Hydrogen Chloride

Revision date: 11.19.2024 Print date: 01.17.2024 SDS No.: F01001_CN_EN

Date of first issue: 01.16.2024 Version: 2.0

Section 1. Identification

Product identifier

Product name: Hydrogen Chloride

Chemical formula: HCl

Recommended use of the chemical and restrictions on use

Recommended use: Industrial use

Restrictions on use: No data available

Details of the supplier of the safety data sheet

Company name: Shandong HuaYuTongFang Electronic Materials Co., Ltd

Company address: Yinsi Town Chemical Industrial Park, 272500 Wenshang County, Jining City, Shandong Province, China

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Section 2. Hazard identification

Colorless gas, pungent. Contains gas under pressure, may explode if heated. Causes severe skin burns and eye damage. Causes serious eye damage. Toxic if inhaled.

Emergency Overview:

GHS Classification:

Hazard class	Hazard category

Gases under pressure	Compressed gas
Skin corrosion/irritation	1A
Serious eye damage/eye irritation	1
Acute toxicity, inhalation	3

GHS label elements:

GHS label elements:



Signal word: Danger

Hazard statements:

Hazard statement codes	Hazard statements
H280	Contains gas under pressure; may explode if heated
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H331	Toxic if inhaled

Precautionary statements:

Prevention:

Codes	Prevention precautionary statements
P233	Keep container tightly closed.
P260	Do not breathe gas.
P264+P265	Wash skin thoroughly after handling. Do not touch eyes.
P271	Use only outdoors or with adequate ventilation.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response:

Codes	Response precautionary statements
P302+P361+P354	IF ON SKIN: Take off immediately all contaminated clothing.

	Immediately rinse with water for several minutes.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P316	Get emergency medical help immediately.
P340	Remove person to fresh air and keep comfortable for breathing.

Storage:

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

P405: Store locked up.

Disposal:

P501 Dispose of contents/containers to a licensed waste disposal contractor.

Physical hazards: Contains gas under pressure; may explode if heated

Health hazards: Causes severe skin burns and eye damage

Causes serious eye damage

Toxic if inhaled

Environmental hazards: No data available

Other hazards: No data available

Section 3. Composition/information on ingredients

This product is a substance.

Hazardous components:

Components	Concentration (w/w)	CAS No.
Hydrogen Chloride	100%	7647-01-0

Section 4. First-aid measures

Description of necessary first-aid measures:

Inhalation: Remove victim to fresh air and keep comfortable for breathing. Get emergency medical help immediately.

Skin contact: Take off immediately all contaminated clothing. Immediately rinse with water for at least 15 minutes.

Eye contact: Immediately rinse with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Ingestion: Rinse mouth. Ingestion is not considered a potential route of exposure.

Most important symptoms/effects, acute and delayed: Irritation to eyes, respiratory system and skin may include the following symptoms: burn, redness and blurred vision.

Advice for protecting first-aid responders: Pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Special notes to physicians: Treat symptomatically. Treat with corticosteroid spray as soon as possible after inhalation. Call a POISON CENTER for advice.

Section 5. Fire-fighting measures

Suitable extinguishing media: Water spray, Dry powder, Foam, CO_2.

Unsuitable extinguishing media: Do not use water jet to extinguish.

Specific hazards arising from the chemical: Upon exposure to intense heat or flame, cylinder will vent rapidly and or rupture violently.

Special protective equipment and precautions for fire-fighters:

Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray from a protected position. Prevent waste water from entering sewers and drainage systems directorly. If possible, stop flow of product.

Use water spray or fog to knock down fire fumes if possible.

Move containers away from the fire area if this can be done without risk.

Wear suitable personal protective equipment, including fire-fighting helmet, coat, trousers, boots, and gloves. If potential for exposure exists, wear protective clothing for protection against chemicals. Wear self-contained breathing apparatus (SCBA) when approaching a fire in a confined space. Select fire-fighter's clothing approved to relevant Standards.

Further information: Clear fire area of all non-emergency personnel. Keep adjacent containers cool by spraying with water. Collect and treat fire-fighting water, avoiding environment pollution.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Stop leak if safe to do so.

Only trained and properly protected personnel must be involved in clean-up operations.

Evacuate personnel to safe areas. Stay upwind and keep out of low areas.

Avoid contacting and leaping over the spillage.

Inform the relevant authorities if the spillage has caused environmental contamination.

For personal protective equipment, refer to SDS Section 8.

Environmental precautions:

Use appropriate containment to avoid environmental contamination.

Ventilate contaminated area thoroughly.

Methods and materials for containment and cleaning up:

For small amount: Absorb with inactive materials such as sand, soil, sawdust and general-purpose binder. Collect in suitable and properly labeled containers for recovery or safe disposal. Do not use water for cleanup.

For large amount: Spray ammonia water solution or other dilute alkaline solutions for neutralization. Construct dikes or dig pits to contain the large amounts of wastewater generated. After neutralization, contain spillage by dams. Pump spillage into tank trucks or special collectors for recovery or safe disposal. If possible, use exhaust fans to direct residual gas or leaking gas to a specialized scrubbing tower or a connected fume hood.

For disposal considerations, refer to SDS Section 13.

Precautionary measures to prevent the occurrence of secondary disasters:

Shut off ignition sources.

Prevent from spreading or entering into drains, sewers or waterways by using sand, soil or other appropriate barriers.

Section 7. Handling and storage

Precautions for safe handling:

Avoid breathing vapor. Avoid contact with skin and eyes. Do not ingest and inhale.

Use with adequate ventilation.

Wash skin thoroughly after handling.

Only experienced and properly instructed persons should handle gases under pressure.

Consider pressure relief device(s) in gas installations.

Ensure the complete gas system was (or is regularily) checked for leaks before use.

Do not smoke while handling product.

Avoid exposure, obtain special instructions before use.

Avoid contact with aluminium.

For personal protective equipment, refer to SDS Section 8.

For incompatible materials, refer to SDS Section 10.

For transport information, refer to SDS Section 14.

Conditions for safe storage, including any incompatibilities:

Containers should not be stored in conditions likely to encourage corrosion. Container valve guards or caps should be in place. Containers should be stored in the vertical position and properly secured to prevent them from falling over. Stored containers should be periodically checked for general condition and leakage.Keep in well-ventilated place. Keep away from direct sunlight.

Install preventive facilities protecting from fire, explosion, high temperature and lightning strike.

Protect from temperature above: 50 °C.

Keep away from incompatible materials.

Keep containers tightly closed after handling.

Keep away from sources of ignition and heat.

Section 8. Exposure controls/personal protection

Occupational Exposure Limits:

Maximum allowable concentration (MAC): 7.5mg/m^3 (China)

Biological occupational exposure limits:

No data available

Engineering controls:

Use local exhaust ventilation (LEV) system to maintain airborne level below exposure limit requirements. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation for some operations.

Install alarm devices and ventilation facilities for emergency.

Provide emergency exits and necessary risk-eliminating area.

Provide emergency eyewash and safety shower station.

Educate and train relevant personnel for first-aid measures.

Individual protection measures:

Respiratory protection:	If potential for exceed the exposure limit or any adverse effects exist, respirators must be worn. Select filters for organic vapor. Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems. Self-contained breathing apparatus (SCBA) must be worn for first-aid responders.
Eye/face protection:	Safety glasses with face shields Goggles with indirect ventilation (eyecup or cover type) if potential for splash, droplets and sprays exist.

Skin protection:	Chemical protective clothing (CPC)
	CPC should be easy to remove.
Hand protection:	Nitrile rubber (NBR) gloves
	Neoprene (CR) gloves
	Other chemical protective gloves
Others:	Wear safety shoes while handling containers.

Section 9. Physical and chemical properties

Physical state	Colorless gas	25 °C
Odor	Pungent	
pH	If dissolved in water, pH-value will be affected.	
Melting point/freezing point	-114.2 °C	
Boiling point	-84.9 °C	
Flash point	Not applicable	
Explosion limit	No data available	
Vapor pressure	4620 kPa	25 °C
Vapor density	No data available	
Relative density (air=1)	1.27	20 °C, 1atm
Solubility	Soluble in water	
Partition coefficient (log Pow) *n*-octanol/water	Not applicable	
Auto-ignition temperature	No data available	
Decomposition temperature	No data available	
Pour point	Not applicable	
Dynamic viscosity	Not applicable	

Section 10. Stability and reactivity

Chemical stability: Stable if stored and handled under normal conditions.

Possibility of hazardous reactions: No data available

Conditions to avoid: Refer to SDS Section 7.

Incompatible materials: Reacts with most metals in the presence of moisture, liberating hydrogen, an extremely flammable gas.

With water causes rapid corrosion of some metals.

Reacts with water to form corrosive acids.

May react violently with alkalis.

Moisture.

Strong alkalines, Strong oxidizers, Reactive chemicals.

Hazardous decomposition products: No data available

Section 11. Toxicological information

Acute toxicity:

Acute oral toxicity: No data available

Acute dermal toxicity: No data available

Acute inhalation toxicity: LD_{50} (Rat) >500 - <2,500 ppmV

Skin corrosion/irritation: Causes severe skin burns and eye damage

Serious eye damage/irritation: Causes serious eye damage

Respiratory or skin sensitization: No data available

Germ cell mutagenicity: No data available

Carcinogenicity: No data available

Reproductive toxicity: No data available

STOT-single exposure: No data available

STOT-repeated exposure: No data available

Aspiration hazard: No data available

This product has not been toxicologically tested. The toxicological information above is derived from substances or mixtures of a similar structure or composition.

Section 12. Ecological information

Acute aquatic toxicity:

Fish	LC_{50} (96h)	No data available
Crustaceans	EC_{50} (48h)	No data available
Aquatic plants	ErC_{50} (72h)	No data available

Chronic aquatic toxicity:

Fish	LC_{50} (96h)	No data available
Crustaceans	EC_{50} (48h)	No data available
Aquatic plants	ErC_{50} (72h)	No data available

Persistence and degradability:

Primary biodegradation:	Not applicable
The percentage biodegradation (28d):	Not applicable

Bioaccumulative potential:

Partition coefficient (*n*-octanol/water) log P_{ow}: Not applicable

Mobility in soil: No data available

Other adverse effects: No data available

This product has not been ecologically tested. The ecological information above is derived from substances or mixtures of a similar structure or composition.

Section 13. Disposal considerations

Disposal should be in accordance with applicable national and local laws and regulations.

Product: Recover if possible. Disposal of non-recyclable products via incinerators or other thermal destruction devices of licensed waste disposal contractors. Do not dump into any drains, sewers or waterways.

Packaging: Drain containers thoroughly, and then clean up before reuse or desert. Treat cleaning water from environment pollution.

Section 14. Transport information

UN Number: 1050

UN Proper Shipping Name: HYDROGEN CHLORIDE, ANHYDROUS

Transport by sea(IMDG): HYDROGEN CHLORIDE, ANHYDROUS

Transport hazard class(es): 2.3, 8

Packing group: Not applicable

Environmental hazards (marine pollutant): No data available

Special precautions for user: Nitrogen may be used for tank blanketing. Care should be taken when handling new packages to prevent from asphyxia or death.

Transport by road/rail (ADR/RID)

Class : 2

Classification code : 2TC

Hazard identification number : 268

Tunnel Restriction : C/D - Tank carriage : Passage forbidden through tunnels of category C, D and E. Other carriage : Passage forbidden through tunnels of category D and E

Environmental hazards: NONE

Transport by air (ICAO-TI / IATA-DGR)

Class / Div. (Sub. risk(s)) : 2.3 (8)

Passenger and Cargo Aircraft : Forbidden.

Cargo Aircraft only : Forbidden.

Environmental hazards: NONE

Transport by sea (IMDG)

Class / Div. (Sub. risk(s)) : 2.3 (8)

Emergency Schedule (EmS) - Fire : F-C

Emergency Schedule (EmS) - Spillage : S-U

Environmental hazards: NONE

Section 15. Regulatory information

The following statutes, regulations and standards have the related prescribes on chemicals.

Provisions on the Environmental Administration of New Chemical Substances (MEE Order No. 12)

All intentional components are listed on the *Inventory Existing Chemical Substance in China* (IECSC).

Section 16. Other information

The SDS is according to GB/T 16483 and GB/T 17519.

Revision date: 11.19.2024.

Version: 1.0.

Date format: MM.DD.YYYY.

The information provided in this Safe Data Sheet is based on our present knowledge and experience, and is believed to be accurate and reliable at the date of publication. It is herein given as guidelines for safe transport, store and handling, not as a quality specification. However, applicable laws may differ from one location to another and may change with time. Any buyers/users intending to use this information is responsible for determining whether the information is suitable for their application and meets all safety, health and regulatory standards appropriate to and applicable for their intended use. **Shandong HuaYuTongFang Electronic Materials Co., Ltd MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** The buyers/users voluntarily assume all risk associated with use of this information. If you have obtained an SDS from the others or if you are not sure that the SDS you have is current, please contact us for the most current version.