

1. Product and Company Identification

Material name	FERROUS SULFATE MONOHYDRATE
Version #	01
Revision date	03-23-2012
CAS #	13463-43-9
Product Codes	Macron: 5051, 5098
Synonym(s)	Ferrous sulphate; iron sulfate; sulfuric acid, iron (2+) salt (1:1),
Manufacturer	Avantor Performance Materials, Inc.
Address	3477 Corporate Parkway Suite #200 Center Valley, PA 18034 US
Customer Service	855-282-6867
24 Hour Emergency	908-859-2151
Chemtrec	800-424-9300

2. Hazards Identification

Emergency overview	WARNING Harmful if swallowed. Irritating to eyes, respiratory system and skin. May cause damage to the liver.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Skin contact. Eye contact. Ingestion.
Eyes	Causes eye irritation.
Skin	Causes skin irritation. Dust or powder may irritate the skin.
Inhalation	Inhalation of dusts may cause respiratory irritation.
Ingestion	Harmful if swallowed. May irritate and cause stomach pain, vomiting and diarrhoea. Pink urine discoloration is a strong indicator of iron poisoning. Liver damage, coma, and death from iron poisoning has been recorded.
Target organs	Eyes. Skin. Upper respiratory tract. Liver.
Chronic effects	Liver injury may occur.
Potential environmental effects	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
FERROUS SULFATE MONOHYDRATE	13463-43-9	> 98

Composition comments CAS # 13463-43-9 can be described by the CAS # 7720-78-7.

4. First Aid Measures

First aid procedures	
Eye contact	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation develops or persists.
Skin contact	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.
Inhalation	Move to fresh air. Treat symptomatically. Call a physician if symptoms develop or persist.

Ingestion

Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person.

Notes to physician

Treat symptomatically.

General advice

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties

This product is not flammable.

Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

None known.

Protection of firefighters

Protective equipment and precautions for firefighters

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.

Specific methods

In the event of fire and/or explosion do not breathe fumes. Use water spray to cool unopened containers.

Hazardous combustion products

Sulfur oxides.

6. Accidental Release Measures

Personal precautions

Keep unnecessary personnel away. Keep upwind. Ventilate the area. Avoid inhalation of dust from the spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not discharge into drains, water courses or onto the ground.

Methods for containment

If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. Prevent entry into waterways, sewer, basements or confined areas.

Methods for cleaning up

Avoid dust formation.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.

Large Spills: Reduce airborne dust and prevent scattering by moistening with water. Dike far ahead of larger spills for later disposal. Collect dust or particulates using a vacuum cleaner with a HEPA filter.

Never return spills in original containers for re-use. Clean contaminated surface thoroughly. Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling

Keep formation of airborne dusts to a minimum. Wear appropriate personal protective equipment. Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Do not eat, drink or smoke when using the product. Use only with adequate ventilation. Wash thoroughly after handling. See Section 8 of the MSDS for Personal Protective Equipment.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure Controls / Personal Protection

ACGIH

Material

Type

Value

FERROUS SULFATE MONOHYDRATE (13463-43-9)

TWA

1.0000 mg/m3

Engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.
Personal protective equipment	
Eye / face protection	Use tight fitting goggles if dust is generated.
Skin protection	Wear protective gloves. Wear suitable protective clothing.
Respiratory protection	Wear respirator if there is dust formation.
General hygiene considerations	Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical & Chemical Properties

Appearance	Powder.
Color	White to light yellow.
Odor	Odorless.
Odor threshold	Not available.
Physical state	Solid.
Form	Powder.
pH	Not available.
Melting point	932 °F (500 °C)
Freezing point	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor density	Not available.
Specific gravity	Not available.
Relative density	Not available.
Solubility (water)	Soluble
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not available.
Molecular weight	169.92 g/mol
Molecular formula	Fe-S-O4.H2O

10. Chemical Stability & Reactivity Information

Chemical stability	Stable under normal temperature conditions.
Conditions to avoid	Avoid dust formation. Excessive heat.
Incompatible materials	Strong oxidizing agents. Alkalies.
Hazardous decomposition products	Sulfur oxides.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	Test Results
FERROUS SULFATE MONOHYDRATE (13463-43-9)	Acute Oral LD50 Rat: 319 mg/kg
Sensitization	Not a skin sensitizer.
Acute effects	Harmful if swallowed.
Local effects	Irritating to eyes, respiratory system and skin. May cause damage to the liver.
Chronic effects	May cause damage to the liver.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Skin corrosion/irritation	Causes skin irritation.
Epidemiology	No epidemiological data is available for this product.
Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Neurological effects	None known.
Reproductive effects	Contains no ingredient listed as toxic to reproduction
Teratogenicity	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Symptoms and target organs	Irritant effects.

12. Ecological Information

Ecotoxicological data

Product	Test Results
FERROUS SULFATE MONOHYDRATE (13463-43-9)	EC50 Water flea (<i>Daphnia magna</i>): 6.15 mg/l 48.00 hours LC50 Brook trout (<i>Salvelinus fontinalis</i>): 0.41 mg/l 96.00 hours
Ecotoxicity	Very toxic to aquatic life with long lasting effects.
Persistence and degradability	Not inherently biodegradable.
Partition coefficient (n-octanol/water)	Not available

13. Disposal Considerations

Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations.
Contaminated packaging	Offer rinsed packaging material to local recycling facilities. Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA (Superfund) reportable quantity

FERROUS SULFATE MONOHYDRATE: 1000.0000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 311 hazardous chemical
Yes

Clean Water Act (CWA)
Hazardous substance

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations
This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

Saf-T-Data
Health: 3 - Severe (Life)
Flammability: 0 - None
Reactivity: 1 - Slight
Contact: 2 - Moderate
Lab Protective Equip: B - GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES
Storage Color Code: G - Green (General Storage)

16. Labeling Info

Label Hazard Warning
WARNING

Harmful if swallowed. Irritating to eyes, respiratory system and skin. May cause damage to the liver.

Label Precautions
Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling. Keep container closed.

Label First Aid
Immediately flush eyes with plenty of water for at least 15 minutes. Flush skin thoroughly with water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention if irritation develops or persists. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting without advice from poison control center.

17. Other Information

NFPA ratings
Health: 1
Flammability: 0
Instability: 0

Disclaimer

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