

MATERIAL SAFETY DOCUMENT STANDARD

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Section 1. Chemical Information

- 1) Brand Name : KOFERIS
- 2) Chemical Name : Poly Ferric Sulfate
Molecular Formula : $\text{Fe}_2(\text{SO}_4)_3$ solution
- 3) General chemical features : As a reddish brown liquidized inorganic salt, it is an outstanding cohesive agent for sewage and waste water treatment.
- 4) Application of the product
Cohesive agent for sewage and waster water treatment

Section 2. Composition / Information on Ingredients

- 1) Ingredient : Ferric Sulfate
- 2) CAS NO.: 10028-22-5
- 3) Content : Fe^{3+} = 11% min

Section 3. Hazards Identification

- 1) Emergency Overview :
Red brown solution.
Do not contact on eyes, skin, and garments.
Containers need to make airtight. Wash out after handling the product.
Need to be treated with proper ventilation.

2) Potential Health Effects

- Inhalation :

Short Term Exposure : May cause Irritating, Stomachache, Vomiting, Breathing difficulty, Pneumonic Congestion, or etc.

Long Term Exposure : Ditto. Also may cause red spots, walking difficulty.

- Skin Contact :

Short Term Exposure : May cause irritating.

Long Term Exposure : May cause irritating.

- Eye Contact :

Short Term Exposure : May cause irritating, burns, eyesight loss, or glaucoma.

Long Term Exposure : Ditto.

- Ingestion :

Short Term Exposure : May cause Burns, vomiting, diarrhea, Low blood pressure, Pneumonic hemorrhage,

convulsion, shock, or coma

Long Term Exposure : Ditto.

3) Carcinogen Status :

OSHA : None

NTP : None

IARC : None

Section 4. First Aid Measures

1) Inhalation :

Seek fresh air immediately. If necessary, perform CPR.

Keep the patient warm and comfortable. If needed, seek medical advice.

2) Skin Contact :

Remove contaminating clothing and shoes immediately. Wash out with soap or mild detergent and large amount of

water until no evidence of chemical remains (at least 15-20minutes). Seek medical advice immediately.

3) Eye Contact :

Wash eyes immediately with large amount of water or normal water or normal saline solution occasionally lifting upper and lower lids until no evidence of chemical remains.

Seek medical advice immediately.

4) Ingestion :

Make the patient vomit by medicine. Perform gastrolavage with water contained 20mg/L bicarbonate and Deferoxamine 2g/L. Make 5% Bicarbonate Chloride 50mL and Deferoxamine 10g remain in the stomach.

Keep normal vital signs. Seek medical advice immediately. Make sure the medical treatments perform by professional medical staff.

5) Antidote

Recommend the following antidote. However, the exact antidote and intake amount should be decided by professional medical staff.

- Iron Salt Poisoning :

Inject Deferoxamine 15mg/kg/hour into a vein per 12 hours (80mg/kg max).

In case of lowering blood pressure, observe the blood pressure and injection amount.

Do not exceed 1g per each injection and 6g per 24 hours.

The antidote should be injected by professional medical staff.

Section 5. Fire Fight Measures

1) Fire and Explosion Hazards : Neglectful fire hazards.

2) Suitable Fire Extinguishing Media :

Use powdery extinguishing agents, Carbon Dioxide, or water for surrounding fire.

3) Extinguishment :

First remove the containers from fire if possible.

Do not scatter leaking materials caused by high water pressure.

Store water for extinguishment and cleanup.

Do not inhale the vapor or dust.

Stand against the wind when extinguishing.

- Flash Point : N/A

- Explosive Upper Properties : N/A

- Explosive Lower Properties : N/A

- Natural Inflammable Point : N/A

4) Harmful Thermal Decomposition Products :

Fire may produce toxic thermal decomposition contained iron and Phosphorus.

Section 6. Accidental Release Measures

- 1) Release when operating :
 - Keep the products in clean and dry containers.
 - Do not throw away spilled materials into sewage.
 - Keep out except the relevant staff.
 - 2) Release onto soil
 - Make a pond or storage hole in the ground for keeping the released materials.
 - 3) Release into water
 - Neutralize with Agricultural lime, slack lime, powdery lime, or Sodium Bicarbonate.
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Section 7. Handling and Storage

Store and handle in accordance with all current related environmental regulations and standards of local communities and the government.

Keep out corrosive materials.

Section 8. Exposure Controls / Personal Protection

- 1) Exposure Limit :
 - OSHA TWA : 1mg/m³
 - ACGIH TWA : 1mg(Fe)/m³
 - NIOSH recommended TWA : 1mg/m³ – Ferrous Ammonium Sulfate
 - 2) Exposure Measurement Method :
 - Inductivity Coupled Plasma, Sodium Bicarbonate
 - 3) Ventilation :
 - Install confined ventilation system.
 - Ensure compliance with applicable exposure limits
 - 4) Eye Protection :
 - Wear safety glasses or goggles.
 - 5) Emergency for Eye Contact :
 - Provide an emergency eye wash fountain and quick drench shower equipment in the operation area.
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Section 9. Physical and Chemical Properties

- 1) Appearance : Reddish brown solution
- 2) Specific Gravity : 1.45 / 20C min

- 3) Fe³⁺ : 11% min
- 4) pH: 0.1 ~ 1.0 (20C)
- 5) Viscosity : 8.0 c.p.s. min

Section 10. Stability and Reactivity

- 1) Reactivity : stable at room temperature and pressure
- 2) Conditions to avoid : avoid contacting strong oxidizers, exceeding heat, or Sparks.
- 3) Materials to avoid :
 - Epoxy Ethyl Alcohol + Ether : May cause polymerization with generation of heat
 - Strong Oxidizer
 - Phosphorus
- 4) Hazardous Decomposition Products :

Fire may produce toxic thermal decomposition contained iron and Phosphorus.
- 5) Polymerization: Not reported about harmful polymerization under conditions of normal use.

Section 11. Toxicological Information

- 1) Toxicological Information :
 - LD50 : 601mg/kg in stomach of a mouse
 - Mutagenicity : RTECS
 - Hydrated Material : None
 - Carcinogen Status : N/A
 - Intoxication can give bad effects on liver and kidneys
 - Medical Conditions aggravated by exposure : Liver, Kidney or Respiratory Disorders
- 2) Effects on health :
 - Inhalation :

Acute Exposure : May cause irritation and coughs and sneeze by inhalation.

Chronic Exposure : N/A
 - Skin contact :

Acute Exposure : Irritating

Chronic Exposure : N/A
 - Eye Contact :

Acute Exposure : Blood-shot eyes and tears or pain on eyes

Chronic Exposure : N/A

- Ingestion :

Acute Exposure : May cause vomiting, nausea, diarrhea, Low blood pressure, dehydration,

Pneumonic hemorrhage, convulsion, shock, or coma

Chronic Exposure : N/A

Section 12. Ecological Information

1) Ecological Effect Index (0-4) : N/A

2) Ecotoxicity : N/A

3) Decomposition : N/A

4) Bioaccumulation Potential Index (BCF) : N/A

Section 13. Disposal Considerations

Dispose in accordance with all current related environmental regulations and standards of local communities and the government..

Section 14. Transportation Information

Use airtight containers or tank lorry truck .

Section 15. Regulatory Information

1) Korean Regulation :

Industrial safety and health law : acceptable

2) U.S. Regulation :

TSCA INVENTION STATUS : Y

CERCLA SECTION 103 (40CFR302.4) : Not listed

SARA SECTION 302 (40CFR355.30) : N

SARA SECTION 304 (40CFR355.40) : N

SARA HAZARD CATEGORIES. SARA SECTION 311/312 (40CFR370.21) :

ACUTE : N

CHRONIC : N

FIRE : N

REACTIVE : N

SUDDEN RELEASE : N

Section 16. Other Information

The above data are made based on the Material Safety and Health Data issued by Korean Industrial Safety Organization.

This data do not provide guarantee for legal responsibility for toxic chemicals and are just for research and confirmation of your esteemed company.
