

Material Safety Data Sheet

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Version 1.4

According to 91/155/EEC

1 - Product and Company Information

Product Name	PHOSGENE CYL. WITH 0.40 L (NET ~500 G)
Product Number	79372
Company	Sigma-Aldrich Pte Ltd #08-01 Citilink Warehouse Singapore 118529 Singapore
Technical Phone #	65 271 1089
Fax	65 271 1571

2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
PHOSGENE	75-44-5	200-870-3	006-002-00-8

Formula	CCl2O
Molecular Weight	98.92 AMU
Synonyms	Carbon dichloride oxide * Carbone (oxychlorure de) (French) * Carbonic chloride * Carbonio (ossicloruro di) (Italian) * Carbon oxychloride * Carbonylchlorid (German) * Carbonyl chloride (DOT:OSHA) * Carbonyl dichloride * CG * Chloroformyl chloride * Fosgeen (Dutch) * Fosgen (Polish) * Fosgene (Italian) * Koolstofoxychloride (Dutch) * NCI-C60219 * Phosgen (German) * Phosgene (ACGIH:OSHA) * RCRA waste number P095

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Very toxic by inhalation. Causes burns.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician. Do not induce vomiting.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Use extinguishing media appropriate to surrounding fire conditions. Use water spray or fog nozzle to keep cylinder cool. Move cylinder away from fire if there is no risk.

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

Explosion Hazards: Container explosion may occur under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area and keep personnel upwind. Shut off leak if there is no risk.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves. Wear appropriate government approved respirator, chemical-resistant gloves, safety goggles, other protective clothing.

METHODS FOR CLEANING UP

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Spilled material should be carefully wiped up or moistened with water and removed.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Cylinder temperature should not exceed 125°F (52°C).

SPECIAL REQUIREMENTS: Moisture sensitive.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
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Poland	NDS	0.8 MG/M3
Poland	NDSch	1.6 MG/M3
Poland	NDSP	-

EXPOSURE LIMITS - EUROPEAN UNION

Source	Type	Value
OEL	OEL	0.8 mg/m3
		0.2 ppm

EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	0.2 mg/m3
		0.05 ppm

Remarks: L

EXPOSURE LIMITS - GERMANY

Source	Type	Value
TRGS 900	OEL	0.082 mg/m3
		0.02 ppm

Remarks: =1=

Remarks: Y

EXPOSURE LIMITS - NORWAY

Source	Type	Value
	OEL	0.2 mg/m3
		0.05 ppm

Remarks: T

EXPOSURE LIMITS - SWEDEN

Source	Type	Value
	CLV (Ceili	0.2 mg/m3
		0.05 ppm

EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	0.08 mg/m3
		0.02 ppm

Remarks: C

EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	OEL	0.08 mg/m3
		0.02 ppm
OEL	STEL	0.25 mg/m3
		0.06 ppm

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

Special Protective Measures: Faceshield (8-inch minimum).

9 - Physical and Chemical Properties

Appearance	Physical State: Gas
	Color: Colorless
	Form: Gas

Property	Value	At Temperature or Pressure
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pH	N/A
BP/BP Range	8 °C

MP/MP Range	N/A	
Flash Point	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	
Vapor Pressure	1180 mmHg	20 °C
SG/Density	1.4 g/cm3	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	3.4 g/l	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	Solvent: Soluble. Other Solvents: BENZENE, TOLUENE, ACETIC ACID	

10 - Stability and Reactivity

STABILITY

Conditions of Instability: May decompose on exposure to moist air or water.

Conditions to Avoid: Moisture.

Materials to Avoid: Amines, Ammonia, Alcohols, Sodium, Potassium.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: SY5600000

ACUTE TOXICITY

LCLO
Inhalation
Human
50 ppm
5M

LCLO
Inhalation
Man
360 mg/m3
30M

SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Symptoms may be delayed. Causes severe destruction of the alveolae of the lungs resulting in pulmonary edema, suffocation and possible death. The onset of the pulmonary edema is delayed due to the slow hydrolysis of the material. Long term effects are emphysema, fibrosis, coughing, bloody sputum and general malaise. These symptoms may last several months.

ROUTE OF EXPOSURE

Skin Contact: Causes burns.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes burns.

Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May be fatal if inhaled.

Ingestion: May be harmful if swallowed.

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Observe all federal, state, and local environmental regulations.

CONTAMINATED CONTAINER DISPOSAL

Caution: no-return cylinder. Do not reuse. Empty cylinder will contain hazardous residue. Follow proper disposal techniques.

14 - Transport Information

RID/ADR

UN#: 1076

Class: 2

Proper Shipping Name: Phosgene

IMDG

UN#: 1076

Class: 2.3

Subrisk: 8

Proper Shipping Name: Phosgene

Marine Pollutant: No

Severe Marine Pollutant: No

IATA

UN#: 1076

Class: 2.3

Subrisk: 8

Proper Shipping Name: Phosgene

Inhalation Packing Group I: Yes

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 006-002-00-8

INDICATION OF DANGER: T+

Very toxic.

R-PHRASES: 26 34

Very toxic by inhalation. Causes burns.

S-PHRASES: 9 26 36/37/39 45

Keep container in a well-ventilated place. In case of contact

with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 2

SWITZERLAND

SWISS POISON CLASS: 1

16 - Other Information

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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