.

DSL:

All components of this product are on the Canadian DSL.

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## SECTION 16. Other information

### Training advice

Provide adequate information, instruction and training for operators.

### Full text of H-Statements referred to under sections 2 and 3.

H301

Toxic if swallowed.

H314

Causes severe skin burns and eye damage.

H332

Harmful if inhaled.

H400

Very toxic to aquatic life.

### Key or legend to abbreviations and acronyms used in the safety data sheet

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Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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