



Lee & Man Chemical

Safety data sheet for chemical product

Hydrochloric acid

HCl

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

Product name:

Hydrochloric acid

Company name:

Jiangsu Lee & Man Chemical Company Limited / Jiangxi Lee & Man Chemical Company Limited

Address:

No. 6-2, Xinggang Road, Changshu Economic and Technological Development Zone, Jiangsu Province
Dock Industrial City, Jiujiang City, Jiangxi Province

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Recommended use:

Important inorganic chemical raw materials, widely used in dyes, medicine, food, printing and dyeing, leather, metallurgy and other industries.

Restricted use:

No relevant information was found.

SECTION 2: Hazards identification

Emergency Overview:

Causes severe skin burns and eye damage.

GHS Hazard Category:

Skin corrosion/irritation, Category 1A;

Serious eye damage/eye irritation, Category 1;

Specific Target Organ Toxicity – Single Exposure, Category 3 (respiratory tract irritation);

Hazardous to the Aquatic Environment – Acute Hazard, Category 2.

Acute inhalation toxicity (category 3)

Label elements:

Pictograms:



Warning word: Danger

Hazard Statements:

Causes severe skin burns and eye damage, causes severe eye damage, may cause respiratory irritation, toxic to aquatic life.

Precautionary Statements:

- Precaution
 - Thoroughly wash the body contact area after operation. Contaminated work clothes should also be washed thoroughly.
 - Wear protective gloves, protective clothing, protective glasses, and protective face shields.
 - Avoid breathing fumes. Avoid contact with eyes, skin or clothing.
 - Prohibited discharge into the environment.
- Incident response
 - IF INHALED: Remove victim to fresh air, rest in a position comfortable for breathing, and seek medical attention immediately.
 - Skin (or hair) contact: Immediately remove all contaminated clothing, rinse skin with water, and shower. Contaminated clothing must be washed before reuse.
 - Eye contact: Rinse carefully with water for several minutes. Remove contact lenses and continue rinsing if they are worn and easily removed.
 - Ingestion: Rinse mouth, do not induce vomiting.
- Safe storage
 - locked and kept
- Disposal
 - Dispose of this product, its contents and containers in accordance with national and local regulations

Physical and chemical hazards:

Non-flammable, no special explosive characteristics. The aqueous solution is a strong acid that reacts violently with bases and is corrosive. Attacks many metals in the presence of water.

Health Hazards:

Routes of entry: eyes, skin contact, inhalation, ingestion.

Contact with its vapor or mist can cause acute poisoning, conjunctivitis, burning sensation in nasal and oral mucosa, epistaxis, bleeding gums, bronchitis, etc. Accidental consumption can cause gastrointestinal burns, ulcer formation, possibly gastric perforation, peritonitis, etc.

Eye and skin contact can cause burns. Chronic effects: Long-term exposure can cause chronic rhinitis, chronic bronchitis, tooth erosion and skin damage.

Environmental hazards:

Harmful to aquatic life.

SECTION 3: Composition/information on ingredients

Substance: ✓

Mixture: ✕

Main ingredient: Hydrochloric acid

Molecular weight: 36.46

CAS-No. : 7647-01-0

Formula: HCl

Structural formula: H-Cl

SECTION 4: First aid measures

Inhalation:

Quickly leave the scene to fresh air, keep the airway open. If breathing is difficult, give oxygen. If breathing or heartbeat stops, perform CPR immediately. Seek medical attention.

Skin Contact:

Immediately remove contaminated clothing and rinse thoroughly with plenty of running water for at least 15 minutes. Seek medical attention.

Eye Contact:

Immediately lift the eyelids and rinse thoroughly with plenty of running water or saline for at least 5 to 10 minutes. Seek medical attention.

Ingestion:

Rinse mouth with water, do not induce vomiting. Give milk or egg whites. Seek medical attention.

SECTION 5: Firefighting measures

Fire-fighting precautions and protective measures:

Firefighters must wear full-body acid-alkali-resistant fire-fighting clothing and air breathing apparatus to extinguish the fire. Move the container from the fire area to an open area as much as possible. Keep fire containers cool by spraying water until the fire is over.

Fire extinguishing agent:

This product is not flammable. Choose the appropriate extinguishing agent according to the cause of the fire.

Hazardous properties:

It can react with some active metal powders to release hydrogen. Contact with cyanide can produce highly toxic hydrogen cyanide gas. Neutralization reaction occurs with alkali, and a lot of heat is released. Has strong corrosiveness.

SECTION 6: Accidental release measures

Protective measures, protective equipment and emergency procedures for operators:

Delineate a warning area according to the impact area of liquid flow and vapor diffusion, and evacuate unrelated personnel to a safe area from the crosswind and upwind directions. It is recommended that emergency responders wear positive pressure self-contained breathing apparatus, acid and alkali resistant clothing, and rubber acid and alkali resistant gloves. All equipment used during work should be grounded. Do not touch ruptured containers and spills without wearing appropriate protective clothing. Spray water to suppress vapor or redirect vapor cloud flow to avoid water contact with spillage. Do not allow water to enter the packaging container. Cut off sources of leaks as much as possible.

Environmental protection measures:

Prevent leakage from entering restricted spaces such as water bodies, sewers, and flood drains.

Containment and removal of spilled chemicals:

Small spills: Cover spills with dry sand or other non-combustible materials, or rinse them with plenty of water, dilute them with washing water and put them into the waste water system. Large spills: Construct dikes or dig pits for containment. Neutralize with powdered limestone (CaCO_3), slaked lime, soda ash (Na_2CO_3) or sodium bicarbonate (NaHCO_3). Cover with solvent-resistant foam to reduce evaporation. Transfer to a tanker or special collector with a corrosion-resistant pump.

Precautions to Prevent Secondary Hazards:

Collected material should be recycled or transported to a waste disposal site for disposal.

Dispose of leaking containers in accordance with relevant regulations.

SECTION 7: Handling and storage

Handling:

Closed operation, pay attention to ventilation. The operation is as mechanized and automated as possible. Operators must undergo special training and strictly abide by operating procedures. It is recommended that operators wear self-priming filter respirators (full face masks), rubber acid and alkali resistant clothing, and rubber acid and alkali resistant gloves. Keep away from flammable and combustible materials. Prevent vapors from leaking into the workplace air. Avoid contact with bases, amines, and alkali metals. When handling, it should be lightly loaded and unloaded to prevent damage to packaging and containers. Equipped with leakage emergency treatment equipment. Empty containers may be harmful residues.

Storage:

Store in a cool, ventilated warehouse. The storage temperature should not exceed 30°C, and the relative humidity should not exceed 80%. Keep container tightly closed. It should be stored separately from alkalis, amines, alkali metals, and combustibles, and should not be mixed. Storage areas should be equipped with emergency release equipment and suitable containment materials.

SECTION 8: Exposure controls/personal protection

Occupational Hygiene Exposure Limits:

China PC-TWA	7.5mg/m ³
U.S (ACGIH)	TLV-TWA:2ppm
Former Soviet Union (MAC)	No standard

Biological Exposure Limits:

No standard established.

Monitoring method:

Determination method of toxic substances in the air: mercury thiocyanate spectrophotometer method; ion chromatography.

Engineering control:

Closed operation, pay attention to ventilation. Safety showers and eye wash facilities are provided.

Respiratory Protection:

Wear filter respirators (full face mask) or air respirator when exposed to its fumes. It is recommended to wear air respirators during emergency rescue or evacuation.

Hand Protection:

Wear rubber acid and alkali resistant gloves.

Eye Protection:

Respiratory protection has been included.

Skin and body protection:

Wear rubber acid and alkali resistant clothing.

Other protection:

No smoking at the work site, eating and drinking, after work, shower and change. Store poison-contaminated clothes separately and wash them for later use. Practice good hygiene.

SECTION 9: Physical and chemical properties

Appearance and properties: colorless or slightly yellow fuming liquid

Odor: pungent sour odor

pH value: 0.1 (1mol/L)

Melting point (°C): -114.8 (pure)

Boiling point (° C): 108.6 (20%)

Flash point (° C): meaningless

Upper explosion limit [% (V/V)]: meaningless

Lower explosion limit [% (V/V)]: meaningless

Saturated vapor pressure (kPa): 30.66 (21°C)

Relative vapor density (air=1): 1.26

Relative density (water=1): 1.1 (20%)

Log value of octanol/water partition coefficient: meaningless

Critical temperature (° C): meaningless

Critical pressure (MPa): meaningless

Solubility: miscible with water, soluble in methanol, ethanol, ether, benzene, insoluble in hydrocarbons

SECTION 10: Stability and reactivity

Stability:

Stable

Conditions to Avoid:

Heat

Hazardous reactions:

Reacts with incompatible substances such as strong bases. Reacts with active metal powder to release flammable gas

Materials to avoid:

Alkalis, amines, alkali metals, flammable or combustible substances Hazardous (decomposition)

products:

Hydrogen chloride

SECTION 11: Toxicological information

Acute toxicity:

Rabbit oral LD50 (mg/kg): 900 LC50: Rat inhalation LC50 (mg/m³): 3124ppm/1h; mouse inhalation 1108mg/ppm/1h.

Skin irritation or corrosion:

Human skin: 4%, mild irritation.

Eye irritation or corrosion:

Rabbit via eye: 5mg (30s), mild irritation (wash with water).

Respiratory or skin sensitization:

No information available.

Germ cell mutagenicity:

Sex chromosome deletion and nondisjunction: Drosophila melanogaster inhalation 100 ppm/24h.

Cytogenetic analysis: hamster ovary 8 mmol/L.

Carcinogenicity:

IARC Carcinogenicity Review: Group 3, the available evidence cannot classify human carcinogenicity, and there is insufficient evidence for human and animal carcinogenicity.

Reproductive toxicity:

No relevant information was found.

Specific Target Organ Toxicity - Single Exposure:

No relevant data were found.

Specific target organ toxicity - repeated exposure:

No relevant information was found.

Aspiration Hazard:

No information available.

SECTION 12: Ecological information

Ecotoxicity:

TLm: 0.282mg/L/96h (mosquito fish).

Persistence and Degradability:

No relevant information was found.

Bioaccumulative potential:

No relevant data found.

Mobility in soil:

No relevant information found.

SECTION 13: Disposal considerations

Waste chemicals:

Neutralized with lye (lime water) to generate sodium chloride and calcium chloride, diluted with water and discharged into the wastewater system.

Contaminated Packaging:

Return container to manufacturer or dispose of in accordance with national and local regulations.

Disposal Precautions:

Please refer to relevant national and local regulations before disposal.

SECTION 14: Transport information

UN number: 1789

UN shipping name: Hydrochloric acid

United Nations hazard class: Class 8

Packing group: Packing group II

Packaging logo:



Marine Pollutants: No

Packing method:

ordinary wooden case or semi-lattice wooden case outside acid-resistant jar or ceramic bottle;
common wooden case or semi-lattice wooden case outside glass bottle or plastic barrel (can);
common wooden case outside frosted-mouth glass bottle or screw-mouth glass bottle boxes; screw-

top glass bottles, iron-capped glass bottles, plastic bottles or ordinary wooden boxes outside of metal barrels (cans).

Transportation precautions:

The railway transportation of this product is limited to use a rubber-lined steel tanker or a tanker provided by a special plastic enterprise for shipment. It must be reported to the relevant department for approval before shipment. The packaging should be complete and the loading should be secure at the time of shipment. During transportation, make sure that the container does not leak, collapse, fall or be damaged. It is strictly forbidden to mix and transport with alkalis, amines, alkali metals, inflammables or combustibles, edible chemicals, etc. The transport vehicle shall be equipped with leakage emergency treatment equipment during transportation. During transportation, it should be protected from exposure to sunlight, rain, and high temperature. When transporting by road, it is necessary to drive according to the prescribed route, and do not stop in residential areas and densely populated areas.

SECTION 15: Regulatory information

The following laws, regulations and standards provide corresponding provisions on the safe use, storage, transportation, handling, classification and marking of chemicals:

Production Safety Law of the People's Republic of China;

Law of the People's Republic of China on the Prevention and Control of Occupational Diseases

Classification and Catalogue of Occupational Diseases: Not listed;

The Environmental Protection Law of the People's Republic of China;

Regulations on the Safety Management of Hazardous Chemicals Catalogue of hazardous chemicals:

Listed. Inventory of explosive hazardous chemicals: not listed. List of hazardous chemicals

under key supervision: not listed. GB18218-2018 "Identification of Major Hazardous Sources of Hazardous Chemicals" (Table 1): not listed;

Labor Protection Regulations for Workplaces Using Toxic Substances List of Highly Toxic Substances: Not listed;

Regulations on the Administration of Precursor Chemicals Classification and Variety List of Precursor Chemicals: Listed;

Chemical Classification and Hazard Publicity General Rules (GB13690--2009);

The classification and product name number of dangerous goods (GB6944-2012) is classified as Class 8 corrosive substances.

SECTION 16: Other information

References:

- (1) The latest practical manual for chemical dangerous goods;
- (2) Complete book on safety technology of hazardous chemicals;

Disclaimer:

The information in this SDS applies only to the specified product, unless otherwise specified, all substances in this product have unknown hazards and should be used with care. While certain hazards are described in this SDS, we do not guarantee that these are the only hazards. This SDS provides information on the safety of product use only for those users of this product who have received appropriate professional training. The relevant data is only used as a guide for safe handling, use, processing, storage, disposal and leakage, etc., and cannot be used as an indicator of guarantee and quality.