

Phosgene

Print date 06.06.2024
 Revision date 06.06.2024
 Version 10.0 (en)
 replaces version of 31.01.2019 (9.0)

* **SECTION 1: Identification of the substance/mixture and of the company/undertaking*** **1.1 Product identifier**

Trade name/designation Phosgene
Art-Nr(n). 2500, 702500
Substance name carbonyl chloride
Index No 006-002-00-8
EC No 200-870-3
REACH No. 01-2119946799-13
CAS No 75-44-5

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

* **Use of the substance/mixture**
 Use only as an intermediate under strictly controlled conditions.

1.3 Details of the supplier of the safety data sheet

Supplier
 GHC Gerling, Holz & Co. Handels GmbH
 Ruhrstraße 113
 D-22761 Hamburg
 Telephone +49 40 853 123 0
 E-mail hamburg@ghc.de
 Website www.ghc.com

Department responsible for information:
 GHC Gerling, Holz & Co. Handels GmbH
 Telephone +49 40 853 123 0

E-mail (competent person):
 msds@ghc.de

* **1.4 Emergency telephone number**

EN: Poison Information Center Mainz +49 6131 19240

* **SECTION 2: Hazards identification*** **2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008 [CLP] Classification procedure

Press. Gas (Liq.), H280

Acute Tox. 1, H330

Skin Corr. 1B, H314

Hazard statements for physical hazards

H280 Contains gas under pressure; may explode if heated.

Hazard statements for health hazards

H314 Causes severe skin burns and eye damage.

H330 Fatal if inhaled.

* **2.2 Label elements*** **Labelling according to Regulation (EC) No 1272/2008 [CLP]****Hazard pictograms**

GHS05



GHS06

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Signal word

Danger

Hazard statements

H280 Contains gas under pressure; may explode if heated.
 H314 Causes severe skin burns and eye damage.
 H330 Fatal if inhaled.

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Precautionary statements

P260 Do not breathe gas/vapours.
 P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P304 + P340 IF INHALED: Remove person to fresh air and keep 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.
 P315 Get immediate medical advice/attention.
 P403 Store in a well-ventilated place.
 P405 Store locked up.

*

Supplemental hazard information

EUH071 Corrosive to the respiratory tract.
 Please return container with residual pressure.

* **2.3 Other hazards**

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Adverse human health effects and symptoms

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.
 Contact with liquid may cause cold burns/frostbite.

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Results of PBT and vPvB assessment

The substance/mixture does not contain components meeting the PBT/vPvB criteria of the Reach Regulation, Annex XIII, at levels of 0.1% or higher.

* **SECTION 3: Composition / information on ingredients*** **3.1 Substances**

Substance name	carbonyl chloride
Index No	006-002-00-8
EC No	200-870-3
REACH No.	01-2119946799-13
CAS No	75-44-5
ATE	ATE(inhalation gas): 31.3 mg/m ³

Additional information

Content: >= 98,5 %

3.2 Mixtures

not applicable

* **SECTION 4: First aid measures*** **4.1 Description of first aid measures**

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General information

Remove contaminated, saturated clothing immediately.
 In the event of persistent symptoms obtain medical treatment.
 First aider: Pay attention to self-protection!

Following inhalation

Remove casualty to fresh air and keep warm and at rest.
 In case of breathing difficulties give oxygen.
 In the event of pulmonary irritation treat initially with corticoid spray, e.g. Ventolair- or Pulmicort- metered-dose aerosol (Ventolair and Pulmicort are registered trademarks).
 Call a physician immediately.
 In case of respiratory standstill give artificial respiration by respiratory bag (Ambu bag) or respirator. Obtain medical assistance.

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- * **Following skin contact**
In case of skin contact rinse with warm water.
In case of frostbite, wash with plenty of water; do not remove clothing.
In case of frostbite rinse with lukewarm (not hot) water for at least 15 minutes. Do not remove clothing frozen to the skin.
Thaw with lukewarm water. Apply a sterile dressing. Obtain medical assistance.
 - * **After eye contact**
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical assistance.

Following ingestion
Ingestion is not considered a potential route of exposure.
 - * **4.2 Most important symptoms and effects, both acute and delayed**
 - * **Symptoms**
Headache
Respiratory tract irritation
Strong eye irritation.
Vomiting
Circulatory collapse

Effects
Pulmonary oedema
 - * **4.3 Indication of any immediate medical attention and special treatment needed**
 - * **Notes for the doctor**
Treat symptomatically.
Pulmonary oedema prophylaxis.
To supervise the blood circulation.
 - * **SECTION 5: Firefighting measures**
 - * **5.1 Extinguishing media**
 - * **Suitable extinguishing media**
The product itself does not burn. The product itself does not burn. Match extinguishing measures to surrounding fire.
Foam
Extinguishing powder
Carbon dioxide (CO₂)
Water spray jet

Unsuitable extinguishing media
Full water jet
 - * **5.2 Special hazards arising from the substance or mixture**
 - * **Hazardous combustion products**
In case of fire formation of dangerous gases possible.
Chlorine (Cl₂)
Carbon monoxide
Carbon dioxide (CO₂)
 - * **5.3 Advice for firefighters**
 - * **Special protective equipment for firefighters**
Wear a self-contained breathing apparatus and chemical protective clothing.
 - * **Additional information**
If possible, shut off gas valves and move containers to a safe location.
Use water spray jet to protect personnel and to cool endangered containers.
Exposure to fire may cause rupture / explosion of the containers.
Dispose of fire residues and contaminated extinguishing water in accordance with local, official regulations.

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* **SECTION 6: Accidental release measures**

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

- * **For non-emergency personnel**
Use personal protection equipment.
Leave the danger area.
Keep people away and stay on the upwind side.
- * **For emergency responders**
Personal protection by wearing close-fitting protective clothing and breathing apparatus.
Pay attention to extension of gas especially at ground (heavier than air) and in direction of the wind.
Remove persons to safety.

* **6.2 Environmental precautions**

If possible, stop flow of product.
Do not allow to enter into soil/subsoil.
Do not allow to enter into surface water or drains.

* **6.3 Methods and material for containment and cleaning up**

- * **For containment**
If necessary, secure leaky pressure receptacles using a salvage container.
Prevent the liquid from spreading over a wide area (set up barriers, cover sewage systems).
Limit expansion of the gas (water spray jet).
- * **For cleaning up**
Leave to vapourize.
Provide adequate ventilation.

* **6.4 Reference to other sections**

Disposal: see section 13
Personal protection equipment: see section 8

* **SECTION 7: Handling and storage**

* **7.1 Precautions for safe handling**

- * **Protective measures**
Use only in well-ventilated areas.
Transfer and handle product only in closed systems.
Usual measures for fire prevention.
Containers' temperature should not be increased above 50 °C.
The working pressure in the receptacle must not exceed the saturation vapour pressure of the pure product resulting at a temperature of 50 °C.
Prevent cylinders from falling over.
Ensure valve protection device is correctly fitted.
Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
Open valve slowly to avoid pressure shock.
Do not allow backflow into the container.
Entering of water into the container must be prevented.
No water to valves, flanges and other fittings.
Purging of pipes and valves with inert gases - to avoid: water, solvents.
- * **Advices on general occupational hygiene**
When using do not eat, drink, smoke, sniff.
Wash hands before breaks and after work.
Remove contaminated clothing and protective equipment before entering eating areas.

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

- * **Requirements for storage rooms and vessels**
All regulations and local requirements for the storage of containers have to be respected.
Keep container tightly closed and in a well-ventilated place.
Containers' temperature should not be increased above 50 °C.
Prevent cylinders from falling over.
Only use containers specifically approved for the substance/product.
Information on suitable materials for receptacles and valves see ISO 11114.

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* **Materials to avoid**

Do not store together with explosives.
 Do not store together with flammable liquids.
 Do not store together with flammable solids.
 Do not store together with pyrophoric and self-heating substances.
 Do not store together with oxidizing liquids or oxidizing solids.
 Do not store together with toxic liquids or toxic solids.
 Do not store together with infectious substances.
 Do not store together with radioactive material.
 Do not store together with food or feed.

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

Use only as an intermediate under strictly controlled conditions.

* **SECTION 8: Exposure controls/personal protection*** **8.1 Control parameters*** **Occupational exposure limit values**

CAS No	EC No	Substance name	occupational exposure limit value
75-44-5	200-870-3	Phosgene	0,02 [ml/m ³ (ppm)] 0,08 [mg/m ³] Short-term(ml/m ³) 0,1 (1) Short-term(mg/m ³) 0,4 (1) (1) 15 minutes reference period (IE)

* **DNEL worker**

CAS No	Substance name	DNEL value	DNEL type	Remark
75-44-5	carbonyl chloride	0.4 mg/m ³	long-term inhalative (local)	
75-44-5	carbonyl chloride	2 mg/m ³	acute inhalative (local)	

* **8.2 Exposure controls*** **Appropriate engineering controls*** **Technical measures to prevent exposure**

Transfer and handle only in enclosed systems.
 Use only as an intermediate under strictly controlled conditions.

* **Personal protection equipment****Eye/face protection**

Protective goggles according to EN 166, in case of increased risk add protective face shield.

* **Hand protection**

Safety gloves according to EN 374:
 Laminated gloves - PE / EVAL / PE.
 Chromate-free leather

Body protection:

Safety shoes with steel toecap.
 Body covering work clothing or chemical resistant suit at increased risk.

* **Respiratory protection**

Keep self contained breathing apparatus readily available for emergency use.
 Respiratory protection necessary at:
 high concentrations
 Respiratory protection complying with EN 137.
 Short term: filter apparatus, Filter B
 In case of rescue and maintenance activities in storage containers use environment-independent breathing apparatus because of risk of suffocation due to displacement of oxygen.

* **Thermal hazards**

Use cold-resistant protective equipment.

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* **Environmental exposure controls**

* **Remark**
Prevent release to the environment.

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

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

Physical state

Gaseous / liquefied under pressure.

Colour

colourless

Odour

stinging

Safety relevant basis data

	Value	Method	Source, Remark
Odour threshold:			not determined
Melting point/freezing point			not applicable
Boiling point or initial boiling point and boiling range	7.4 °C		
flammability			The product itself does not burn.
Lower and upper explosion limit			not determined
Flash point			not applicable
Auto-ignition temperature			not determined
Decomposition temperature			No decomposition if used as directed.
pH			not applicable
Viscosity			not applicable
Solubility(ies)	Water solubility		Hydrolysis
Partition coefficient n-octanol/water (log value)			not determined
Vapour pressure	1600 hPa (20°C)		
Density and/or relative density			not applicable
Relative vapour density	3.51		air = 1
particle characteristics			not applicable

* **9.2 Other information**

* **Information with regard to physical hazard classes**

* **Gases under pressure**

Safety characteristics

	Value	Method, Result	Source, Remark
Critical temperature	182.3 °C		

* **Other information**

Vapours are heavier than air.

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* **SECTION 10: Stability and reactivity**

10.1 Reactivity

See section "Possibility of hazardous reactions".

* **10.2 Chemical stability**

The substance is chemically stable under recommended conditions of storage, use and temperature.

* **10.3 Possibility of hazardous reactions**

Reactions with numerous chemical compounds.
 Reactions with alkali metals.
 Reactions with oxygen.
 Reactions with amines.

* **10.4 Conditions to avoid**

Heat sources / heat - risk of bursting.
 Ignition sources, open flames, glowing metal surfaces, etc.

* **10.5 Incompatible materials**

Water / moisture.
 Aluminium
 Alcohols
 Ammonia
 Hydrogen phosphides

* **10.6 Hazardous decomposition products**

When handled and stored appropriately, no dangerous decomposition products are known.

* **SECTION 11: Toxicological information**

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

* **Acute toxicity**

* **Animal data**

	Effective dose	Method, Evaluation	Source, Remark
Acute oral toxicity			Study technically not feasible.
Acute dermal toxicity			Study technically not feasible.
Acute inhalation toxicity	CAS No75-44-5 carbonyl chloride Acute inhalation toxicity (gas) LC50: 31.3 mg/m³ Species Rat Exposure time 60 min	OECD 403	

* **Assessment/classification**
 Fatal if inhaled.

* **Skin corrosion/irritation**

* **Assessment/classification**
 Causes severe burns.

* **Serious eye damage/irritation**

Assessment/classification
 Risk of serious damage to eyes.

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* **Sensitisation to the respiratory tract**

* **Assessment/classification**
 No data available

* **Skin sensitisation**

* **Other information**
 Study technically not feasible.

* **Germ cell mutagenicity**

	Value	Method	Result / Evaluation	Remark
In vitro mutagenicity/genotoxicity		OECD 471 (Ames Test)	negative.	

* **Assessment/classification**
 Based on available data, the classification criteria are not met.

* **Carcinogenicity**

* **Assessment/classification**
 No data available

* **Reproductive toxicity**

* **Other information**
 Study scientifically not necessary.

* **STOT-single exposure**

* **STOT SE 1 and 2**

* **Assessment/classification**
 Based on available data, the classification criteria are not met.

* **STOT-repeated exposure**

* **Assessment/classification**
 Based on available data, the classification criteria are not met.

* **Aspiration hazard**

* **Assessment/classification**
 Study technically not feasible.

11.2 Information on other hazards

No data available

* **SECTION 12: Ecological information**

* **12.1 Toxicity**

* **Aquatic toxicity**

	Effective dose	Method, Evaluation	Source, Remark
Acute (short-term) fish toxicity			Study scientifically not necessary.
Chronic (long-term) fish toxicity			Study scientifically not necessary.
Acute (short-term) toxicity to crustacea			Study scientifically not necessary.
Chronic (long-term) toxicity to aquatic invertebrate			Study scientifically not necessary.
Acute (short-term) toxicity to algae and cyanobacteria			Study technically not feasible.
Chronic (long-term) toxicity to aquatic algae and cyanobacteria			Study technically not feasible.

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	Effective dose	Method, Evaluation	Source, Remark
Toxicity to other aquatic plants/organisms			Study scientifically not necessary.
Toxicity to microorganisms			Study scientifically not necessary.

12.2 Persistence and degradability

	Value	Method	Source, Remark
Biodegradation			Study technically not feasible.

* **12.3 Bioaccumulative potential**

No data available

* **12.4 Mobility in soil**

No data available

* **12.5 Results of PBT and vPvB assessment**

The substance/mixture does not contain components meeting the PBT/vPvB criteria of the Reach Regulation, Annex XIII, at levels of 0.1% or higher.

* **12.6 Endocrine disrupting properties**

No data available

* **12.7 Other adverse effects**

No data available

* **SECTION 13: Disposal considerations**

* **13.1 Waste treatment methods**

Waste codes/waste designations according to EWC/AVV

Waste code product	Waste name
160504 *	gases in pressure containers (including halons) containing hazardous substances

* **Appropriate disposal / Product**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste. Prevent release to the environment. No disposal via the sewage.

Appropriate disposal / Package

Transportable pressure equipment (empty, residual pressure): Return to supplier / manufacturer.

* **SECTION 14: Transport information**

	Land transport (ADR/RID)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
14.1 UN number or ID number	UN 1076	UN 1076	UN 1076
14.2 UN proper shipping name	PHOSGENE	PHOSGENE	Phosgene
14.3 Transport hazard class(es)	2.3 (8)	2.3 (8)	2.3 (8)
14.4 Packing group	-	-	-
14.5 Environmental hazards	No	No	No

14.6 Special precautions for user

The protective measures listed in Sections 6, 7 and 8 of the Safety Data Sheet have to be considered.

14.7 Maritime transport in bulk according to IMO instruments

No carriage in bulk.

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Land transport (ADR/RID)

UN number or ID number	UN 1076
UN proper shipping name	PHOSGENE
Transport hazard class(es)	2.3 (8)
Hazard label(s)	2.3+8
Classification code	2TC
Packing group	-
Environmental hazards	No
Limited quantity (LQ)	0
Special provisions	-
Tunnel restriction code	C/D

*** Sea transport (IMDG)**

UN number or ID number	UN 1076
UN proper shipping name	PHOSGENE
Transport hazard class(es)	2.3 (8)
Packing group	-
Environmental hazards	No
Limited quantity (LQ)	0
Marine pollutant	No
EmS	F-C, S-U

*** Air transport (ICAO-TI / IATA-DGR)**

UN number or ID number	UN 1076
UN proper shipping name	Phosgene
Transport hazard class(es)	2.3 (8)
Packing group	-
Environmental hazards	No

*** SECTION 15: Regulatory information***** 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture***** EU legislation***** Restrictions of occupation**

Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.
 Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).

*** Other regulations (EU)***** To follow:**

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances.
 REGULATION (EU) 2021/821 setting up a Union regime for the control of exports, brokering, technical assistance, transit and transfer of dual-use items.
 National and local regulations concerning chemicals shall be observed.

*** 15.2 Chemical Safety Assessment***** National regulations**

For this substance a chemical safety assessment has not been carried out.

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* **SECTION 16: Other information**

- * **Abbreviations and acronyms**
Press. Gas (Liq.): Liquefied gas (LG)
Skin Corr. 1B: Skin corrosion, Sub-category 1B
Acute Tox. 1, H330: Acute Toxicity (inhalation), Category 1

Key literature references and sources for data

Information from our suppliers and data from the "GESTIS Substances Database" and the "Registered Substances" database of the European Chemicals Agency (ECHA) were used to create this safety data sheet.

- * **Additional information**
The information contained herein is based on the state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.

Relevant H- and EUH-phrases (Number and full text)

H280 Contains gas under pressure; may explode if heated.
H314 Causes severe skin burns and eye damage.
H330 Fatal if inhaled.

Indication of changes

* Data changed compared with the previous version