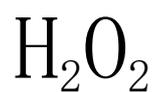




Lee & Man Chemical

Safety data sheet for chemical product

Hydrogen peroxide



Safety data sheet for chemical product

Hydrogen peroxide

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

Product name:

Hydrogen peroxide

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

Post code:

215536 / 332207

Business phone:

0512-52259888 / 0792-8996998

Enterprise emergency number:

0512-52259888 / 0532-83889090

Fax number:

0512-52259889 / 0792-8996988

Email address:

niyoubing@leemanchemical.com

haifeng_sun@leemanchemical.com

Recommended use:

It can be used as oxidizing agent, bleaching agent, disinfectant, dechlorination agent, and for rocket fuel, organic or inorganic peroxide, foam plastic and other porous substances, etc., for medicine, and also as analytical reagent.

Restricted use:

No relevant information was found.

SECTION 2: Hazards identification

Emergency Overview:

May cause fire or explosion: Strong oxidant, harmful if swallowed, if inhaled, causes severe skin burns and eye damage.

GHS Hazard Category:

Oxidizing liquids, category 1;

Acute Toxicity - Oral, Category 4;

Acute toxicity - inhalation, category 4;

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 3.

Label elements:**Pictograms:**

Warning word: Danger

Hazard Statements:

May cause fire or explosion, strong oxidant, harmful if swallowed, harmful if inhaled, causes severe skin burns and eye damage, may cause respiratory irritation, harmful to aquatic life.

Precautionary Statements:

- Precaution

- Keep away from heat sources. Keep away from clothing and other combustibles. Take all precautions to avoid mixing with combustibles. Wear fire-resistant, flame-retardant clothing.
- Avoid contact with eyes and skin. Wash body contact areas thoroughly after handling. Contaminated work clothes should also be washed thoroughly.
- No smoking, eating or drinking in the workplace.
- Wear protective gloves, protective clothing, protective glasses, and protective face shields.
- Avoid breathing vapor and mist.
- Operate only outdoors or in a well-ventilated place.
- Prohibited discharge into the environment.

- Incident response

- In the event of a fire and a large amount of material on fire: Evacuate the scene. Due to the danger of explosion, the fire should be extinguished from a distance. In the event of a fire, choose an appropriate extinguishing agent according to the cause of the fire.

- IF INHALED: Remove victim to fresh air and rest in a position comfortable for breathing. If you feel unwell, seek medical attention immediately.
- Skin (or hair) contact: Immediately remove all contaminated clothing, rinse skin with plenty of water, and shower. Contaminated clothing must be washed before reuse.
- Eye contact: Rinse carefully with water for several minutes, if contact lenses are present and easily removed, remove contact lenses and continue rinsing. Seek medical attention.
- Ingestion: Rinse mouth, do not induce vomiting. If you feel unwell, seek medical attention immediately.
- Safe storage
- Locked for safekeeping.
- Disposal
- Dispose of this product, its contents and containers in accordance with national and local regulations (regulations) and regions.

Physical and Chemical Hazards:

Supports combustion. May explode if mixed with combustibles. Danger of explosion when heating in confined spaces.

Health Hazards:

Routes of entry: inhalation, ingestion, skin contact

Inhalation of the vapor or mist of this product is strongly irritating to the respiratory tract. Inhalation of a large amount can cause pneumonia or pulmonary edema. Direct eye contact with liquids can cause irreversible damage and even blindness. Skin contact can cause burns. Oral poisoning may cause abdominal pain, chest pain, dyspnea, vomiting, temporary motor and sensory disturbances, and elevated body temperature. Visual impairment, epilepsy, and paralysis were reported in individual cases. Long-term exposure to this product can cause contact dermatitis.

Environmental hazards:

Harmful to aquatic life.

SECTION 3: Composition/information on ingredients

Substance: ✓

Mixture: ✕

Main ingredient: hydrogen peroxide

Molecular weight: 34.02

CAS-No. : 7722-84-1

Formula: H₂O₂

Concentration: 27.5%; 35%; 50%

SECTION 4: First aid measures

Inhalation:

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

Skin contact:

Immediately remove contaminated clothing and rinse 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 normal saline for 5 to 10 minutes. Seek medical attention.

Ingestion:

Rinse mouth with water, do not induce vomiting. Give milk or egg whites to a doctor.

SECTION 5: Firefighting measures

Precautions and protective measures for fire fighting methods:

Firefighters must wear gas masks and put out fires in the upwind direction from a safe distance. 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. If the container suddenly makes an abnormal noise or has abnormal phenomena, it should be evacuated immediately. It is forbidden to cover with sand.

Extinguishing agent:

Choose the appropriate extinguishing agent according to the cause of the fire.

Hazardous properties:

Explosive strong oxidant. Hydrogen peroxide itself is not flammable, but it can react with combustibles to release a lot of heat and oxygen and cause fire and explosion. Hydrogen peroxide is most stable when the pH is 3.5 to 4.5. It is easily decomposed in alkaline solution, and can also decompose when exposed to strong light, especially short-wave radiation. When heated to above 100° C, it begins to decompose rapidly. It forms explosive mixtures with many organic substances such as sugar, starch, alcohols, petroleum products, etc., which can explode under the action of impact, heat or electric spark. When hydrogen peroxide comes into contact with many inorganic compounds or impurities, it will rapidly decompose and cause an explosion, releasing a large amount of heat, oxygen and water vapor. Most heavy metals (such as iron, copper, silver, lead, mercury, zinc, cobalt, nickel, chromium, manganese, etc.) and their

oxides and salts are active catalysts, dust, cigarette ashes, carbon powder, rust, etc. can also accelerated decomposition. Hydrogen peroxide with a concentration of more than 74% can produce a gas phase explosion in a closed container with an appropriate ignition source or temperature.

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, anti-corrosion, anti-virus clothing, and neoprene gloves. Keep away from flammable and combustible materials (such as wood, paper, oil, etc.). Cut off sources of leaks as much as possible.

Environmental precautions:

Prevent spillage from entering water bodies, sewers, basements or confined spaces.

Methods of containment and removal of spilled chemicals and disposal materials used:

Small spills: Absorb with sand, vermiculite or other inert materials. It can also be washed with plenty of water, diluted with the washing water and put into the waste water system. Large spills: Construct dikes or dig pits for containment. Water spray cools and dilutes steam, protects site personnel, and dilutes spills to incombustibles. Transfer to a tanker or a special collector with a pump.

SECTION 7: Handling and storage

Handling:

Closed operation, full ventilation. Operators must undergo special training and strictly abide by operating procedures. It is recommended that operators wear self-priming filter respirators (full face masks), polyethylene respirators, and neoprene gloves. Keep away from fire and heat sources, and smoking is strictly prohibited in the workplace. Keep away from flammable and combustible materials. Prevent vapors from leaking into the workplace air. Avoid contact with reducing agents and active metal powders. When handling, it should be lightly loaded and unloaded to prevent damage to packaging and containers. Equipped with the corresponding variety and quantity of fire fighting equipment and leakage emergency treatment equipment. Empty containers may be harmful residues.

Storage:

Store in a cool, dry and well-ventilated special warehouse. Keep away from fire and heat sources. The temperature of the warehouse should not exceed 30°C, and the relative humidity of the warehouse should not exceed 80%. Keep container tightly closed. It should be stored separately from combustibles, reducing agents, active metal powders, etc., 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	1.5 mg/m ³
U.S (ACGIH)	TLV-TWA: 1 ppm

Biological Exposure Limits:

No standard established.

Monitoring method:

Determination method of toxic substances in air: titanium tetroxide spectrophotometry.

Biomonitoring test methods:

No standard established.

Engineering Control:

The production process is airtight and fully ventilated. Safety showers and eye wash facilities are provided.

Respiratory Protection:

Filter respirators (full face masks) should be worn when exposure to its vapors is possible.

Hand Protection:

Wear rubber gloves.

Eye Protection:

Respiratory protection has been covered.

Skin and body protection:

Wear isolating protective clothing.

Other protection:

Smoking is prohibited at the work site. After work, take a shower and change clothes. Change and wash work clothes in time. Practice good hygiene.

SECTION 9: Physical and chemical properties

Appearance and properties: colorless transparent liquid

Odor: a weak special odor

pH value: No information available

Melting point (°C): -0.4

Boiling point (° C): 150.2

Flash point (° C): meaningless

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

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

Saturated vapor pressure (kPa): 0.67 (30° C)

Relative vapor density (air=1): 1

Octanol/water partition coefficient: -1.36

Auto-ignition temperature (°C): meaningless

Critical temperature (° C): No information

Critical pressure (mPa): 20.99

Relative density (water=1): 1.10 (27.5%); 1.11 (30%); 1.20 (50%); 1.46 (anhydrous)

Solubility: soluble in water, ethanol, ether, insoluble in benzene, petroleum ether

SECTION 10: Stability and reactivity

Stability:

Unstable

Hazardous reaction:

Contact with incompatible materials such as strong reducing agents, flammable or combustible materials, there is a risk of fire and explosion

Conditions to avoid:

Strong light, heat, impact

Incompatible materials:

Flammable or combustible substances, strong reducing agents, copper, iron, iron salts, zinc, active metal powders

Combustion (decomposition) products:

Oxygen, water

SECTION 11: Toxicological information

Acute toxicity:

LD50: 90% concentration, 376mg/kg (oral in rats)

Skin irritation or corrosion:

No information available.

Eye irritation or corrosion:

Rabbit via eye: 90%, 1mg, severe irritation.

Respiratory or skin sensitization:

No information available.

Germ cell mutagenicity:

Microbial mutagenicity: Salmonella typhimurium 6 µg/dish. Sister chromatid exchange: hamster lung 353 µmol/L. DNA damage: human fibroblasts 28 µmol/L; human lymphocytes 100 µmol/L.

Unscheduled DNA synthesis: human fibroblasts 1 mmol/L.

Carcinogenicity:

IARC Carcinogenicity Review: Group 3, the available evidence cannot classify human carcinogenicity. Insufficient evidence of carcinogenicity in humans and animals.

Reproductive toxicity:

No information available.

Specific target organ toxicity - single exposure:

No relevant information was found.

Specific target organ toxicity - repeated exposure:

No relevant information was found.

Aspiration Hazard:

See Acute Poisoning and Respiratory or Skin Sensitization.

SECTION 12: Ecological information

Ecotoxicity:

LC50 37.4mg/L (96h) (catfish); 16.4 mg/L (96h) (silk minnow); 42 mg/L (48h) carp EC50 2.4 mg/L (96h) (daphnia)

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:

After being diluted with water, it decomposes to release oxygen. After fully decomposed, the waste liquid is 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

United Nations Dangerous Goods Number (UN No.): 2014 ($20\% \leq \text{content} < 40\%$); 2015 ($\text{content} \geq 40\%$)

UN shipping name: Hydrogen Peroxide Aqueous Solution ($20\% \leq \text{content} < 40\%$); Hydrogen Peroxide, Stabilized or Hydrogen Peroxide Aqueous Solution, Stabilized ($\text{Content} \geq 40\%$)

UN Hazard Class: 5.1, 8

Packaging category: Type I packaging ($\text{content} \geq 40\%$); Type II packaging ($20\% \leq \text{content} < 40\%$);

Packaging logo:



Marine Pollutants: No

Packing method:

Large packing: plastic barrels (cans), there should be a pressure reducing valve or a vent on the top of the container, at least 10% of the balance in the container, and the net weight of each barrel (can) should not exceed 50 kg. Reagent packaging: plastic bottles, and then put them into plastic bags individually, packed together in a calcium-plastic box, and stored in a cool, dry, well-ventilated special warehouse, away from fire and heat sources.

Transportation Precautions:

Sufficient stabilizer should be added to hydrogen peroxide. Hydrogen peroxide with a content of $\geq 40\%$ must be approved by the competent authority during transportation. The hydrogen peroxide limited use all-steel boxcar shall be transported according to the regulations. Reagent packaging ($\text{content} < 40\%$) can be handled by LTL. The designed barrels, cans, and boxes must pass the packaging test and be approved by the competent authority; hydrogen peroxide with a content of $\leq 3\%$ can be transported under ordinary cargo conditions. Ship separately when transporting, and make sure that the container does not leak, collapse, fall, or damage during transportation. It is strictly forbidden to mix and transport with acids, flammables, organics, reducing agents, spontaneous combustion items, wet flammable items, etc. During transportation, the speed of the

vehicle should not be too fast, and no forcible overtaking is allowed. When transporting by road, follow the prescribed route. Transport vehicles should be equipped with emergency leakage treatment equipment. Before and after loading and unloading of the transport vehicle, it should be thoroughly cleaned and washed, and it is strictly forbidden to mix impurities such as organic matter and inflammable matter.

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;

The Environmental Protection 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;

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

Listed. Inventory of explosive hazardous chemicals: Included. List of hazardous chemicals under key supervision: not listed. GB18218-2018 "Identification of Major Hazardous Sources of Hazardous Chemicals": Listed, the critical amount is 200t;

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: Not listed;

Dangerous goods classification and product name number (GB6944-2012) classifies this substance as Category 5.1 oxidant.

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.