MATERIAL SAFETY DATA SHEET

Chemical Product

Product Name: FERROUS AMMONIUM SULPHATE Hexahydrate
CAS#: 7783-85-9
Synonym: Ammonium ferrous sulphate, hexahydrate; Iron ammonium sulphate hydrate; Sulphuric acid, ammomium iron (2+) salt, hexahydrate.

Chemical Name: Ferrous Ammonium Sulphate Hexahydrate
Chemical Formula: FeSO4(NH4)2SO4.6H2O

Composition and Information on Ingredients

Name	S.K.U	% by Weight
FERROUS AMMONIUM SULPHATE Hexahydrate	GCS-5385	100

Hazards Identification

Potential Acute Health Effects:
Hazardous in case of ingestion. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation.

Potential Chronic Health Effects:
Hazardous in case of ingestion. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available.

First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

Skin Contact:

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention.
Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Not Available.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion:

Fire and Explosion Data

Flammability of the Product: Non-flammable.
Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not available.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:

Use a shovel to put the material into a convenient waste disposal container. Neutralize the residue with a dilute solution of sodium carbonate. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Handling and Storage

Precautions:

Do not ingest. Do not breathe gas/fumes/ vapour/spray. If ingested, seek medical advice immediately and show the container or the label.

Storage:

Keep container tightly closed. Keep container in a cool, well-ventilated area.

Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Safety glasses. Synthetic apron. Gloves (impervious). For most conditions, no respiratory protection should be needed. However, if material is heated or sprayed and if atmospheric levels exceed exposure guidelines, use an approved vapor (air purifying) respirator.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 1 (mg(Fe)/m) [Norway] TWA: 1 (mg(Fe)/m) [United Kingdom (UK)] TWA: 1 (mg(Fe)/m) from ACGIH (TLV) [United States] TWA: 1 (mg(Fe)/m) from NIOSH [United States] TWA: 1 (mg(Fe)/m) from OSHA (PEL) [United States]3 Consult local authorities for acceptable exposure limits.

Physical and Chemical Properties

Physical state and appearance	: Solid. (Crystals solid. Deliquescent crystals solid. Efflorescent Crystals solid.)
Odor	: Odorless.
Taste	: Not available.
Molecular Weight	: 392.14 g/mole
Color	: Green. Blue-green (Light.)

pH (1% soln/water)	: Not available.
Boiling Point	: Not available.
Melting Point	: Decomposition temperature: 100°C (212°F) - 110 C.
Critical Temperature	: Not available.
Specific Gravity	: 1.864 (Water = 1)
Vapor Pressure	: Not available.
Vapor Density	: Not available.
Volatility	: Not available.
Odor Threshold	: Not available.
Water/Oil Dist. Coeff.	: Not available.
Ionicity (in Water)	: Not available.
Dispersion Properties	: See solubility in water.
Solubility	: Soluble in cold water, hot water. Solubility in Water: 26.9 g/100 ml water @ 20 deg. C; 73 g/100 ml water @ 80 deg. C. Insoluble in Ethanol.

Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, incompatible materials.

Incompatibility with various substances: Reactive with oxidizing agents, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 3250 mg/kg [Rat].

Chronic Effects on Humans: May cause damage to the following organs: liver, spleen.

Other Toxic Effects on Humans:

Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Causes skin irritation. Eyes: Causes transient eye irritation and inflammation. Inhalation: Causes respiratory tract irritation. Symptoms may include coughing, wheezing, shortness of breath. May cause pulmonary edema. Ingestion: Causes irritation to the gastrointestinal tract. Symptoms may include stomach/abdominal pain, nausea, lack of appetite, vomiting/vomiting brown or bloody stomach contents, diarrhea, and black stool. Other symptoms may include pallor or cyanosis, central nervous system effects (CNS depression, lethargy, restlessness, confusion, lassitude, and drowsiness), hyperventilation due to metabolic acidosis, hyperglycemia or hypoglycemia, hypotension, and cardiovascular collapse.
May cause kidney damage. Pink urine is a strong indicator of iron poisoning. May also cause liver damage (hepatonecrosis, hepatoxicity, hepatic failure). Although rare, acute iron poisoning may also cause Early Coagulopathy. This is a blood coagulation disorder which is associated with severe hepatotoxicity. Acute or serious poisoning from iron or iron salts is rare in adults. Chronic Potential Health Effects: Chronic (Repeated or prolonged) ingestion of iron or iron salts results in increased accumulation of iron in the body, particularly the liver, spleen, and lymphatic system. It may cause Liver damage (Hemosiderosis in the liver), and rarely Hemochromatosis in the Kupffer cells of the liver. Chronic iron poisoning may also cause leukocytosis and anemia. Eyes: Prolonged eye contact may cause conjunctivitis, and a brownish discoloration of the eye lens.

Toxicological Data on Ingredients: Ferrous ammonium sulphate hexahydrate: ORAL (LD50): Acute:3250 mg/kg [Rat].

Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation:

The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental

control regulations.

Transformation Information

Land transport (ADR-RID)
General information: Not regulated.

Sea transport (IMDG) [English only]
General information: Not regulated.

Air transport (ICAO-IATA) [English only]
General information: Not regulated.

Other Regulatory Information

Federal and State Regulations:

Connecticut carcinogen reporting list.: Ferrous ammonium sulfate (CAS number 10045-89-3) Illinois chemical safety act: Ferrous ammonium sulfate anhydrous (CAS number 10045-89-3) New York release reporting list: Ferrous ammonium sulfate (CAS number 10045-89-3) Massachusetts RTK: Ferrous ammonium sulfate (CAS number 10045-89-3) Massachusetts spill list: Ferrous ammonium sulfate (CAS number 10045-89-3) New Jersey: Ferrous ammonium sulfate (CAS number 10045-89-3)
New Jersey spill list: Ferrous ammonium sulfate (CAS number 10045-89-3) Louisiana spill reporting: Ferrous ammonium sulfate (CAS number 10045-89-3) California Director's list of Hazardous Substances: Ferrous ammonium sulfate (CAS number 10045-89-3) CERCLA: Hazardous substances.: Ferrous ammonium sulfate (CAS number 10045-89-3): 1000 lbs. (453.6 kg)

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). Ferrous Ammonium Sulfate hexahydrate is not on the Canadian DSL or the European EINES inventory.

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC): This product is not classified according to the EU regulations. Not applicable.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Additional Information

References: Not available.

Other Special Considerations: Not available.

Disclaimer:

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The information contained herein in good faith but makes no representations as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

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