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SAFETY DATA SHEET

Ferrous Sulfate Monohydrate

Section 1. Identification

GHS product identifier : Ferrous Sulfate Hyptahydrate – Monohydrate (Iron (II) Sulfate)
Product type : solid

Uses

Area of application : Not Applicable

Supplier

Supplier's details : Greenway Biotech, Inc.

Address

Street : 10632 Painter Ave
Postal code : 90670
City : Santa Fe Springs
Country : United States

Telephone number : +1 562-351-5168

e-mail address of person responsible for this SDS : sales@greenwaybiotech.com

Emergency telephone number (with hours of operation) : US: Chemtrec 24-hours Emergency Response: 1-800-424-9300
Canada: 24 Hour Emergency Service, (Canutec 613-996-6666)

National advisory body/Poison Center

Name : The National Poisons Emergency number
Telephone number : 1 800 222 1222

Section 2. Hazards identification

Ferrous Sulfate: FeSO₄ · H₂O

OSHA PEL: Not Applicable.

ACGIH TLV (1979): Rat. Oral LD50: 1480 mg/m³

Other Limits: None

Section 3. Physical Data

Boiling Point	:	Decomposition at 300°C
Vapor Pressure (mm Hg)	:	0
Vapor Density	:	Not Available
Solubility in Water (20° C)	:	Heptahydrate: 48.50 gms in 100 ml Monohydrate: 29.65 gms in 100 ml
Appearance & Odor	:	Heptahydrate: Blue-green, acidic/sour Monohydrate: Grey, acidic/sour
Specific Gravity	:	Heptahydrate: 1.898 @ 25°C Monohydrate: 2.970 @ 25°C

Section 4. Fire and Explosion Hazard Data

Flash Point	:	None
Flammable Limits	:	N.A
LEL and UEL	:	N.A
Extinguishing Media	:	N.A
Special Firefighting Procedures	:	N.A
Unusual Fire & Explosion Hazards	:	None

Section 5. Reactivity Data

Stability: Stable

Incompatibility: Oxidizing Agents and Alkalies.

Conditions to Avoid: Extremely high temperatures.

Hazardous Decomposition or Byproducts: Products of sulfur oxides, i.e.: SO₂ and SO₃.

Hazardous Polymerization: Will not occur.

Section 6. Health Hazard Data

Route(s) of entry: Inhalation (Yes); Skin (Yes); Ingestion (Yes); Eyes (Yes)

Inhalation: Irritation to respiratory system.

Skin: Mild irritant.

Eyes: Will cause painful irritation.

Ingestion: Ingestion of large quantities can produce GI tract disturbances, severe shock, vomiting, liver damage, tachycardia and death.

Carcinogenicity: Not Established

Medical Conditions Generally Aggravated by Exposure: Dermatitis, Asthma, conjunctivitis, stomach or digestive problems.

Signs and Symptoms of Exposure: Irritation or itching, stinging of eyes, breathing problems, stomachache, acid or sour taste.

Emergency and First Aid Procedures: Flood skin and eyes with water for 15 minutes, consult physician. If inhaled remove to fresh air, consult physician. If ingested, drink large amounts of water, induce vomiting, consult physician.

Section 7. Precautions for Safe Handling and Use

Steps to be Taken in Case Material is Released or Spilled: Sweep up and repackage or place in receptacle for future disposal.

Waste Disposal Method: Remove to properly designated landfill or, if in solution, precipitate with alkali and filter off iron for removal to landfill with pH adjustments of the filtrate and discharge to sewer.

Precautions to be taken in Handling and Storage: Wear gloves, safety goggles, breathing mask, and coveralls when handling.

Other Precautions: None

Section 8. Control Measures

Respiratory Protection: Dust Mask

Protective Gloves: Work Gloves

Eye Protection: Goggles

Clothing: Coveralls

Ventilation: Local Exhaust – None Special – None Mechanical – None Other – None

Work/Hygienic Practices: Available safety showers as well as end of shift clean-up facilities.

Section 9. Physical and chemical properties

Appearance Crystalline. Granular.

Physical state Solid.
Form Solid. Crystalline.
Color Blue green
Odor Not available.
Odor threshold Not available.
pH Not available.
Salt-Out / Crystallization Temp Not available.
Melting point/freezing point Not available.
Initial boiling point and boiling range
Not available.
Flash point Not available.
Evaporation rate Not available.
Flammability (solid, gas) Not available.
Upper/lower flammability or explosive limits
Flammability limit - lower (%)
Not available.
Flammability limit - upper (%)
Not available.
Explosive limit - lower (%) Not available.
Explosive limit - upper (%) Not available.
Vapor pressure < 0.000001 kPa at 25 °C
Vapor density Not available.
Relative density Not available.
Solubility(ies)
Solubility (water) 48 g/l (typical)
Partition coefficient (n-octanol/water)
Not available.
Auto-ignition temperature Not available.
Decomposition temperature Not available.
Viscosity Not available.
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Material name: Brandt Ferrous Sulfate - Crystal
244 Version #: 04 Revision date: 05-21-2015 Issue date: 02-27-2014
SDS US
Other information
Bulk density 55 lb/ft³ (typical)
Molecular formula Fe.H2O4S.7H2O
pH in aqueous solution 3.5 - 5 (5% solution)

Section 10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Material is stable under normal conditions.

Possibility of hazardous reactions Hazardous polymerization does not occur.

Conditions to avoid Contact with incompatible materials.

Incompatible materials Alkalies. Arsenic trioxide and sodium nitrate: spontaneously combustible mixture.

Hazardous decomposition products Thermal decomposition products may include toxic sulfur oxides.

Section 11. Toxicological information

Information on likely routes of exposure

Ingestion: Harmful if swallowed.

Ferrous Sulfate - Crystal 1520 mg/kg

Species: Mouse

Inhalation No adverse effects due to inhalation are expected.

Skin contact Causes skin irritation.

Eye contact Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics

Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity Harmful if swallowed.

Product Species Test Results

Brandt Ferrous Sulfate - Crystal

LD50 Mouse

Oral

Acute

1520 mg/kg

** Estimates for product may be based on additional component data not shown.*

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization

Not available.

Skin sensitization

This product is not expected to cause skin sensitization.

Germ cell mutagenicity

No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity

This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity -single exposure

Not classified.

Specific target organ toxicity repeated exposure

May cause damage to organs (liver, kidneys, circulatory, cardiovascular and central nervous system) through prolonged or repeated exposure.

Aspiration hazard

Not available.

Further information

Interactions with medicines may cause adverse effects.

Section 12. Ecological information

Ecotoxicity: The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability: No data is available on the degradability of this product.

Bioaccumulative potential: No data available.

Mobility in soil: No data available.

Other adverse effects: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

Section 13. Disposal considerations

Disposal instructions

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations

Dispose in accordance with all applicable regulations.

Hazardous waste code

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

Section 14. Transport information

General Not DOT regulated in domestic (USA ground) transportation in package sizes less than 1,111 lbs. DOT Shipping Notes: 40 CFR 172.504(f)(9) For Class 9, a CLASS 9 placard is not required for domestic (USA ground) transportation, however shipments with packaging exceeding the Reportable Quantity (RQ) or bulk packaging must be marked with the appropriate identification number on a CLASS 9 placard, an orange panel, or a white square-on-point display configuration as required. Since the Class 9 placard is not required (although it may be used) the hazardous material endorsement is also not required on a Commercial Drivers License.

DOT

Basic shipping requirements:

UN number UN3077

Proper shipping name Environmentally hazardous substances, solid, n.o.s. (FERROUS SULFATE RQ = 1111 lbs)

Hazard class 9

Packing group III

Special precautions Read safety instructions, SDS and emergency procedures before handling.

Special provisions 8, 146, 335, A112, B54, IB8, IP3, N20, T1, TP33

Additional information:

Packaging exceptions 155

Packaging non bulk 213

Packaging bulk 240

Reportable quantity 1000

Notes DOT Shipping Notes: 40 CFR 172.504(f)(9) For Class 9, a CLASS 9 placard is not required for

domestic (USA ground) transportation, however shipments with packaging sizes exceeding the Reportable Quantity (RQ) or bulk packaging must be marked with the appropriate identification number on a CLASS 9 placard, an orange panel, or a white square-on-point display configuration as required. Since the Class 9 placard is not required (although it may be used) the hazardous material endorsement is also not required on a Commercial Drivers License.

IATA Not regulated as dangerous goods.

IMDG Not regulated as dangerous goods.

General information Not DOT regulated in domestic (USA ground) transportation in package sizes less than 1,111 lbs.

Section 15. Regulatory information

US federal regulations

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

One or more components are not listed on TSCA.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

FERROUS SULFATE (CAS 7782-63-0) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes

Delayed Hazard - No

Fire Hazard - No

Pressure Hazard - No

Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous

chemical

Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act

(SDWA)

Not regulated.

Food and Drug Administration (FDA)

Total food additive

Direct food additive

GRAS food additive

US state regulations

US. Massachusetts RTK - Substance List

FERROUS SULFATE (CAS 7782-63-0)

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

FERROUS SULFATE (CAS 7782-63-0)

US. Rhode Island RTK

FERROUS SULFATE (CAS 7782-63-0)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	No
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 (PICCS)	Philippine Inventory of Chemicals and Chemical Substances	Yes
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)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

Section 16. Other information

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Disclaimer	The information in the sheet was written based on the best knowledge and experience currently available.