

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

Printed 30.11.2010  
Revision 30.11.2010 (GB) Version 11.2

**Hydrogen chloride**  
0400-0405



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**1. Identification of the substance/mixture and of the company/undertaking**

**Product identifier**

**Name of product** Hydrogen chloride  
Art-Nr.: 0400-0405  
**Name of substance** hydrogen chloride  
**Index No** 017-002-00-2  
**EC No** 231-595-7  
**CAS No** 7647-01-0

**Manufacturer/distributor**

GHC Gerling, Holz & Co. Handels GmbH  
Ruhrstraße 113, D-22761 Hamburg  
Phone +49 (0) 40 853 123-0, Fax +49 (0) 40 853 123-66  
E-Mail msds@ghc.de  
Internet www.ghc.de

**Advice**

Phone +49 (0) 40 853 123-0  
Fax +49 (0) 40 853 123-66

**Emergency advice**

GHC Gerling, Holz & Co. Handels GmbH  
Phone +49 (0) 40 853 123-0

**Recommended intended purpose(s)**

Basic substance.  
Catalyst.

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**! 2. Hazards identification**

**Classification according to 67/548/EEC or 1999/45/EC**

T; R23  
C; R35

**R-phrases**

23 Toxic by inhalation.  
35 Causes severe burns.

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

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

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|                      |             |
|----------------------|-------------|
| <b>Liquef. Gas</b>   | <b>H280</b> |
| <b>Acute Tox. 3</b>  | <b>H331</b> |
| <b>Skin Corr. 1A</b> | <b>H314</b> |

**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.  
H331 Toxic if inhaled.

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#### 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.

H331 Toxic 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): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304 + P340 IF INHALED: Remove 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.

P315 Get immediate medical advice/attention.

#### ! Storage

P403 Store in a well-ventilated place.

P405 Store locked up.

#### Supplemental Hazard information (EU)

#### Health properties

Corrosive to the respiratory tract.

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

Irritating to eyes, respiratory system and skin.

Corrosive to the respiratory tract.

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.

### ! 3. Composition/information on ingredients

CAS No 7647-01-0

EC No 231-595-7

Index No 017-002-00-2

hydrogen chloride

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**GERLING  
HOLZ+CO**



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### 4. First aid measures

#### General information

Remove contaminated soaked clothing immediately.  
Adhere to personal protective measures when giving first aid.  
Seek medical advice immediately.

#### In case of inhalation

Remove the casualty into fresh air and keep him immobile.  
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).  
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 plenty of water.  
In case of frostbite rinse with plenty of water. Don't remove clothing.  
In case of frostbite spray with lukewarm (not hot) water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.

#### 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.

#### Physician's information / possible dangers

Risk of pulmonary oedema

#### Treatment (Advice to doctor)

Continue to monitor for pneumonia and pulmonary oedema.  
Monitor circulation.

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### 5. Firefighting measures

#### Suitable extinguishing media

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

#### Extinguishing media which must not be used for safety reasons

Full water jet

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

In the event of fire the following can be released:  
Hydrogen (on contact with firefighting water).  
Explosion hazard.

#### 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.

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## ! 6. Accidental release measures

### Personal precautions

See chapter 8.  
Remove persons to safety.  
Evacuate area.  
Keep people away and stay on the upwind side.

### Environmental precautions

Do not discharge into the drains or bodies of water..  
Collect contaminated water / firefighting water separately.  
If possible, stop flow of product.  
Prevent spread over a wide area (e.g. by containment or oil barriers).  
Suppress gases/vapours/mists with water spray jet  
Do not discharge into the subsoil/soil.

### Methods for cleaning up

Ensure adequate air ventilation.  
Take up with absorbent material (e.g. sand, kieselguhr, acid binder, general-purpose binder, sawdust).  
Clean contaminated objects and floor thoroughly under consideration of environment regulations.  
After taking up the material dispose according to regulation.

### ! Additional Information

Informations for safe handling see chapter 7.  
Informations for personal protective equipment see chapter 8.  
No water on the leaks.

## ! 7. Handling and storage

### ! Advice on safe handling

Use only in thoroughly ventilated areas.  
Transfer and handle only in enclosed systems.  
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.

### Advice on protection against fire and explosion

The product is not combustible.

### Requirements for storage rooms and vessels

Ventilate store-rooms thoroughly.  
Use transportable pressure equipment.  
Valve: Suitable materials: Carbon steels, stainless steel.  
Unsuitable materials: Aluminium alloys, brass, copper alloys.

### Advice on storage compatibility

Do not store with combustible materials.  
Do not store together with animal feedstuffs.  
Do not store together with food.  
Do not store together with oxidizing agents.

### Further information on storage conditions

Ensure valve protection device is correctly fitted.  
Store closed container at cool and aired place.

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Store only in original container at temperature of 50°C maximum (=122°F).  
Prevent cylinders from falling over.  
Protect from heat/overheating.

#### Information on storage stability

Unlimited stability.

#### Recommendation(s) for intended use

no

## ! 8. Exposure controls/personal protection

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

| CAS No    | Name              | Code       | [mg/m <sup>3</sup> ] | [ppm] | Remark |
|-----------|-------------------|------------|----------------------|-------|--------|
| 7647-01-0 | hydrogen chloride | 8 hours    | 8                    | 5     |        |
|           |                   | Short-term | 15                   | 10    |        |

#### Respiratory protection

Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

Short term: filter apparatus, filter E

Short term: filter apparatus, combination filter E-P2

Breathing apparatus in the event of high concentrations.

Keep self contained breathing apparatus readily available for emergency use.

#### Hand protection

chemical-resistant gloves

Leather gloves

Glove material specification [make/type, thickness, permeation time/life, wetting resistance]: NBR; 0,4 mm; >= 480 min / CR; 0,5 mm; >= 480 min / PVC; 0,7 mm; >= 480 min

#### Eye protection

safety goggles, in case of increased risk add protective face shield

#### Skin protection

protective clothing

#### General protective measures

Do not inhale gases/vapours/aerosols.

#### Hygiene measures

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

Wash hands before breaks and after work.

Use barrier skin cream.

## 9. Physical and chemical properties

|                          |               |              |
|--------------------------|---------------|--------------|
| <b>Form</b>              | <b>Colour</b> | <b>Odour</b> |
| compressed liquified gas | colourless    | pungent      |

### Important health, safety and environmental information

|                                   | Value | Temperature | at      | Method | Remark          |
|-----------------------------------|-------|-------------|---------|--------|-----------------|
| <b>pH value in delivery state</b> | 1     | 20 °C       | 3,6 g/l |        | watery solution |

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|   | Value                 | Temperature | at       | Method | Remark                               |
|---|-----------------------|-------------|----------|--------|--------------------------------------|
| <b>Acid number</b>                                | not applicable        |             |          |        |                                      |
| <b>boiling point</b>                              | -85,03 °C             |             | 1013 hPa |        |                                      |
| <b>melting point</b>                              | -114,19 °C            |             |          |        |                                      |
| <b>Flash point</b>                                | no                    |             |          |        |                                      |
| <b>Flammable solid</b>                            | not applicable        |             |          |        |                                      |
| <b>Flammability (gas)</b>                         | no                    |             |          |        |                                      |
| <b>Ignition temperature</b>                       | no                    |             |          |        |                                      |
| <b>Autoignition</b>                               | no                    |             |          |        |                                      |
| <b>Lower explosion limit</b>                      | no                    |             |          |        |                                      |
| <b>Upper explosion limit</b>                      | no                    |             |          |        |                                      |
| <b>Vapour pressure</b>                            | 42600 hPa             | 20 °C       |          |        |                                      |
| <b>Density</b>                                    | 845 kg/m <sup>3</sup> | 290 K       |          |        | information concerns to liquid phase |
| <b>Bulk density</b>                               | not applicable        |             |          |        |                                      |
| <b>Rel. vapour density</b>                        | 1,2701                |             |          |        |                                      |
| <b>Solubility in water</b>                        | 720 g/l               | 20 °C       |          |        |                                      |
| <b>Partition coefficient (log p<sub>OW</sub>)</b> | 0,25                  |             |          |        |                                      |
| <b>Viscosity dynamic</b>                          | 0,407 mPa*s           | 188,05 K    |          |        |                                      |
| <b>Viscosit dynamic</b>                           | 0,077 mPa*s           | 290 K       |          |        |                                      |
| <b>Solvent concentration</b>                      | not applicable        |             |          |        |                                      |
| <b>Oxidizing properties</b>                       | no                    |             |          |        |                                      |
| <b>Explosive properties</b>                       | no                    |             |          |        |                                      |

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## 10. Stability and reactivity

### Conditions to avoid

Heat sources / heat - risk of bursting.

Humidity.

### Materials to avoid

Reactions with light metals in the presence of moisture, with evolution of hydrogen.

Reactions with alkali metals.

Reactions with organic substances.

Reactions with water.

Reactions with alkalies.

Reactions with strong alkalies and oxidising agents.

### Hazardous decomposition products

Hydrogen

### Additional information

Stable under normal conditions.

## 11. Toxicological information

### Acute toxicity/Irritability/Sensitization

|                              | Value/Validation            | Species    | Method   | Remark          |
|------------------------------|-----------------------------|------------|----------|-----------------|
| <b>LD50 acute oral</b>       | 238 - 277 mg/kg             | rat        |          | watery solution |
| <b>LC50 acute inhalation</b> | 3120 ppm (1 h)              | rat        |          |                 |
| <b>Irritability skin</b>     | corrosive                   | rabbit     |          | watery solution |
| <b>Irritability eye</b>      | risk of strong eye injuries | rabbit eye | OECD 405 |                 |
| <b>Skin sensitization</b>    | non-sensitizing             |            |          | watery solution |

### Subacute Toxicity - Carcinogenicity

|                              | Value          | Species | Method | Validation  |
|------------------------------|----------------|---------|--------|---|
| <b>Mutagenicity</b>          |                |         |        | Information on genotoxicity in vivo available.                              |
| <b>Reproduction-Toxicity</b> | not determined |         |        |   |
| <b>Carcinogenicity</b>       |                |         |        | No indications of carcinogenic effects are available from long-term trials. |

### Toxicity test (Additional information)

No experimental indication of genotoxicity in vitro ( Ames-test negative ).

### Experiences made from practice

Risk of strong health injuries in case of long-term exposition.

Inhalation can cause damage to the respiratory tract or lungs.

Irritates respiratory tract.

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Pulmonary damage is possible.  
Irritates mucous membranes.

## 12. Ecological information

### Data on elimination (persistence and degradability)

|                                       | Elimination rate   | Method of analysis | Method | Validation     |
|---------------------------------------|--|--------------------|--------|----------------|
| <b>Physico-chemical degradability</b> |  |                    |        | not determined |
| <b>Biological degradability</b>       | Inorganic product, cannot be eliminated from the water by biological purification processes. |                    |        |                |
| <b>Biological eliminability</b>       | Inorganic product, cannot be eliminated from the water by biological purification processes. |                    |        |                |

### Ecotoxicological effects

|                | Value                  | Species                   | Method   | Validation |
|----------------|------------------------|---------------------------|----------|------------|
| <b>Fish</b>    | LC50 4,92 mg/l (96 h)  | Cyprinus carpio           | OECD 203 |            |
| <b>Daphnia</b> | EC50 0,492 mg/l (48 h) | Daphnia magna             | OECD 202 |            |
| <b>Algae</b>   | EC50 0,492 mg/l (72 h) | Selenastrum capricornutum | OECD 201 |            |

### Additional ecological information

|            | Value | Method | Remark         |
|------------|-------|--------|----------------|
| <b>COD</b> |       |        | not determined |
| <b>BOD</b> |       |        | not determined |

### General regulation

Do not allow uncontrolled leakage of product into the environment.  
Product is not allowed to be discharged into the ground water or aquatic environment.  
Product is not allowed to be discharged into aquatic environment, drains or sewage treatment plants.

## 13. Disposal considerations

| Waste code No. | Name of waste   |
|----------------|---|
| 16 05 04*      | gases in pressure containers (including halons) containing dangerous substances |

Wastes marked with an asterisk are considered to be hazardous waste pursuant to Directive 91/689/EEC 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.

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#### 14. Transport information

##### Land and inland navigation transport ADR/RID

UN 1050 HYDROGEN CHLORIDE, ANHYDROUS, 2.3 (8), (C/D), Classification code: 2TC

##### Marine transport IMDG

UN 1050 HYDROGEN CHLORIDE, ANHYDROUS, 2.3 (8)

##### Air transport ICAO/IATA-DGR

UN 1050 Hydrogen chloride, anhydrous, 2.3 (8)

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#### ! 15. Regulatory information

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#### 16. Other information

##### Recommendend 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.

##### Wording of the R/H-phrases specified in chapter 3 (not the classification of the mixture!)

R 23 Toxic by inhalation.

R 35 Causes severe burns.

H280 Contains gas under pressure; may explode if heated.

H314 Causes severe skin burns and eye damage.

H331 Toxic if inhaled.