

**Safety Data Sheet according to Regulation (EC)  
No. 1907/2006 (REACH)**

Printed 31.01.2019  
Revision 31.01.2019 (GB) Version 9.0

**Carbonyl chloride**  
2500, 702500



**! SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1. Product identifier**

|                                  |  |
|----------------------------------|--|
| <b>Name of product</b>           | Carbonyl chloride<br>Art-Nr(n): 2500, 702500 |
| <b>Name of substance</b>         | carbonyl chloride                            |
| <b>Index No</b>                  | 006-002-00-8                                 |
| <b>EC No</b>                     | 200-870-3                                    |
| <b>REACH registration number</b> | 01-2119946799-13                             |
| <b>CAS No</b>                    | 75-44-5                                      |

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

**Identified uses**

**! Remark**

Restricted to professional users.

**Recommended intended purpose(s)**

Basic substance.  
Intermediate.

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

|                                 |   |
|---------------------------------|---|
| <b>Manufacturer/distributor</b> | GHC Gerling, Holz & Co. Handels GmbH<br>Ruhrstraße 113, D-22761 Hamburg<br>Phone +49 40 853 123-0, Fax +49 40 853 123-66<br>E-Mail hamburg@ghc.de<br>Internet www.ghc.com |
|---------------------------------|---|

|               |  |
|---------------|--|
| <b>Advice</b> | GHC Gerling, Holz & Co. Handels GmbH<br>Phone +49 40 853 123-0<br>Fax +49 40 853 123-66<br>E-mail (competent person):<br>msds@ghc.de |
|---------------|--|

**1.4. Emergency telephone number**

|                         |   |
|-------------------------|---|
| <b>Emergency advice</b> | Giftinformationszentrum (Poison Control Centre) Mainz<br>Phone +49 6131 19240 |
|-------------------------|---|

**! SECTION 2: Hazards identification**

**2.1. Classification of the substance or mixture**

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

| Hazard classes and Hazard categories | Hazard Statements | Classification procedure |
|--------------------------------------|-------------------|--------------------------|
|--------------------------------------|-------------------|--------------------------|

|                      |             |
|----------------------|-------------|
| <b>Liquef. Gas</b>   | <b>H280</b> |
| <b>Acute Tox. 1</b>  | <b>H330</b> |
| <b>Skin Corr. 1B</b> | <b>H314</b> |

**Hazard statements for physical hazards**

|             |  |
|-------------|--|
| <b>H280</b> | <b>Contains gas under pressure; may explode if heated.</b> |
|-------------|--|

**Hazard statements for health hazards**

|             |   |
|-------------|---|
| <b>H314</b> | <b>Causes severe skin burns and eye damage.</b> |
|-------------|---|

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**H330 Fatal if inhaled.**

**Additional hints**

Listed substance (Regulation (EC) No 1272/2008, Annex VI, part 3).

**2.2. Label elements**

Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]



GHS04



GHS05



GHS06

**Signal word**

**Danger**

**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.**

**Precautionary Statements**

**Prevention**

**P260** Do not breathe gas/vapours.

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

**Response**

**P303 + P361 + P353** IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

**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.

**Storage**

**P403** Store in a well-ventilated place.

**P405** Store locked up.

**Hazardous ingredients for labeling**

carbonyl chloride

**Supplemental Hazard information (EU)**

**Health properties**

Corrosive to the respiratory tract.

**Additional information**

**! Remark**

The product should only be used as an intermediate for the synthesis of other substances.

**2.3. Other hazards**

**! Information pertaining to special dangers for human and environment**

Dangerous substances are released in case of decomposition.

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

Contact with liquid may cause cold burns/frostbite.

Receptacle under pressure.

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**Results of PBT and vPvB assessment**

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

**! SECTION 3: Composition/ information on ingredients**

**3.1. Substances**

**! Description**

Content: >= 98,5 %

**CAS No 75-44-5**

**carbonyl chloride**

EC No 200-870-3

Index No 006-002-00-8

REACH registration number 01-2119946799-13

**3.2. Mixtures**

not applicable

**! SECTION 4: First aid measures**

**4.1. Description of first aid measures**

**! General information**

Remove contaminated soaked clothing immediately and dispose it safely.

Adhere to personal protective measures when giving first aid.

Seek medical treatment immediately.

Take away from danger area and lay down affected person.

**In case of inhalation**

Remove the casualty into fresh air and keep him immobile.

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).

Seek medical treatment immediately.

In case of respiratory standstill give artificial respiration by respiratory bag (Ambu bag) or respirator. Send for a doctor.

**! In case of skin contact**

In case of contact with skin wash off immediately with soap and water.

In case of frostbite spray with lukewarm (not hot) water for at least 15 minutes. Do not remove clothing frozen to the skin. Thaw it with lukewarm water. Apply a sterile dressing. Obtain medical assistance.

Seek medical treatment immediately.

**! In case of eye contact**

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Call for a doctor immediately.

**In case of ingestion**

Ingestion is not considered a potential route of exposure.

**4.2. Most important symptoms and effects, both acute and delayed**

**! Physician's information / possible symptoms**

Strong eye irritation.

Respiratory tract irritation

Coughing

Vomiting

Headache

Nausea

Shortness of breath.

Circulatory collapse.

Tears.

Contact with liquid may cause cold burns/frostbite.

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#### Physician's information / possible dangers

Risk of pulmonary oedema

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

##### ! Treatment (Advice to doctor)

If necessary, give oxygen.

Pulmonary oedema prophylaxis.

Monitor circulation.

## ! SECTION 5: Firefighting measures

### 5.1. Extinguishing media

#### ! Suitable extinguishing media

Product does not burn, fire-extinguishing activities according to surrounding.

Foam

Dry powder

Carbon dioxide

Water spray jet

#### Unsuitable extinguishing media

Full water jet

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

In the event of fire the following can be released:

Carbon monoxide (CO)

Carbon dioxide (CO<sub>2</sub>)

Hydrogen chloride (HCl)

Chlorine (Cl<sub>2</sub>)

### 5.3. Advice for firefighters

#### Special protective equipment for fire-fighters

Use breathing apparatus with independent air supply ( isolated ).

Wear full protective clothing.

#### ! Additional information

Cool endangered containers with water spray jet.

Exposure to fire may cause containers to rupture / explode.

Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

Collect contaminated firefighting water separately, must not be discharged into the drains.

## ! SECTION 6: Accidental release measures

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

#### ! For non-emergency personnel

Evacuate area.

Keep people away and stay on the upwind side.

#### ! For emergency responders

Remove persons to safety.

Personal protection by wearing close-fitting protective clothing and breathing apparatus.

### 6.2. Environmental precautions

Collect contaminated water / firefighting water separately.

Do not discharge into the drains/surface waters/groundwater.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

If necessary, secure leaky pressure receptacles in a salvage packaging.

Suppress gases/vapours/mists with water spray jet

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Do not discharge into the subsoil/soil.

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

Ensure adequate air ventilation.

Clean contaminated objects and floor thoroughly under consideration of environment regulations.

Neutralize with ammonium hydroxide.

**Additional Information**

No water on the leaks.

**6.4. Reference to other sections**

Safe handling: see section 7

Disposal: see section 13

Personal protection equipment: see section 8

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**! SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

**! Advice on safe handling**

Use only in thoroughly ventilated areas.

Transfer and handle only in enclosed systems.

Containers' temperature may not be increased above 50 °C.

Do not heat with open flames.

The working pressure in the receptacle must not exceed the saturation vapour pressure of the pure product resulting at a temperature of 50 °C.

Provide good room ventilation even at ground level (vapours are heavier than air).

Prevent cylinders from falling over.

Ensure valve outlet cap nut or plug is correctly fitted.

Ensure valve protection device is correctly fitted.

Open valve slowly to avoid pressure shock.

Use only properly specified equipment which is suitable for this product, its supply pressure and temperature.

Do not allow backfeed into the container.

Suck back 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.

**General protective measures**

Do not inhale gases.

**! Hygiene measures**

At work do not eat, drink, smoke or take drugs.

Wash hands before breaks and after work.

**! Advice on protection against fire and explosion**

Pay attention to general rules of internal fire prevention.

Avoid effect of heat.

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

**! Requirements for storage rooms and vessels**

Keep in closed original container.

Ventilate store-rooms thoroughly.

Only use containers that are approved specifically for the substance/product.

Suitable materials: Normalised carbon steel, tempered alloy steel, austenitic stainless steels.

Valve: Suitable materials: Brass, copper alloys, carbon steels, austenitic stainless steels.

Other material details see ISO 11114.

All regulations and local requirements for the storage of containers have to be respected.

Unsuitable materials: Aluminium alloys.

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#### ! Advice on storage compatibility

- Do not store together with spontaneously flammable materials.
- Do not store together with combustible liquids or combustible solids.
- Do not store together with animal feedstuffs.
- Do not store together with explosives.
- Do not store together with infectious substances.
- Do not store together with radioactive material.
- Do not store together with toxic liquids or toxic solids.
- Do not store together with food.
- Do not store together with oxidizing liquids or oxidizing solids.

#### ! Further information on storage conditions

- Ensure valve protection device is correctly fitted.
- Store only in original container at temperature of 50°C maximum (=122°F).
- Keep container tightly closed and store at cool and aired place.
- Prevent cylinders from falling over.
- Protect from heat/overheating.

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

#### ! Recommendation(s) for intended use

- Use as an intermediate under strictly controlled conditions.

## ! SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### ! Ingredients with occupational exposure limits to be monitored

| CAS No  | Name     | Code                       | [mg/m <sup>3</sup> ] | [ppm]        | Remark                     |
|---------|----------|----------------------------|----------------------|--------------|----------------------------|
| 75-44-5 | Phosgene | WEL, 8 hours<br>Short-term | 0,08<br>0,25         | 0,02<br>0,06 | UK                         |
| 75-44-5 | Phosgene | PEL, 8 hours               | 0,4                  | 0,1          | OSHA,<br>Table Z-1,<br>USA |

#### Indicative occupational exposure limit values (91/322/EEC, 2000/39/EC, 2004/37/EC, 2006/15/EC or 2009/161/EU)

| CAS No  | Name     | Code                  | [mg/m <sup>3</sup> ] | [ppm]       | Remark |
|---------|----------|-----------------------|----------------------|-------------|--------|
| 75-44-5 | phosgene | 8 hours<br>Short-term | 0,08<br>0,4          | 0,02<br>0,1 |        |

#### DNEL-/PNEC-values

##### DNEL worker

| CAS No  | Substance name    | Value                 | Code                              | Remark                      |
|---------|-------------------|-----------------------|-----------------------------------|-----------------------------|
| 75-44-5 | carbonyl chloride | 2 mg/m <sup>3</sup>   | DNEL acute inhalative (local)     | irritation (epiratory trac) |
|         |                   | 0,4 mg/m <sup>3</sup> | DNEL long-term inhalative (local) | irritation (epiratory trac) |

### 8.2. Exposure controls

#### ! Respiratory protection

- Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
- Keep self contained breathing apparatus readily available for emergency use.
- Short term: filter apparatus, Filter B
- Respiratory protection complying with EN 137.

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**Hand protection**

Laminated gloves - PE / EVAL / PE.  
Leather gloves  
Safety gloves according to EN 374.

**! Eye protection**

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

**! Other protection measures**

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

**Appropriate engineering controls**

Transfer and handle only in enclosed systems.

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

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

**Appearance**

Gaseous / liquefied under pressure.

**Colour**

colourless

**Odour**

pungent

**Odour threshold**

not determined

**Important health, safety and environmental information**

|                                  | Value          | Temperature | at       | Method | Remark |
|----------------------------------|----------------|-------------|----------|--------|--------|
| <b>pH value</b>                  | not applicable |             |          |        |        |
| <b>boiling point</b>             | 7,56 °C        |             | 1013 hPa |        |        |
| <b>melting point</b>             | -127,8 °C      |             |          |        |        |
| <b>Flash point</b>               | no             |             |          |        |        |
| <b>Vapourisation rate</b>        | not applicable |             |          |        |        |
| <b>Flammable (solid)</b>         | not applicable |             |          |        |        |
| <b>Flammability (gas)</b>        | no             |             |          |        |        |
| <b>Ignition temperature</b>      | no             |             |          |        |        |
| <b>Self ignition temperature</b> | no             |             |          |        |        |
| <b>Lower explosion limit</b>     | no             |             |          |        |        |
| <b>Upper explosion limit</b>     | no             |             |          |        |        |
| <b>Vapour pressure</b>           | 1586 hPa       | 20 °C       |          |        |        |
| <b>Relative density</b>          | 1,403 g/cm3    | 7,56 °C     | 1013 hPa |        |        |

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|  | Value          | Temperature | at | Method | Remark                     |
|--|----------------|-------------|----|--------|----------------------------|
| <b>Vapour density</b>                                    | 3,51           |             |    |        | air = 1                    |
| <b>Solubility in water</b>                               |                |             |    |        | hydrolyses                 |
| <b>Solubility/other</b>                                  |                |             |    |        | soluble in organic solvent |
| <b>Partition coefficient n-octanol/water (log P O/W)</b> | not applicable |             |    |        | Hydrolysis                 |
| <b>Decomposition temperature</b>                         | > 200 °C       |             |    |        |                            |
| <b>Viscosity</b>   | not applicable |             |    |        |                            |
| <b>Oxidising properties</b>                              |                |             |    |        | no                         |
| <b>Explosive properties</b>                              |                |             |    |        | no                         |
| <b>9.2. Other information</b>                            |                |             |    |        | sensitive to hydrolyse!    |

**! SECTION 10: Stability and reactivity****10.1. Reactivity**

See section "Possibility of hazardous reactions".

**10.2. Chemical stability**

Stable under recommended conditions of use and storage (see section 7).

**10.3. Possibility of hazardous reactions**

Reactions with oxygen.

Reactions with alkali metals.

Reactions with numerous chemical compounds, especially those with mobile hydrogen atoms.

Reactions with water.

Reactions with alcohols.

Hydrolyses to hydrogen chloride and carbon dioxide.

Reactions with aluminium at high temperature.

Reactions with amines.

**10.4. Conditions to avoid**

Heat sources / heat - risk of bursting.

Humidity.

**10.5. Incompatible materials****! Substances to avoid**

Alcohols

Aluminium

Amines

Ammonia

Hydrogen phosphides



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Oxygen  
Water / moisture.  
Alkali metals.

**10.6. Hazardous decomposition products**

Carbon monoxide and carbon dioxide.  
Hydrogen chloride (HCl)  
Chlorine

**Thermal decomposition**

Remark No decomposition below 200°C.

**! SECTION 11: Toxicological information**

**11.1. Information on toxicological effects**

**Acute toxicity/Irritation/Sensitization**

|   | Value/Validation                       | Species             | Method   | Remark |
|---|--|---------------------|----------|--------|
| <b>LD50 acute oral</b>                  | Study technically not feasible.        |                     |          |        |
| <b>LD50 acute dermal</b>                | Study technically not feasible.        |                     |          |        |
| <b>LC50 acute inhalation</b>            | 45 - 54 mg/m <sup>3</sup> (60 min)     | rat (male / female) | OECD 403 |        |
| <b>Skin irritation</b>                  | strong corrosive                       |                     |          |        |
| <b>Eye irritation</b>                   | irritant - risk of strong eye injuries |                     |          |        |
| <b>Skin sensitization</b>               | Study scientifically not necessary.    |                     |          |        |
| <b>Sensitization respiratory system</b> | not determined                         |                     |          |        |

**Subacute Toxicity - Carcinogenicity**

|                              | Value                                   | Species | Method       | Validation  |
|------------------------------|---|---------|--------------|---|
| <b>Subchronic Toxicity</b>   | LOAEL 0,1 ppm (28 - 84 d)<br>Inhalation | Rat     | 6 h/d, 5 d/w |   |
| <b>Mutagenicity</b>          |   |         | OECD 471     | No experimental information on genotoxicity in vitro available. |
| <b>Reproduction-Toxicity</b> |   |         |              | not determined  |

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| Value                  | Species | Method | Validation     |
|------------------------|---------|--------|----------------|
| <b>Carcinogenicity</b> |         |        | not determined |

#### ! Specific target organ toxicity (single exposure)

Substance or mixture is not classified in GHS-criteria as specific target organ toxic with single exposure.

#### ! Specific target organ toxicity (repeated exposure)

Substance or mixture is not classified in GHS-criteria as specific target organ toxic with repeated exposure.

#### Aspiration hazard

not applicable

#### Experiences made from practice

Risk of strong eye injuries.

Irritates respiratory tract.

## ! SECTION 12: Ecological information

### 12.1. Toxicity

#### Ecotoxicological effects

| Value           | Species | Method | Validation                      |
|-----------------|---------|--------|---------------------------------|
| <b>Fish</b>     |         |        | Study technically not feasible. |
| <b>Daphnia</b>  |         |        | Study technically not feasible. |
| <b>Algae</b>    |         |        | Study technically not feasible. |
| <b>Bacteria</b> |         |        | Study technically not feasible. |

### 12.2. Persistence and degradability

| Elimination rate                | Method of analysis | Method | Validation                      |
|---------------------------------|--------------------|--------|---------------------------------|
| <b>Biological degradability</b> |                    |        | Study technically not feasible. |

### 12.3. Bioaccumulative potential

Not known.

### 12.4. Mobility in soil

not determined

### 12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

### 12.6. Other adverse effects

Not known.

#### ! General regulation

The product hydrolyses.

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## ! SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

**Waste code No.**

16 05 04\*

**Name of waste**

gases in pressure containers (including halons) containing hazardous substances

Wastes marked with an asterisk are considered to be hazardous waste pursuant to Directive 2008/98/EC on hazardous waste.

### ! Recommendations for the product

Dispose of as hazardous waste.

### Recommendations for packaging

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

## SECTION 14: Transport information

|                                  | ADR/RID  | IMDG     | IATA-DGR |
|----------------------------------|----------|----------|----------|
| 14.1. UN number                  | 1076     | 1076     | 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. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not applicable

No transport as bulk according IBC - Code.

### Land and inland navigation transport ADR/RID

Hazard label(s) 2.3+8

tunnel restriction code C/D

Classification code 2TC

### Marine transport IMDG

Ems: F-C, S-U

### Air transport ICAO/IATA-DGR

FORBIDDEN

## ! SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### Other regulations (EU)

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances.

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**15.2. Chemical Safety Assessment**

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

An exposure scenario is not required.

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

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**! SECTION 16: Other information**

**Recommended uses and restrictions**

National and local regulations concerning chemicals shall be observed.

**Further information**

All declarations of safety-data-sheet refer to pure substance.

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.

Indication of changes: "!" = Data changed compared with the previous version. Previous version: 8.2

**! Sources of key data used**

For the preparation of this safety data sheet, information from our suppliers as well as data from the "database of registered substances" of the European Chemicals Agency (ECHA) were used.