



Lee & Man Chemical

Safety data sheet for chemical product

Chlorine

Cl_2

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Chlorine

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

Product name:

Chlorine

Company name:

Jiangxi Lee & Man Chemical Company Limited

Address:

Dock Industrial City, Jiujiang City, Jiangxi Province

Post code:

332207

Business phone:

0792-8996998

Enterprise emergency number:

0532-83889090

Fax number:

0792-8996988

Email address:

haifeng_sun@leemanchemical.com

Recommended use:

For bleaching. Manufacture of chlorine compounds, hydrochloric acid, polyvinyl chloride, etc., metallurgical industry, inorganic chemical industry, organic chloride, daily chemical industry, pesticide industry, and also used for disinfection and purification of tap water.

Restricted use: No relevant information was found.

SECTION 2: Hazards identification

Emergency Overview: Fatal if inhaled.

GHS Hazard Category:

Acute toxicity - inhalation, category 2;

Skin corrosion/irritation, category 2;

Serious eye damage/eye irritation, Category 2;

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

Hazardous to the Aquatic Environment – Acute Hazard, Category 1;

Pressurized gas, compressed gas – category refrigerated liquefied gas.

Label elements:

Pictograms:



Signal word: Danger

Hazard statement: fatal if inhaled, causing skin irritation, serious eye irritation, possible respiratory irritation, very toxic to aquatic organisms, containing high-pressure gas; flammable and explosive when heated;

Precautionary Statements:

·Precaution

– Avoid breathing gas. Avoid contact with eyes, skin or clothing. Wash body contact areas thoroughly after handling. Contaminated work clothes should also be washed thoroughly.

—Wear respiratory protective equipment, protective gloves, protective glasses, and protective face shield.

– Operate only outdoors or in a well-ventilated place.

– Prohibited discharge into the environment.

· Incident response

– IF INHALED: Remove victim to fresh air and rest in a position comfortable for breathing. Get medical attention immediately.

– Skin Contact: Immediately remove all contaminated clothing and rinse skin with plenty of soap and water. If skin irritation occurs, seek medical attention. Contaminated clothing must be washed before reuse.

– Contact with eyes: Rinse carefully with water for several minutes, if contact lenses are worn and can be easily removed, remove contact lenses and continue rinsing. If eye irritation continues, seek medical attention. Collect spillage.

Safe storage

– Store in a well-ventilated place. Keep container tightly closed. Keep it locked.

·Disposal

– Dispose of this product, its contents and containers in accordance with relevant national and local regulations (regulations).

Physical and Chemical Hazards: Supports combustion. May explode if mixed with combustibles.

Health Hazards:

Routes of entry: Inhalation, skin contact.

Chlorine is a strong irritant gas. Acute poisoning: mild cases of lacrimation, coughing, expectoration of a small amount of sputum, chest tightness, and trachea and bronchitis or peribronchitis; moderate poisoning, bronchopneumonia or interstitial pulmonary edema, localized alveolar pulmonary edema, or Asthma-like attack, in addition to the aggravation of the above symptoms, the patient has dyspnea, mild cyanosis, etc.; severe alveolar edema, acute respiratory distress syndrome, severe asphyxia, coma and shock, pneumothorax, mediastinal emphysema, etc. complication. Inhalation of very high concentrations of chlorine gas can cause vagal reflex cardiac arrest or laryngospasm and "electric shock-like" death. Eye contact can cause acute conjunctivitis, and high concentrations cause corneal damage. Skin contact with liquid chlorine or high concentrations of chlorine may cause burns or acute dermatitis on the exposed site. Chronic effects: Long-term low-concentration exposure can cause chronic gingivitis, chronic pharyngitis, emphysema, chronic bronchitis, bronchial asthma, etc.; can cause tooth erosion.

Environmental Hazards: Very toxic to aquatic life.

SECTION 3: Composition/information on ingredients

Substance: ✓

Mixture: ✕

Main ingredient: Chlorine

relative molecular mass: 70.90

CAS-No. : 7782-50-5

Formula : Cl₂

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 heart stops, perform cardiopulmonary resuscitation immediately and seek medical attention.

Skin Contact: Immediately remove contaminated clothing and rinse skin thoroughly with running water. seek medical attention.

Eye Contact: Lift the eyelids and flush with running water or normal saline. seek medical attention.

Ingestion: No relevant information was found.

SECTION 5: Fire-fighting measures

Fire-fighting precautions and protective measures: Firefighters must wear air respirators, full-body fire-proof and gas-proof clothing, and put out the fire in the upper wind. Cut off

the air supply. Move containers from fire to open space if possible. Keep fire containers cool by spraying water until the fire is over.

Extinguishing agent: This product is non-combustible, but can support combustion. Choose the appropriate extinguishing agent according to the cause of the fire.

Hazardous characteristics: Most of the general combustibles can burn in chlorine gas, and general flammable gases or vapors can also form explosive mixtures with chlorine gas. Chlorine can react violently with many chemicals such as acetylene, turpentine, ether, ammonia, fuel gas, hydrocarbons, hydrogen, metal powder, etc. to explode or generate explosive substances. It is almost corrosive to metals and non-metals.

SECTION 6: Accidental release measures

Protective measures, protective equipment and emergency procedures for operators: Delineate a warning area according to the influence area of liquid flow and vapor diffusion. Unrelated

Protective measures, protective equipment and emergency procedures for operators: Delineate a warning area according to the area affected by gas diffusion, evacuate unrelated personnel to the safe area from the crosswind and upwind directions, and strictly restrict access. It is recommended that emergency personnel wear fully enclosed chemical protective suits with built-in positive pressure self-contained breathing apparatus and rubber gloves. If it is a liquefied gas leak, you should also pay attention to preventing frostbite. Emergency personnel should wear personal protective equipment before carrying out emergency treatment. Do not allow spillage to come into contact with combustible substances (such as wood, paper, oil, etc.). Spray water to suppress vapour or redirect vapour cloud flow to avoid water contact with spillage. It is forbidden to directly impact the leakage or leakage source with water. If possible, invert the container so that it escapes gas rather than liquid.

Environmental protection measures: prevent the diffusion of gas through sewers, ventilation systems and confined spaces.

Containment and removal of spilled chemicals: Build dikes to block liquid spills. Spray dilute lye to neutralize and dilute. A leaking tank or cylinder can also be immersed in a lime milk pond. Isolate the leak area until the gas has dissipated. Keep the spill area well ventilated.

Precautions to prevent secondary hazards: Proper disposal of leaking containers.

SECTION 7: Handling and storage

Handling: Strictly closed, provide adequate local exhaust and general ventilation. Operators must undergo special training and strictly abide by operating procedures. It is recommended that the operator wear an air respirator, a mask-style gas suit, and rubber gloves. Keep away from fire and heat sources. Smoking is strictly prohibited in the workplace. Keep away from flammable and combustible materials. Prevent gas leakage into workplace air. Avoid contact with alcohol. When handling, lightly load and unload to prevent damage to cylinders and accessories. Equipped with the corresponding variety and quantity of fire fighting equipment and leakage emergency treatment equipment.

Storage: Store in a cool, ventilated warehouse dedicated to toxic gases. Implement the "two-person sending and receiving, two-person custody" system. Keep away from fire and heat sources. The storage temperature should not exceed 30°C. It should be stored separately from flammable (combustible) substances, alcohols, and edible chemicals, and should not be stored together. Storage areas should be equipped with emergency release equipment and suitable containment materials.

SECTION 8: Exposure controls/personal protection

Occupational exposure limits:

China (MAC) 1mg/m³

US TLV-TWA ACGIH 0.5ppm TLV-STEL ACGIH 1ppm

Biological Exposure Limits: No standard established.

Monitoring method: Determination of toxic substances in the air: methyl orange spectrophotometry. Biomonitoring test methods: No standard established.

Engineering Controls: Strictly closed, provide adequate local exhaust and general ventilation. Safety showers and eye wash facilities are provided.

Respiratory system protection: When the concentration in the air exceeds the standard, it is recommended to wear a filter gas mask (full face mask). Air respirator must be worn during emergency rescue or evacuation.

Hand Protection: Wear rubber gloves.

Eye Protection: Respiratory protection has been covered.

Skin and body protection: Wear isolating protective clothing.

Other protection: Smoking, eating and drinking are strictly prohibited at the work site. After work, take a shower and change clothes. Practice good hygiene. Access to tanks, confined spaces or other high-concentration areas must be supervised.

SECTION 9: Physical and chemical properties

Appearance and properties: yellow-green

odor: pungent odor

pH value: meaningless

Melting point (°C): -101

Boiling point (°C): -34.0

Flash point (°C): meaningless

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

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

Saturated vapor pressure (kPa): 673 (20°C)

Relative vapor density (air=1): 2.5

Relative density (water=1): 1.41 (20°C)

Auto-ignition temperature (°C): meaningless

Solubility: slightly soluble in cold water, soluble in alkalis, chlorides and alcohols

Partition coefficient of octanol/water: 0.85

Critical temperature (°C): 144

Critical pressure (MPa): 7.71

SECTION 10: Stability and reactivity

Stability: Stable

Combustion Products: Hydrogen Chloride

Hazardous reaction: violent reaction with incompatible substances such as flammable or combustible substances, alkanes, aromatic hydrocarbons, metals, non-metal oxides, etc., there is a danger of fire and explosion

Conditions to avoid: No information available

Incompatible substances: flammable or combustible substances, alkanes, alkynes, halogenated alkanes, aromatic hydrocarbons, amines, alcohols, ethers, hydrogen, metals, caustic alkali, non-metallic elements, non-metallic oxides, metal hydrides, etc.

SECTION 11: Toxicological information

Acute toxicity: LC50: rat inhalation 850mg/m³/1h; human inhalation LCLo (mg/m³):

2530mg/m³/30min; 500ppm/5min.

Skin irritation or corrosion: No information available.

Eye irritation or corrosion: No information available.

Respiratory or skin sensitization: No information available.

Germ cell mutagenicity: Cytogenetic analysis: Human lymphocytes 20ppm. Morphological analysis of sperm: mice were orally 20 mg/kg/5 days (continuous). Microbial mutagenesis: Salmonella typhimurium 1800 ug/L.

Carcinogenicity: No information available.

Reproductive toxicity: No information available.

Specific Target Organ Toxicity – Single Exposure: No information available.

Specific target organ toxicity---- Repeated exposure: Rabbits inhaled 2-5 mg/m³, 5 hours/day, 1-9 months, and developed weight loss, upper respiratory tract inflammation, pneumonia, pleurisy and emphysema. Rat inhalation of 41 ~ 97mg/m³, 1 ~ 2 hours / day, 3 ~ 4 weeks, caused severe but non-fatal emphysema and tracheopathy.

Aspiration Hazard: No information available.

SECTION 12: Ecological information

Ecotoxicity: LC50: 0.44mg/l/96h (Bluegill Sunfish); 0.49mg/l/96h (Daphnia).

Persistence and Degradability: No information available.

Bioaccumulative potential: No data available.

Mobility in soil: No data availab

SECTION 13: Disposal considerations

Waste chemicals: Pass the waste gas into the excess reducing solution (bisulfite, ferrous salt, sodium thiosulfite solution), and flush it into the sewer with water after neutralization.

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

United Nations Dangerous Goods Number (UN Number): 1017 UN

Shipping Name: Chlorine

UN hazard class: 2.3, 5.1/8

Packing group: Packing group II

Packaging Category:-

Packaging sign



Marine Pollutants: Yes

Packing method: steel gas cylinders, tank trucks, with obvious signs of "chlorine" and "toxic gas" on the outside.

Transportation precautions: The railway transportation time limit of this product is to use the tanker provided by the pressure-resistant liquefied gas enterprise for shipment, and it must be reported to the relevant department for approval before shipment. When transporting in cylinders, the safety helmet on the cylinder must be worn. The cylinders are generally placed flat, and the bottle mouths should be in the same direction, and should not cross; the height should not exceed the guardrail of the vehicle, and be fastened with triangular wooden pads to prevent rolling. It is strictly forbidden to mix and transport with flammable or combustible materials, alcohols, edible chemicals, etc. In summer, it should be transported in the morning and evening to prevent sunlight exposure. The transport vehicle shall be equipped with leakage emergency treatment equipment during transportation. When transporting by road, it is necessary to drive according to the prescribed route, and it is forbidden to stay in residential areas and densely populated areas. It is forbidden to slip away during railway transportation. When using 2 packages from April to September every year, it is limited to refrigerated transportation.

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: Chlorine Gas Poisoning;

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

Occupational exposure limits for hazardous agents in the workplace;

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

Included. Managed as a highly toxic chemical. Inventory of explosive hazardous chemicals: not

listed. List of Hazardous Chemicals under Key Supervision: Included. GB18218-2018

"Identification of Major Hazardous Sources of Hazardous Chemicals" (Table 1): Included.

Category: toxic gas, critical quantity (t): 5;

Labor Protection Regulations for Workplaces Using Toxic Substances Catalogue of Highly Toxic Substances: Included;
Regulations on the Administration of Precursor Chemicals Classification and Variety List of Precursor Chemicals: Not listed.

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.