

MATERIAL SAFETY DATA SHEET

IRON SULFATE (FERROUS SULFATE)

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Code: Iron Sulfate 200g or Iron Sulfate 1kg
Product Name: Iron Sulfate, Crystals
IC Color: Blue Green

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Preparation: Mordant – dye setting

1.3. Details of the Supplier of the Safety Data Sheet

Company: COLOR RARE LTD (Canada) | COLOR-RARE L.L.C. (USA)
Tel/Fax:
Internet: www.colorare.ca | www.colorare.us
Emergency No.:

Canada Contact your local Provincial Poison Centre or 911

<http://www.capcc.ca/>

Ontario: 1-800-268-9017

Quebec: 1-800-463-5060

USA American Association of Poison Control Centers 1-800-222-1222

<http://www.aapcc.org/>

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture.

The product is classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of EC Regulation 1907/2006 and subsequent amendments. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

2.1.1. Regulation 1272/2008 (CLP) and following amendments and adjustments.

Made in Italy

Head office: Color-Rare France: 19, rue Pablo Neruda - 33140 Villenave d'Ornon
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Imported and distributed in USA by COLOR-RARE L.L.C and in Canada by COLOR-RARE LTD

Hazard classification and indication:

| | |
|--|-----------------|
| Acute oral toxicity | Category 4 H302 |
| Skin Corrosion/irritation | Category 2 H315 |
| Serious Eye Damage/Eye Irritation | Category 2 H319 |
| Specific target organ toxicity (single exposure) | Category 3 |
| Target Organs - Central nervous system (CNS). | Category 2 |
| Specific target organ toxicity - (repeated exposure) | |
| Target Organs - Kidney, Liver, Blood. | |

2.1.2. Directive 67/548/EEC and following amendments and adjustments.

Danger Symbols: Not available
R phrases: Not available

2.2. Label elements.

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Pictograms:



Signal words: Warning

Hazard statements:

H319 Causes serious eye damage/ irritation.
H315 Causes skin irritation.
H335 May irritate the airways.
H302 Harmful if swallowed
May cause drowsiness or dizziness
May cause damage to organs through prolonged or repeated exposure

Precautionary statements:

Do not breathe dust/fumes/gas/mist/vapours/spray
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection

P264 Wash thoroughly after handling.
P280 Wear protective gloves / eye protection / face protection.
P302+P352 IF ON SKIN: wash with plenty of water

- P305+P351+P338** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P301+P312** IF SWALLOWED: Immediately call a POISON CENTER / doctor
P330 Rinse mouth.
- P304+P340** IF INHALED: Transport person outside and hold them in a position where they can breathe comfortably.
- P333+P313** If skin irritation or rash occurs, get medical advice/ attention.
- P337+P313** If eye irritation persists, get medical advice / attention.
- P362+P364** Take off contaminated clothing and wash it before reuse.
- P403+P233** Store in a well-ventilated area. Keep the container closed tightly. Store locked up.
- P501** Dispose of contents/container to an approved waste disposal plant, according to local regulations.

Contains: Iron (II) Sulfate heptahydrate and Ferrous sulfate

SECTION 3: Composition/Information on Ingredients

Iron (II) Sulfate heptahydrate and Ferrous sulfate

SECTION 4: First-Aid Measures

General information: It is not recommended to inhale this product or put into eyes or mouth. If symptoms persist, call a physician.

EYES: Immediately rinse eyes with plenty of water for at least 15 minutes, occasionally lifting upper and lower lids, until no evidence of product remains. Get medical attention if pain or irritation persists.

SKIN: Rinse affected area with large amounts of water until no evidence of product remains. Get medical attention if irritation persists.

INGESTION: Treat symptomatically and supportively. Maintain airway and respiration. If vomiting occurs, keep head below hips to prevent aspiration. Dilution by rinsing the mouth and giving water or milk to drink is generally recommended. If unconscious, the victim should not be given anything to drink. Contact physician or local poison control center.

INHALATION: Immediately remove from exposure area to fresh air. Keep affected person warm and at rest. Treat symptomatically and supportively. Contact physician or local poison control center. If breathing has stopped, give artificial respiration, and get medical attention immediately.

NOTE TO PHYSICIAN: The physician's judgment should be used to control symptoms and clinical condition based on the individual reactions of the patient.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing media

No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. Sulfur oxides Thermal decomposition can lead to release of irritating gases and vapors.

5.3. Advice for firefighters.

GENERAL INFORMATION

In case of fire, wear a full-face positive-pressure self-contained breathing apparatus and protective suit. Move container from fire area if you can do it without risk. Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Use flooding amounts of water as a fog, solid streams may be ineffective. Avoid inhaling vapors; keep upwind.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal firefighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6: Accidental Release Measures

6.1. Personal precautions, protective equipment, and emergency procedures

Wear skin, eye and respiratory protection as recommended in Section 8. Stop or reduce any leaks if it is safe to do so. Spills present a slipping hazard. Keep unnecessary personnel away. Ventilate spill area if possible. Ensure clean-up is conducted by trained personnel only. Make sure area is slip-free before re-opening to traffic.

6.2. Environmental precautions

Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Sweep up or vacuum up spillage and collect in suitable container for disposal. Keep in suitable, closed containers for disposal. Dispose in suitable waste container.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7: Handling and Storage

7.1. Precautions for safe handling

Before handling the product, consult all the other sections of this material safety data sheet.

Hygienic measures: Wear personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

7.2. Conditions for safe storage, including any incompatibilities

Store in original containers in a cool dry area. Store away from excessive heat and incompatible substances. Storage areas for large quantities (warehouse) should be well ventilated. Keep the containers tightly closed and clearly labeled containers when not in use.

7.3. Specific end use(s).

Information not available.

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

| Component | Alberta | British Columbia | Ontario TWAEV | Quebec | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|--------------------------------|--------------------------|---|--------------------------|----------------------------|--------------------------|------------------------------------|--------------------------|
| Iron (II) Sulfate heptahydrate | TWA: 1 mg/m ³ | TWA: 1 mg/m ³ STEL: 2 mg/m ³ | TWA: 1 mg/m ³ | TWA: 1.0 mg/m ³ | TWA: 1 mg/m ³ | (Vacated) TWA: 1 mg/m ³ | TWA: 1 mg/m ³ |
| Ferrous sulfate | TWA: 1 mg/m ³ | TWA: 1 mg/m ³ STEL: 2 mg/m ³ | TWA: 1 mg/m ³ | TWA: 1.0 mg/m ³ | TWA: 1 mg/m ³ | (Vacated) TWA: 1 mg/m ³ | TWA: 1 mg/m ³ |

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

8.2. Exposure controls

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection: Goggles

Hand Protection: Wear appropriate protective gloves and clothing to prevent skin exposure.

| Glove material | Breakthrough time | Glove thickness | Glove comments |
|----------------|-----------------------------------|-----------------|------------------------|
| Natural rubber | See manufacturers recommendations | - | Splash protection only |
| Nitrile rubber | | | |
| Neoprene | | | |
| PVC | | | |

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions

under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly **Recommended Filter type:** Particulates filter conforming to EN 143

When RPE is used a face piece Fit Test should be conducted

Environmental

exposure controls No information available.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

| | |
|---|-------------------------|
| Appearance: | solid |
| Colour: | blue green |
| Odour: | odorless |
| Odour threshold: | not available. |
| pH: | 3-5 (5%) |
| Melting or freezing point: | 147.2 °F (64 °C) |
| Boiling point: | 572 °F (300 °C) |
| Distillation range: | Not available. |
| Flash point: | Not applicable. |
| Evaporation Rate: | Not applicable. |
| Flammability of solids and gases: | Not available. |
| Lower inflammability limit: | Not available. |
| Upper inflammability limit: | Not available. |
| Lower explosive limit: | Not available. |
| Upper explosive limit: | Not available. |
| Vapour pressure: | Not available. |
| Vapour density: | Not available. |
| Specific gravity: | 1.898 |
| Solubility: | Partly Soluble in water |
| Partition coefficient: n-octanol/water: | Not available. |
| Ignition temperature: | Not available. |
| Decomposition temperature: | Not available. |

| | |
|-----------------------------|--------------------------------------|
| Viscosity: | Not available. |
| Reactive Properties: | Not available. |
| VOC (Directive 2004/42/EC): | Not available. |
| VOC (volatile carbon): | Not available. |
| Molecular Formula | FeSO ₄ .7H ₂ O |
| Molecular Weight | 278.01 |

SECTION 10: Stability and Reactivity

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Air sensitive. Moisture sensitive.

10.3. Possibility of hazardous reactions

None under normal processing.

10.4. Conditions to avoid

Avoid dust formation. Incompatible products. Excess heat. Exposure to air. Exposure to moist air or water.

10.5. Incompatible materials.

Strong oxidizing agents, Strong bases

10.6. Hazardous decomposition products.

Hazardous polymerization does not occur. Sulfur oxides, Thermal decomposition can lead to release of irritating gases and vapors

SECTION 11: Toxicological Information

Acute Toxicity

Product Information

Component Information

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|-----------------|-----------------------------|-------------|-----------------|
| Ferrous sulfate | LD50 = 319 mg/kg (Rat) | Not listed | Not listed |

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Carcinogenicity

| Component | CAS-No | IARC | NTP | ACGIH | OSHA | Mexico |
|--------------------------------|-----------|------------|------------|------------|------------|------------|
| Iron (II) Sulfate heptahydrate | 7782-63-0 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Ferrous sulfate | 7720-78-7 | Not listed | Not listed | Not listed | Not listed | Not listed |

Mutagenic Effects

Mutagenic effects have occurred in experimental animals.

Reproductive Effects: No information available.

Development effects: No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system
(CNS) STOT - repeated exposure Kidney Liver
 Blood

Aspiration hazard: No information available

Symptoms / effects, both acute and available delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.

SECTION 12: Ecological Information

12.1. Toxicity.

Do not empty into drains.

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|-----------------|------------------|--|------------|---|
| Ferrous sulfate | Not listed | LC50: = 925 mg/L, 96h static (Poecilia reticulata) LC50: = 0.56 mg/L, 96h semi-static (Cyprinus carpio) | Not listed | EC50: 6.15 - 9.26 mg/L, 48h Static (Daphnia magna) EC50: = 152 mg/L, 48h (Daphnia magna) |

12.2. Persistence and degradability.

The persistence and degradability of this product has not been determined.

12.3. Bio accumulative potential.

The bioaccumulation potential of this product has not been determined.

12.4. Mobility in soil.

The mobility of this product (in soil and water) has not been determined.

12.5. Results of PBT and vPvB assessment.

Information not available.

12.6. Other adverse effects.

Information not available.

SECTION 13: Disposal Considerations

13.1. Waste treatment methods.

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

SECTION 14: Transport Information

NO RESTRICTIONS. This material is not considered as dangerous according to the current provisions on road transport of dangerous goods.

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable

14.3. Transport hazard class(es)

Not applicable

14.4. Packing group

Not applicable

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user

Not applicable

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Information not relevant

SECTION 15: Regulatory Information

All of the components in the product are on the following Inventory lists: X

= listed **International Inventories**

| Component | DSL | NDSL | TSCA | EINECS | ELINCS | NLP | PICCS | ENCs | AICS | IECSC | KECL |
|--------------------------------|-----|------|------|-----------|--------|-----|-------|------|------|-------|------|
| Iron (II) Sulfate heptahydrate | - | - | - | - | - | | X | X | X | X | - |
| Ferrous sulfate | X | - | X | 231-753-5 | - | | X | X | X | X | X |

Canada

Made in Italy

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Imported and distributed in USA by COLOR-RARE L.L.C and in Canada by COLOR-RARE LTD

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

SECTION 16: Other Information

The information contained in this document is based on our own knowledge on the date of the current version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The correct and safe use of this product is the responsibility of the user; therefore, users must, comply with the current health and safety laws and regulations. Colorare is not liable for improper use of the product.

GENERAL BIBLIOGRAPHY

1. Directive 1999/45/EC and following amendments
2. Directive 67/548/EEC and following amendments and adjustments
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5. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
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8. Handling Chemical Safety
9. Niosh - Registry of Toxic Effects of Chemical Substances
10. INRS - Fiche Toxicologique (toxicological sheet)
11. Patty - Industrial Hygiene and Toxicology
12. N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition