Material Safety Data Sheet
Iron(II) ammonium sulfate acidic solution

MSDS# 40058

Section 1 - Chemical Product and Company Identification

MSDS Name: Iron(II) ammonium sulfate acidic solution
Catalog Numbers: SF47
Synonyms: Ammonium ferrous sulfate in water and sulfuric acid.

Company Identification: Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410

For information in the US, call: 201-796-7100
Emergency Number US: 201-796-7100
CHEMTREC Phone Number, US: 800-424-9300

Section 2 - Composition, Information on Ingredients

Risk Phrases: 35

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>%</th>
<th>EINECS#</th>
<th>Hazard Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td>7664-93-9</td>
<td>Sulfuric acid</td>
<td>1.7</td>
<td>231-639-5</td>
<td>C</td>
</tr>
</tbody>
</table>

Risk Phrases:

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
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<th>Hazard Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td>7732-18-5</td>
<td>Water</td>
<td>87.2</td>
<td>231-791-2</td>
<td></td>
</tr>
</tbody>
</table>

Risk Phrases:

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>%</th>
<th>EINECS#</th>
<th>Hazard Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td>10045-89-3</td>
<td>Ferrous ammonium</td>
<td>11.1</td>
<td>233-151-8</td>
<td></td>
</tr>
</tbody>
</table>

Hazard Symbols:

Text for R-phrases: see Section 16

Risk Phrases: 41

Section 3 - Hazards Identification
EMERGENCY OVERVIEW

Danger! May cause severe eye irritation and possible injury. May cause skin and respiratory tract irritation. May be corrosive to aluminum. Target Organs: Liver, cardiovascular system, eyes.

Potential Health Effects

Eye: May cause eye irritation and possible burns.
Skin: May cause skin irritation.
Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver damage. May cause burns to the digestive tract. May cause cardiovascular effects including low blood pressure and shock.
Inhalation: May cause respiratory tract irritation.
Chronic: No information found.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician:

Antidote: The use of Deferoxamine as a chelating agent should be determined only by qualified medical personnel.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media: For small fires, use water spray, dry chemical, carbon dioxide or chemical foam.

Autoignition Temperature: Not applicable.

Flash Point: None.

Explosion Limits: Lower: None.

Explosion Limits: Upper: None.

NFPA Rating: health: 3; flammability: 0; instability: 0;

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Keep container tightly closed. Do not get in eyes. Avoid contact with skin and clothing.

Storage: Do not store in direct sunlight. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid</td>
<td>0.2 mg/m3</td>
<td>1 mg/m3 TWA 15</td>
<td>1 mg/m3 TWA</td>
</tr>
<tr>
<td>Water</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
<tr>
<td>Ferrous ammonium sulfate</td>
<td>1 mg/m3 TWA (as)</td>
<td>1 mg/m3 TWA (as)</td>
<td>none listed</td>
</tr>
</tbody>
</table>
OSHA Vacated PELs: Sulfuric acid: 1 mg/m³ TWA Water: None listed Ferrous ammonium sulfate hexahydrate: 1 mg/m³ TWA (as Fe) (listed under Iron salts (soluble)) Ferrous ammonium sulfate anhydrous: 1 mg/m³ TWA (as Fe) (listed under Iron salts (soluble))

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Personal Protective Equipment

Eyes: Wear chemical splash goggles.

Skin: Wear protective clothing to prevent skin exposure.

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.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Color: clear, colorless

Odor: none reported

pH: 0.863

Vapor Pressure: Not available

Vapor Density: Not available

Evaporation Rate: Not available

Viscosity: Not available

Boiling Point: Not available

Freezing/Melting Point: Not available

Decomposition Temperature: Not available

Solubility in water: Not available.

Specific Gravity/Density: 1.1

Molecular Formula: mixture

Molecular Weight: 0

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Light, exposure to air, temperatures above 100°C.

Incompatibilities with Other Materials: Aluminum.

Hazardous Decomposition Products: Oxides of nitrogen, oxides of sulfur, ammonia and/or derivatives, oxides of iron.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

CAS# 7664-93-9: WS5600000
CAS# 7732-18-5: ZC0110000
CAS# 7783-85-9: BR6500000
CAS# 10045-89-3: WS5890000

RTECS: 
LD50/LC50:

CAS# 7664-93-9: Draize test, rabbit, eye: 250 ug Severe;
Inhalation, mouse: LC50 = 320 mg/m3/2H;
Inhalation, mouse: LC50 = 320 mg/m3;
Inhalation, rat: LC50 = 510 mg/m3/2H;
Inhalation, rat: LC50 = 510 mg/m3;
Oral, rat: LD50 = 2140 mg/kg;

RTECS:

CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg;

RTECS:

CAS# 7783-85-9: Oral, rat: LD50 = 3250 mg/kg;

RTECS:

CAS# 10045-89-3: Sulfuric acid - ACGIH: A2 - Suspected Human Carcinogen (contained in strong inorganic acid mists)
California: carcinogen, initial date 3/14/03 (Strong inorganic acid mists containing sulfuric acid). NTP: Known carcinogen (Strong inorganic acid mists containing s). IARC: Group 1 carcinogen

Water - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Ferrous ammonium sulfate hexahydrate - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Ferrous ammonium sulfate anhydrous - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Not available

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Hazard Class: 8
UN Number: UN3264
Packing Group: III
Canada TDG
Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O
Hazard Class: 8
UN Number: UN3264
Packing Group: III

USA RQ: CAS# 7664-93-9: 1000 lb final RQ; 454 kg final RQ
USA RQ: CAS# 10045-89-3: 1000 lb final RQ; 454 kg final RQ

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives
Hazard Symbols: XI
Risk Phrases:
R 41 Risk of serious damage to eyes.
Safety Phrases:
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

WGK (Water Danger/Protection)
CAS# 7664-93-9: 2
CAS# 7732-18-5: Not available
Canada
CAS# 7664-93-9 is listed on Canada's DSL List
CAS# 7732-18-5 is listed on Canada's DSL List
CAS# 10045-89-3 is listed on Canada's DSL List

Canadian WHMIS Classifications: E

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 7664-93-9 is listed on Canada's Ingredient Disclosure List
CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.
CAS# 7783-85-9 is not listed on Canada's Ingredient Disclosure List.
CAS# 10045-89-3 is not listed on Canada's Ingredient Disclosure List.

US Federal
TSCA

CAS# 7664-93-9 is listed on the TSCA Inventory.
CAS# 7732-18-5 is listed on the TSCA Inventory.
CAS# 7783-85-9 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the Inventory (40CFR720.3(u)(2)).
CAS# 10045-89-3 is listed on the TSCA Inventory.

Section 16 - Other Information
MSDS Creation Date: 9/02/1997
Revision #5 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantibility or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

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