

Safety Data Sheet

1. Goods and Manufacturers information

Item Name	Ferric Chloride Solution		
Other Name	Iron chloride , Iron(III) chloride		
Almost Use	Circuit board etching solution, sewage treatment coagulant.		
Manufacturer, importer or supplier's name, address	Hou Jan Industrial Co., Ltd.	Add	5 Ching Chien 3 rd Rd. Kuan-Yin Industrial Park Taoyuan Taiwan(R.O.C.)
Emergency Phone	TEL : +886-3-4837583	FAX : +886-3-4839026	

2. Hazard Identification Information

<p>Hazard Classification :-</p> <p>1.Acute oral toxicity level : Level 1</p> <p>2.Acute dermal toxicity level : Level 1</p> <p>3.Skin irritation / corrosion level : Level 1</p> <p>4.Serious injury / eye irritation level : 1</p>	
<p>Labeling :</p> <p>Signal Word: -</p> <p>Hazard :</p> <p>Harmful if swallowed Skin exposure to harmful</p> <p>Cause serious skin burns</p> <p>Cause serious eye damage</p> <p>Hazard Prevention Measures:</p> <p>1.If contact with eyes, wash immediately with plenty of water after contact medical.</p> <p>2.Once contaminated clothing, immediately take off.</p> <p>3.Wear suitable protective clothing, gloves, wear goggles, face shields protect.</p>	

3. Component Identification Information

Component	Range % W/W	CAS No.
FeCl ₃	35% ~ 43%	7705-08-0

4. First Aid Measures

Different routes of exposure of first aid

Skin Contact :

1. Immediately wash with plenty of water for 15 minutes.
2. Removal of contaminated clothing and shoes
3. As soon as possible for medical treatment.

Eye Contact :

1. Immediately wash with plenty of water for more than 15 minutes
2. As soon as possible for medical treatment.

Ingestion :

1. Do not induce vomiting.
2. If the patient is conscious, drink plenty of water, milk or magnesium emulsion.
3. If the intention is or spasm in patients, do not feed anything.
4. As soon as possible for medical treatment.

Symptoms and hazardous effects :

1. To stimulate the skin to the redness, pain.
2. Conjunctival hyperemia, blurred vision.
3. Gastrointestinal corrosion, sore throat, abdominal pain, diarrhea, nausea phenomenon.

Protection of emergency personnel :

1. Should wear protective gloves, safety glasses.
2. Swallowed do not induce vomiting and administer artificial respiration.

Note to Physician: If swallowed do not induce vomiting, milk and edible acid.

5. Fire Extinguishing Measures

For fire extinguishers: Use a fire extinguisher suitable for surrounding fire.

Fire Hazards : Not flammable, low temperature evaporation of acidic gases, high temperature decomposition of nitrogen oxides when the gas.

Special Protective Equipment For Fire Fighters :

Wear positive pressure self-contained breathing masks and protective clothing firefighters buildings can provide effective protection.

6. Accidental Release Measures

Personal Precautions:

Wear acid-fast, waterproof overalls and full protective equipment including rubber gloves, rubber work shoes.

Methods for cleaning up and Environmental Considerations :

1.A small leak or drip, the need to wipe or wipe, and the solution drip down on the waste water treatment pond.

2.A lot of leakage, the use of soil or non-combustible absorbent material put containment building, then soda ash or lime and in carefully; such as soda ash is required to use proper ventilation, drain itself of carbon dioxide waste in the container unit and lawful processing; waste solution down to the pool water treatment.

3.And not in the material to avoid entering sewers, drains, surface water and soil.

7. Handling and Storage

Storage:

1.In order to avoid corrosion caused by acid vapors environment when not in use, the container should be closed.

2.Store in a cool, dry and ventilated area away from direct sunlight cause deterioration.

3.Store in rubber lined steel drums or plastic containers, away from all other chemicals and possible sources of contamination.

4.Containers even empty, there may be residue and vapors, to comply with hazard warning and a way to operate the operating empty bucket full bucket.

8. Exposure Controls

<p>Engineering Control:</p> <p>Ferric chloride at 400 °C in the rise of its gas for the dimer; high temperature and then began to dissociate in the presence of an excess amount of chlorine at 750 °C, into a single. When there is no excess chlorine, then decomposed at above 200 °C ferrous chloride and chlorine.</p>
<p>Appropriate Engineering Controls:</p> <p>Ferric chloride when heated in air to produce trivalent ferric chloride and chlorine, in above 200 °C, ferric chloride hydrogen quickly reduced to metallic iron.</p>
<p>Personal Protection:</p> <p>Eye protection:</p> <p>1. Chemical goggles and a half and hood-type respirator with.</p> <p>2. Work must not wear contact lenses, or victims of accidents will increase the severity of the eye.</p> <p>Respiratory Protection: Will have a vapor or mist, use anti-acid as, droplet-type of full-face mask or half mask air-purifying filter tank-type respirator for pressure-type self-contained breathing apparatus or supplied-air respirator.</p> <p>Protective clothing and footwear: Long-sleeved shirts, long pants, rubber shoes, rubber gloves and rubber aprons or overalls acid water.</p> <p>Safe operation:</p> <p>1. Container closed when not in use.</p> <p>2. Wash thoroughly after handling.</p> <p>3. Do not get the eyes, skin or clothing.</p> <p>4. Barrels residues still left to deal with and full barrel to be the same as to comply with hazard</p> <p>Ventilation: Use local mechanical exhaust ventilation to minimize the amount released when.</p> <p>Health Measures:</p> <p>1. Operators must wear protective gloves, safety glasses.</p> <p>2. Clothes are contaminated with dilute oxalic acid solution when cleaning.</p>

9. Physical and Chemical Properties

Color: Dark brown liquid	Odor: Acid odor
Physical State: the proportion of the acidic solution	Freezing Point: -9 °C to -6 °C
thick liquid pH : < 2	Boiling point / boiling range: 315 °C
Shape: thick liquid	Vapor density (air = 1): 0.9
Vapor pressure: 50 mmHg	Density(W ater = 1) : 1.358 ~ 1.476 (25°C)
Autoignition Temperature: No data	Explosion limits: no data
Flash point: no data	Test method: not available

10. Stability and Reactivity

Stability: Stable

Special situations Hazardous Reactions: No data

Should avoid: avoid using copper, iron, aluminum and other metals when the container, it is appropriate pottery, plastic or glass.

Avoid substances: copper, iron, aluminum

Hazardous decomposition products: chlorine, hydrogen chloride gas

Incompatible substances: alkali metals

11. Toxicological information

Corrosion: irritation Serious

Eye damage: irritation, pain and redness of the eyes.

Respiratory or skin allergy: Skin contact can cause redness itching. Ingestion-May cause irritation.

Acute toxicity: No data

12. Ecological Information

Possible environmental impact / environmental flow fabric :

1. Exposure to the atmosphere, there will be acidic smell , air pollution
2. Runoff to water, it will form a reddish-brown precipitate, causing river pollution
3. Flow to the soil, resulting in red-brown soil pollution and groundwater pollution, water quality

13. Waste Disposal Method

Waste Disposal Methods :

1. Empty containers will be residues, gases and droplets, to be treated according to the above release.
2. Liquid waste disposal. To qualified institutional re-use recycling process.
3. Using the proper handling of the material handled by the leakage of contaminated materials and substances used when cleaning up to consult appropriate government authorities to seek appropriate treatment.

14. Transport Information

Item Name: Ferric Chloride Solution

Hazard Class: Class 8

UN Number: UN 2582

Taiwan Transport Regulations:

1. Section 84 of the Road Traffic Safety Rules.

2. Ship carrying dangerous goods rules.

Special transport methods and precautions:

Tank cars carrying dangerous goods tank body, should pass inspection by the competent authority, and bring with him the effective inspection (inspection) certificate of compliance.

15. Legal Information

Applicable Laws and Regulations:

1. Council of Labor Affairs, hazardous materials and hazardous materials of general rules.

2. Ministry of Communications National Police Agency, Traffic Law - road safety rules.

3. Environmental Protection Administration, industrial waste storage, disposal method and facility standards.

16. Other Information

References:

1. Industrial Technology Research Institute of Industrial Safety and Health Technology Development Center, Material Safety Data Sheet.

2. Council of Labor Affairs, Emergency Response Guide.

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