

SAFETY DATA SHEET

In accordance with Regulation (EC) No 1907/2006 (REACH, Annex II) as amended by Regulation (EU) 2020/878, and Regulation (EC) No 1272/2008 (CLP)

Product Name	Hydrogen chloride, anhydrous
Revision Date	2026-06-20
Version	1.0 (YY)
Supplier	Wenzhou Yingyue New Materials Co., Ltd
Contact	Web: www.yycheme.com Tel: +852 62057798 Email: info@yycheme.com

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

1.1 Product identifier

Trade name: Hydrogen chloride, anhydrous

IUPAC name: Hydrogen chloride

CAS-No.: 7647-01-0

EC-No.: 231-595-7

Index No.: 017-002-00-2

REACH Registration No.: 01-2119484862-27

Molecular formula: HCl

Purity range: 99%-99.999%

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

Identified uses:

- Industrial chemical feedstock and synthesis intermediate
- Electronics manufacturing (etching and wafer processing)
- Pharmaceutical intermediate production
- Specialty gas supply and integrated gas delivery systems

Uses advised against:

- Use in food, feed or direct pharmaceutical product contact
- Any application without prior site-specific risk assessment
- Use by untrained or unauthorised personnel

1.3 Details of the supplier of the safety data sheet

Manufacturer / Supplier: Wenzhou Yingyue New Materials Co., Ltd

Address: Liushi Town, Yueqing City, Wenzhou, Zhejiang Province, 325604, P.R.China

Telephone: +852 62057798

E-mail: info@yycheme.com

Website: www.yycheme.com

1.4 Emergency telephone number

Emergency contact: +852 62057798 (business hours)

Note: For transport emergencies, contact a certified hazardous materials emergency response service.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture (Regulation (EC) No 1272/2008 [CLP])

Pressurised gas (liquefied gas): H280

Acute toxicity (inhalation, gas): Category 3, H331

Skin corrosion/irritation: Category 1A, H314

Serious eye damage/eye irritation: Category 1, H318

Hazardous to the aquatic environment - acute hazard: Category 1, H400

Hazardous to the aquatic environment - long-term hazard: Category 1, H410

2.2 Label elements

Hazard pictograms: GHS04 (Pressurised gas), GHS05 (Corrosive), GHS06 (Toxic), GHS09 (Environmental hazard)

Signal word: Danger

Hazard statements:

- H280: Contains gas under pressure; may explode if heated.
- H314: Causes severe skin burns and eye damage.
- H331: Toxic if inhaled.
- H400: Very toxic to aquatic life.
- H410: Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention:

P260: Do not breathe gas/vapours.

P273: Avoid release to the environment.

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

P284: Wear respiratory 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.

P310: Immediately call a POISON CENTER or doctor/physician.

P391: Collect spillage.

Storage:

P403: Store in a well-ventilated place.

P405: Store locked up.

P410+P403: Protect from sunlight. Store in a well-ventilated place.

Disposal:

P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards and supplemental information

EUH071: Corrosive to the respiratory tract.

No PBT/vPvB classification has been assigned for this substance under REACH Annex XIII.

This substance is not identified as an endocrine disruptor under EU CLP/REACH criteria at the hazard identification stage.

SECTION 3: Composition/information on ingredients

3.1 Substances

This product is a single-constituent substance.

Component	CAS-No.	EC-No.	Concentration	CLP Classification
Hydrogen chloride, anhydrous	7647-01-0	231-595-7	99%-99.999%	Press. Gas (Liq.); Acute Tox. 3 (Inhalation); Skin Corr. 1A; Eye Dam. 1; Aquatic Acute 1; Aquatic Chronic 1

No SVHC substances included in the REACH Candidate List are present above 0.1% (w/w).

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice: Move the victim immediately to fresh air. Keep victim warm and at rest. Show this SDS to attending medical personnel without delay.

Inhalation: Remove victim to uncontaminated area immediately. Maintain open airway. If breathing is difficult, administer oxygen. If breathing stops, perform artificial respiration. Obtain immediate medical attention.

Skin contact: Remove all contaminated clothing immediately. Flush affected area with copious amounts of running water for at least 15 minutes. In case of cryogenic burns from liquefied gas, warm affected area gently with lukewarm water; do not rub or apply heat directly. Seek medical attention immediately.

Eye contact: Rinse immediately and continuously with plenty of water for at least 15 minutes, holding eyelids apart. Remove contact lenses if present and easily removable. Continue rinsing. Obtain immediate ophthalmological attention.

Ingestion: Ingestion is unlikely for a pressurised gaseous product. If mouth contact occurs, rinse mouth thoroughly with water. Do not induce vomiting. Seek medical advice immediately.

4.2 Most important symptoms and effects, both acute and delayed

Acute: Severe corrosive burns of skin, eyes and mucous membranes; coughing, chest pain, dyspnoea, laryngeal oedema; high exposure may cause chemical pneumonitis and pulmonary oedema (onset may be delayed up to 24-48 hours).

Chronic: Long-term repeated exposure may cause dental erosion, chronic bronchitis and permanent respiratory tract damage.

4.3 Indication of any immediate medical attention and special treatment needed

Note to physician: Symptomatic and supportive treatment. Monitor pulmonary function closely for at least 48 hours after inhalation exposure. Do not administer neutralising agents due to risk of exothermic tissue injury.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable: The substance is non-flammable. Use extinguishing media appropriate for surrounding fires: dry chemical powder, carbon dioxide, dry sand.

Unsuitable: Do not apply direct water jet to leaking cylinders; this will disperse corrosive fumes and may increase internal cylinder pressure.

5.2 Special hazards arising from the substance or mixture

Non-flammable, but reacts violently with water to form corrosive acid mist. Reacts with active metals to generate flammable hydrogen gas. Pressurised cylinders may rupture violently when heated. Thermal decomposition releases toxic chlorine and hydrogen gas.

5.3 Advice for firefighters

Firefighters must wear positive pressure self-contained breathing apparatus (SCBA) and full body chemical protective suit. Fight fire from upwind and a safe distance. Cool exposed cylinders with water spray; avoid direct jet on valve assemblies. Evacuate immediately if pressure relief devices vent or cylinders show discoloration or deformation. Remove intact containers from fire area if this can be done safely.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate all non-essential personnel. Establish upwind escape routes. Emergency responders must wear positive pressure SCBA and full chemical-resistant protective clothing. Approach release only from upwind. Eliminate all ignition sources. Do not touch or walk through released material.

6.2 Environmental precautions

Prevent release into sewers, watercourses, groundwater or soil. The substance is very toxic to aquatic organisms. All releases must be contained and neutralised before discharge. Notify environmental authorities if significant release occurs.

6.3 Methods and materials for containment and cleaning up

Minor leak: Allow gas to disperse in a well-ventilated open area. Use water spray to suppress fumes; neutralise effluent with alkaline scrubbing solution (e.g. sodium hydroxide). Ventilate area fully before re-entry.

Major leak: Stop leak if safe to do so. Discharge residual gas into a dedicated gas scrubber system. Transfer leaking cylinders to an open, secure outdoor area by trained personnel only. Never attempt to repair or modify cylinder valves.

6.4 Reference to other sections

See Section 8 for personal protection specifications; see Section 13 for waste disposal instructions.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Use only in adequately ventilated areas, preferably with local exhaust ventilation. Do not breathe gas or fumes. Avoid all contact with skin, eyes and clothing. Never apply heat, flame or electric current to any part of the cylinder. Use only pressure regulators, valves and piping systems compatible with anhydrous hydrogen chloride. Move cylinders with approved trolleys; never drag, roll, drop or impact cylinders. Emergency eyewash stations and safety showers must be accessible within the immediate work area. Do not work alone when handling this product.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well-ventilated, fire-resistant dedicated gas store. Keep storage temperature below 30°C. Protect from direct sunlight and all heat sources. Store cylinders upright, secured against falling, with valve protection caps firmly in place. Keep separated from alkalis, amines, active metals, oxidising agents, cyanides, sulphides and combustible materials. Keep containers tightly closed when not in use. Store locked up and restrict access to trained and authorised personnel only. Separate from food, feed and pharmaceutical products.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits (EU reference values):

- 8-hour TWA: 7.5 mg/m³ (5 ppm)
- Short-term exposure limit (15 min): 15 mg/m³ (10 ppm)

8.2 Exposure controls

Engineering controls: Enclosed process systems with local exhaust ventilation. Maintain airborne concentrations below occupational exposure limits. Install emergency eyewash and safety shower adjacent to workstations.

Individual protection measures:

- **Eye/face protection:** Chemical safety goggles combined with face shield for cylinder handling.
- **Skin protection:** Full chemical-resistant protective suit (butyl rubber or neoprene).
- **Hand protection:** Chemical-resistant gloves (butyl rubber, neoprene or FKM/Viton).
- **Respiratory protection:** Gas mask with acid gas filter for concentrations above OEL; positive pressure SCBA for emergency response and high-concentration environments.
- **Thermal protection:** Risk of cryogenic burns from liquefied gas; use appropriate thermal protective gear.

Environmental controls: Do not release into the environment. All vented gas must pass through an alkaline scrubber system.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Property	Value / Description
Physical state	Colourless liquefied compressed gas
Odour	Pungent, stinging, irritating odour
Odour threshold	~1 ppm
pH (1% aqueous solution)	≈ 1
Melting point/ freezing point	-114.22 °C (101.325 kPa)
Boiling point	-85.05 °C (101.325 kPa)
Flash point	Not applicable (non-flammable gas)
Flammability	Non-flammable
Explosive limits	Not applicable
Vapour pressure	42600 hPa at 20 °C
Relative vapour density (air = 1)	1.27
Relative density (liquid, at boiling point)	1.19 g/cm ³
Water solubility	720 g/L at 20 °C (highly soluble)
n-Octanol/water partition coefficient (log Pow)	Not applicable
Auto-ignition temperature	Not applicable
Molecular weight	36.46 g/mol
Critical temperature	51.4 °C
Critical pressure	8.26 MPa
Decomposition temperature	No data available
Kinematic viscosity	Not applicable (gas) [Updated per (EU) 2020/878]
Particle characteristics	Not applicable (gas) [Updated per (EU) 2020/878]

SECTION 10: Stability and reactivity

10.1 Reactivity: Highly reactive with water and aqueous solutions. Corrosive to most common metals in the presence of moisture, with evolution of flammable hydrogen gas.

10.2 Chemical stability: Stable under recommended storage and handling conditions.

10.3 Possibility of hazardous reactions: Violent exothermic reaction with water/moisture, forming corrosive hydrochloric acid mist. Reacts with active metals (Na, Mg, Zn, Fe) to release flammable hydrogen gas. Violent reaction with strong bases, amines and strong oxidising agents.

10.4 Conditions to avoid: Heat, open flame, direct sunlight, moisture ingress, mechanical damage to cylinders.

10.5 Incompatible materials: Strong bases, amines, alkali metals, active metal powders, strong oxidisers, cyanides, sulphides, carbides, water and humid air.

10.6 Hazardous decomposition products: Hydrogen gas and toxic chlorine gas upon thermal decomposition.

SECTION 11: Toxicological information

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

- **Acute toxicity:** Inhalation (rat, 1 h): LC50 = 4600 ppm; Inhalation (mouse, 1 h): LC50 = 3124 ppm. Classification: Acute Tox. 3 (Inhalation)
- **Skin corrosion / irritation:** Severe corrosive effect on rabbit skin; causes irreversible tissue damage. Classification: Skin Corr. 1A
- **Serious eye damage / eye irritation:** Severe ocular damage in rabbits; may cause corneal opacity and permanent vision loss. Classification: Eye Dam. 1
- **Respiratory / skin sensitisation:** No evidence of skin sensitisation. Causes severe corrosive injury to the respiratory tract (EUH071).
- **Germ cell mutagenicity:** No mutagenic activity reported. Not classified.
- **Carcinogenicity:** IARC: Not classified as carcinogenic to humans.
- **Reproductive toxicity:** No specific reproductive toxicity data available. Not classified.
- **STOT-single exposure:** Causes damage to the respiratory tract, mucous membranes and eyes following single exposure.
- **STOT-repeated exposure:** Prolonged or repeated inhalation causes dental erosion, chronic bronchitis and permanent respiratory impairment.
- **Aspiration hazard:** Not applicable (gaseous at ambient temperature).

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

The substance is not identified as having endocrine disrupting properties with respect to human health according to the criteria laid down in Regulations (EU) 2017/2100 or (EU) 2018/605.

SECTION 12: Ecological information

12.1 Toxicity: Fish 96 h LC50: 10-100 mg/L; Daphnia 48 h EC50: < 10 mg/L; Algae 72 h ErC50: < 10 mg/L. Classification: Aquatic Acute 1; Aquatic Chronic 1

12.2 Persistence and degradability: Fully dissociates into hydrogen and chloride ions in aqueous environments. Not persistent.

12.3 Bioaccumulative potential: Low bioaccumulation potential; not expected to bioaccumulate in aquatic food chains.

12.4 Mobility in soil: Highly water-soluble; high mobility in aqueous systems. Releases may significantly lower pH of receiving waters and soils.

12.5 Results of PBT and vPvB assessment: Conclusion: Not PBT and not vPvB according to REACH Annex XIII criteria.

12.6 Endocrine disrupting properties: The substance is not identified as having endocrine disrupting properties with respect to non-target organisms according to the criteria laid down in Regulations (EU) 2017/2100 or (EU) 2018/605.

12.7 Other adverse effects: Very toxic to aquatic life with long lasting effects. May cause acidification of surface waters and harm terrestrial ecosystems at high release levels.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste substance: Neutralise residual gas through an alkaline scrubber (e.g. sodium hydroxide solution). Neutralised effluent may be discharged to an approved wastewater treatment plant in compliance with local regulations.

Contaminated packaging: Empty cylinders must be returned to the supplier for reuse or certified disposal. Do not puncture or incinerate cylinders.

SECTION 14: Transport information

14.1 UN number: UN 1050

14.2 UN proper shipping name: Hydrogen chloride, anhydrous

14.3 Transport hazard class(es): ADR / RID / IMDG / IATA: Class 2.3 (Toxic gases); Subsidiary risk: Class 8 (Corrosive substances)

14.4 Packing group: II

14.5 Environmental hazards: Marine pollutant: Yes (IMDG Code)

14.6 Special precautions for user: • Transport cylinders with valve caps and protective plugs securely fitted.

- Secure cylinders to prevent movement during transit.
- Do not co-transport with food, feed or incompatible substances.
- Protect from direct sunlight and extreme heat.
- Transport vehicles must carry appropriate emergency response equipment.
- Drivers must hold valid hazardous materials transport certification.

14.7 Maritime transport in bulk according to IMO instruments: Not applicable (product supplied in pressurised cylinders).

SECTION 15: Regulatory information

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

EU Legislation: • Regulation (EC) No 1907/2006 (REACH): Substance is fully registered under REACH.
• Regulation (EC) No 1272/2008 (CLP): Classification and labelling as set out in Section 2.
• Directive 98/24/EC: Chemical agents at the workplace.
• Water Framework Directive (2000/60/EC): Designated hazardous substance.
• Seveso III Directive (2012/18/EU): Subject to threshold-based reporting at industrial installations.

- Directive 2008/50/EC: Ambient air quality legislation.
- All applicable national and local regulations must also be observed.

15.2 Chemical safety assessment

A chemical safety assessment has been completed for this substance under REACH registration requirements.

SECTION 16: Other information

16.1 Revision information: • First issue date: 2026-06-20

• Revision date: 2026-06-20

• Version: 1.0 (YY)

• Full text of H-statements and P-statements referenced in Section 2 is reproduced from Regulation (EC) No 1272/2008.

16.2 List of abbreviations: CLP: Classification, Labelling and Packaging Regulation

REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals

EC: European Commission (EINECS/ELINCS)

SCBA: Self-Contained Breathing Apparatus

LC₅₀ : Lethal Concentration 50%

EC₅₀ : Effective Concentration 50%

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

TWA: Time Weighted Average

STEL: Short-Term Exposure Limit

OEL: Occupational Exposure Limit

16.3 Disclaimer: 1. This Safety Data Sheet has been compiled in accordance with EU REACH Regulation (EC) No 1907/2006 (Annex II) and CLP Regulation (EC) No 1272/2008, based on currently available scientific data and established industry knowledge. It applies solely to the anhydrous hydrogen chloride product specified herein.

2. This document is provided exclusively for occupational health, safety and environmental guidance. It does not constitute any express or implied warranty regarding product quality, merchantability or fitness for a particular purpose. Any use of the product beyond the identified uses stated in Section 1 shall be entirely at the user's own risk and responsibility.

3. It is the user's legal obligation to comply with all applicable national, regional and local laws, regulations and standards governing the handling, storage and transport of this substance.