SECTION 1 : Identification of the substance/mixture and of the supplier

Product name: Ferrous Sulfide

Manufacturer/Supplier Trade name:

Manufacturer/Supplier Article number: S25327

Recommended uses of the product and uses restrictions on use:

Manufacturer Details:
AquaPhoenix Scientific
9 Barnhart Drive, Hanover, PA 17331

Supplier Details:
Fisher Science Education
15 Jet View Drive, Rochester, NY 14624

Emergency telephone number:
Fisher Science Education Emergency Telephone No.: 800-535-5053

SECTION 2 : Hazards identification

Classification of the substance or mixture:

Not classified for physical or health hazards under GHS.

Hazard statements:

Precautionary statements:
If medical advice is needed, have product container or label at hand
Keep out of reach of children
Read label before use

Other Non-GHS Classification:

WHMIS
D2B
NFPA/HMIS

NFPA SCALE (0-4)

HMIS RATINGS (0-4)

Created by Global Safety Management, Inc. -Tel: 1-813-435-5161 - www.gsmsds.com
**SECTION 3 : Composition/information on ingredients**

**Ingredients:**

<table>
<thead>
<tr>
<th>CAS 1317-37-9</th>
<th>Ferrous Sulfide</th>
<th>100 %</th>
</tr>
</thead>
</table>

Percentages are by weight

**SECTION 4 : First aid measures**

**Description of first aid measures**

**After inhalation:** Move exposed to fresh air. Give artificial respiration if necessary. If breathing is difficult give oxygen. Loosen clothing and place exposed in a comfortable position. Seek medical assistance if cough or other symptoms appear.

**After skin contact:** Wash hands and exposed skin with soap and plenty of water. Seek medical attention if irritation persists or if concerned.

**After eye contact:** Protect unexposed eye. Flush exposed eye gently using water for 15-20 minutes. Remove contact lenses while rinsing. Seek medical attention if irritation persists or concerned.

**After swallowing:** Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention if irritation, discomfort, or vomiting persists. Activated charcoal is not effective. Ipecac is not recommended, because it can aggravate iron-induced gastrointestinal irritation and interfere with whole bowel irrigation. Consider gastric lavage if product was a liquid formulation or tablets were chewed. Do not use phosphate-containing solutions for lavage; these may result in life-threatening hypernatremia, hyperphosphatemia, and hypocalcemia. Bicarbonate and deferoxamine lavage are of doubtful efficacy. Deferoxamine lavage is not effective and may enhance iron absorption. Whole-bowel irrigation is very effective for ingested tablets and may be considered first-line treatment, especially if large numbers of tablets are visible on plain abdominal x-ray.

**Most important symptoms and effects, both acute and delayed:**

Irritation. Shortness of breath. Headache. Nausea. Dizziness. Overdose of iron compounds may have a corrosive effect on the gastrointestinal mucosa and be followed by necrosis, perforation, and stricture formation. Several hours may elapse before symptoms that can include epigastric pain, diarrhea, vomiting, nausea, and hematemesis occur. After apparent recovery a person may experience metabolic acidosis, convulsions, and coma hours or days later.

**Indication of any immediate medical attention and special treatment needed:**

If seeking medical attention provide SDS document to physician. Physician should treat symptomatically.

**SECTION 5 : Firefighting measures**

**Extinguishing media**

**Suitable extinguishing agents:** Use water, dry chemical, chemical foam, carbon dioxide, or alcohol-resistant foam.

**For safety reasons unsuitable extinguishing agents:**

**Special hazards arising from the substance or mixture:**

Thermal decomposition can lead to release of irritating gases and vapors. Sulphur oxides, Iron oxides

**Advice for firefighters:**

**Protective equipment:** Wear protective eyeware, gloves, and clothing. Refer to Section 8.

**Additional information (precautions):** Avoid inhaling gases, fumes, dust, mist, vapor, and aerosols. Avoid contact with skin, eyes, and clothing.
SECTION 6 : Accidental release measures

Personal precautions, protective equipment and emergency procedures:
Ensure adequate ventilation. Ensure that air-handling systems are operational. Avoid contact with skin, eyes and clothing. Wear respiratory protection. Avoid breathing dust.

Environmental precautions:
Should not be released into environment. Prevent from reaching drains, sewer, or waterway.

Methods and material for containment and cleaning up:
Wear protective eyeware, gloves, and clothing. Refer to Section 8. Always obey local regulations. If necessary use trained response staff or contractor. Evacuate personnel to safe areas. Containerize for disposal. Refer to Section 13. Keep in suitable closed containers for disposal. Sweep up or vacuum up spillage and collect in suitable container for disposal. Do not flush with water.

Reference to other sections:

SECTION 7 : Handling and storage

Precautions for safe handling:
Avoid contact with skin, eyes, and clothing. Follow good hygiene procedures when handling chemical materials. Refer to Section 8. Follow proper disposal methods. Refer to Section 13. Do not eat, drink, smoke, or use personal products when handling chemical substances. Use with adequate ventilation.

Conditions for safe storage, including any incompatibilities:
Store in a cool location. Keep away from food and beverages. Protect from freezing and physical damage. Provide ventilation for containers. Keep container tightly sealed. Store away from incompatible materials. Store away from strong acids. Never allow product to get in contact with water during storage. Air and moisture sensitive.

SECTION 8 : Exposure controls/personal protection

Control Parameters:
No applicable occupational exposure limits

Appropriate Engineering controls:
Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor and mists below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above.

Respiratory protection:
Not required under normal conditions of use. Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. When necessary use NIOSH approved breathing equipment.

Protection of skin:
Select glove material impermeable and resistant to the substance. Select glove material based on rates of diffusion and degradation. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Use proper glove removal technique without touching outer surface. Avoid skin contact with used gloves. Wear protective clothing.

Eye protection:
Wear equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses or goggles are appropriate eye protection.
General hygienic measures: Perform routine housekeeping. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes, and clothing. Before rewearing wash contaminated clothing.

SECTION 9 : Physical and chemical properties

<table>
<thead>
<tr>
<th>Appearance (physical state, color):</th>
<th>gray to brown black solid</th>
<th>Explosion limit lower:</th>
<th>Not Determined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor:</td>
<td>none reported</td>
<td>Vapor pressure:</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Odor threshold:</td>
<td>Not Determined</td>
<td>Vapor density:</td>
<td>Not Determined</td>
</tr>
<tr>
<td>pH-value:</td>
<td>Not Determined</td>
<td>Relative density:</td>
<td>4.84 g/cm³ at 25 °C (77 °F)</td>
</tr>
<tr>
<td>Melting/Freezing point:</td>
<td>1194 °C</td>
<td>Solubilities:</td>
<td>Insoluble in water</td>
</tr>
<tr>
<td>Boiling point/Boiling range:</td>
<td>Decomposes</td>
<td>Partition coefficient (n-octanol/water):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Flash point (closed cup):</td>
<td>Not Determined</td>
<td>Auto/Self-ignition temperature:</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Evaporation rate:</td>
<td>Not Determined</td>
<td>Decomposition temperature:</td>
<td>480 °C</td>
</tr>
</tbody>
</table>
b. Dynamic: Not Determined |
| Density: | 4.75 |

SECTION 10 : Stability and reactivity

Reactivity: Nonreactive under normal conditions. Contact with acids liberates toxic gas.
Chemical stability: Stable under normal conditions. Oxidized by moist air to sulfur and iron oxide.
Possible hazardous reactions: None under normal processing. Violent reaction with lithium when heated above 260 deg C. Hydrogen peroxide reacts vigorously with ferrous sulfide. Air Contact with acids liberates very toxic gas.
Conditions to avoid: Incompatible materials. Exposure to moist air
Incompatible materials: Hydrogen peroxides. Strong oxidizing agents. Acids
Hazardous decomposition products: Sulfur oxides. Hydrogen sulfide

SECTION 11 : Toxicological information

Acute Toxicity: No additional information.
Chronic Toxicity: No additional information.
Corrosion Irritation: No additional information.
Sensitization: No additional information.
Single Target Organ (STOT): No additional information.
Numerical Measures: No additional information.
Carcinogenicity: Not listed as a carcinogen (ACGIH, IARC, NTP): 1317-37-9 (Ferrous Sulfide)
Mutagenicity: No additional information.

Reproductive Toxicity: No additional information.

SECTION 12 : Ecological information

Ecotoxicity
  Fish LC50 - Gambusia affinis (Mosquito fish) - > 10,000 mg/l - 96.0 h: 1317-37-9 (Ferrous Sulfide)

Persistence and degradability:
  Bioaccumulative potential:
  Mobility in soil:
  Other adverse effects:

SECTION 13 : Disposal considerations

Waste disposal recommendations:
  Contact a licensed professional waste disposal service to dispose of this material. Dispose of empty containers as unused product. Product or containers must not be disposed together with household garbage. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11). 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. Ensure complete and accurate classification.

SECTION 14 : Transport information

UN-Number
  Not Regulated.

UN proper shipping name
  Not Regulated.

Transport hazard class(es)
  Not Regulated.

Packing group
  Not Regulated.

Environmental hazard:

Transport in bulk:

Special precautions for user:

SECTION 15 : Regulatory information

United States (USA)
  SARA Section 311/312 (Specific toxic chemical listings):
    None of the ingredients is listed
  SARA Section 313 (Specific toxic chemical listings):
    None of the ingredients is listed
  RCRA (hazardous waste code):
    None of the ingredients is listed
  TSCA (Toxic Substances Control Act):
    All ingredients are listed.
  CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):
None of the ingredients is listed

Proposition 65 (California):

Chemicals known to cause cancer:
None of the ingredients is listed

Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed

Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed

Chemicals known to cause developmental toxicity:
None of the ingredients is listed

Canada

Canadian Domestic Substances List (DSL):
All ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 0.1%):
None of the ingredients is listed

Canadian NPRI Ingredient Disclosure list (limit 1%):
None of the ingredients is listed

SECTION 16 : Other information

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note: . The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

GHS Full Text Phrases:

Abbreviations and acronyms:

Effective date: 01.31.2015
Last updated: 03.19.2015