

## Safety Data Sheet

<b>Section 1. Identification</b>	
<b>Product Identification and Item Numbers:</b>	Monsel's Solution (MONSELS/1, MONSELS, MONSELS/PT)
<b>Product Description:</b>	Ferric Subsulfate Solution
<b>Recommended use and restrictions on use:</b>	N/A
<b>Supplier:</b>	Delasco 608 13 <sup>th</sup> Avenue Council Bluffs, IA 51501 1-712-323-3269 <a href="http://www.delasco.com">www.delasco.com</a> <a href="mailto:questions@delasco.com">questions@delasco.com</a>
<b>In Case of Emergency, Contact:</b>	Chemtrec (24 hour) 1-800-424-9300

<b>Section 2. Hazard(s) Identification</b>	
<b>Classification:</b>	N/A
<b>Labeling:</b>	
<b>Hazard symbol(s):</b>	N/A
<b>Signal word:</b>	N/A
<b>Hazard statements:</b>	Caution! May be harmful if swallowed. May cause irritation to skin, eyes, and respiratory tract.
<b>Precautionary statements:</b>	Avoid contact with eyes, skin and clothing. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes.

<b>Section 3. Composition/Information on Ingredients</b>	
<b>Chemical Name and Concentration:</b>	Ferric Sub sulfate      Concentration: 40% - 70% Water      Concentration: 30% - 60%
<b>Other Names, Common Names, Synonyms:</b>	Ferric sulphate, basic, solution; iron hydroxide sulfate, Monse's solution
<b>CAS Number, other unique identifiers:</b>	Mixture: Ferric Sub sulfate CAS# 1310-45-8 Water      CAS# 7732-18-5
<b>Other classified impurities or stabilizers:</b>	N/A
<b>Other ingredients posing health hazards:</b>	N/A
<b>Concentration of other hazardous ingredients:</b>	N/A

<b>Section 4. First-aid Measures</b>	
<b>Inhalation exposure:</b>	Remove person to fresh air. Seek medical attention for any breathing difficulty.
<b>Skin exposure:</b>	Wash off with soap and plenty of water. Get medical advice if irritation develops.
<b>Eye contact:</b>	Wash thoroughly with running water. Get medical advice if irritation develops.
<b>Ingestion:</b>	Induce vomiting immediately and directed by medical personnel. NEVER give anything by mouth to an unconscious person.

<b>Section 5. Fire Fighting Measures</b>	
<b>Suitable / unsuitable extinguishing media:</b>	Use any means suitable for extinguishing surrounding fire.
<b>Specific hazards / combustion products:</b>	Not considered to be a fire hazard.
<b>Special protective equipment and precautions for fire-fighters:</b>	Wear self-contained breathing apparatus, protective clothing, and full face mask.
<b>NFPA Hazard Classification</b>	Health – 1      0-Minimal Flammability – 0      1-Slight Instability – 0      2-Moderate 3-Serious 4-Severe

<b>Section 6. Accidental Release Measures</b>	
<b>Personal precautions and protective equipment:</b>	Use personal protective equipment as described in section 8.
<b>Environmental Precautions:</b>	N/A
<b>Containment / clean up methods:</b>	Ventilate the area. Absorb material and place in an appropriate waste disposal container.

<b>Section 7. Handling and Storage</b>	
<b>Precautions for safe handling:</b>	Do not get on skin or in eyes. Do not inhale vapor or mist. Handle and open container with care.
<b>Conditions for safe storage:</b>	Store in a tightly closed container. Protect against physical damage, direct sunlight, and freezing. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.
<b>Incompatibilities to avoid:</b>	N/A

<b>Section 8. Exposure Controls and Personal Protection</b>	
<b>OSHA Permissible Exposure Limit (PEL):</b>	Not available
<b>Threshold Limit Value (TLV):</b>	Not available
<b>Other exposure limits:</b>	(ACGIH) 1 mg/m <sup>3</sup> (TWA) soluble iron salt as Fe
<b>Engineering controls:</b>	A system of local and/or general exhaust is recommended to keep employee exposures below exposure limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.
<b>Personal protective equipment:</b>	<p><b>Respiratory Protection</b> If the exposure limit is exceeded, a half-face dust/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. <b>WARNING:</b> Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.</p> <p><b>Eye Protection</b> Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.</p> <p><b>Skin Protection</b> Wear protective gloves and clean body-covering clothing.</p>
<b>Other personal protection measures:</b>	Provide nearby eyewash station and safety shower.

<b>Section 9. Physical and Chemical Properties</b>	
<b>Appearance (physical state, color, etc.):</b>	Reddish-brown liquid.
<b>Odor:</b>	Nearly odorless.
<b>Odor threshold:</b>	Data not available.
<b>pH:</b>	Acidic.
<b>Melting point / freezing point:</b>	Data not available for solutions of potassium hydroxide and DMSO.
<b>Initial boiling point and boiling range:</b>	Data not available for solutions of potassium hydroxide and DMSO.
<b>Flash point:</b>	Data not available for solutions of potassium hydroxide and DMSO.
<b>Evaporation rate:</b>	Data not available for solutions of potassium hydroxide and DMSO.
<b>Flammability</b>	Data not available for solutions of potassium hydroxide and DMSO.
<b>Upper / lower flammability or explosive limits:</b>	Data not available for solutions of potassium hydroxide and DMSO.
<b>Vapor Pressure:</b>	Data not available for solutions of potassium hydroxide and DMSO.
<b>Vapor density:</b>	Data not available for solutions of potassium hydroxide and DMSO.
<b>Relative density:</b>	Data not available for solutions of potassium hydroxide and DMSO.
<b>Solubility:</b>	Miscible in water.
<b>Partition coefficient: n-octanol/water:</b>	Data not available for solutions of potassium hydroxide and DMSO.
<b>Auto-ignition temperature:</b>	Data not available for solutions of potassium hydroxide and DMSO.
<b>Decomposition temperature:</b>	Data not available for solutions of potassium hydroxide and DMSO.
<b>Viscosity:</b>	Data not available for solutions of potassium hydroxide and DMSO.

<b>Section 10. Stability and Reactivity</b>	
<b>Chemical stability:</b>	Freezes at cool temperatures.
<b>Possibility of hazardous reactions:</b>	Data not available.
<b>Conditions to avoid (static, shock, vibration...)</b>	Avoid exposure to direct sunlight and freezing temperatures.
<b>Incompatible materials:</b>	No data found.
<b>Hazardous decomposition products:</b>	Oxides of sulfur, and the contained metal.

<b>Section 11. Toxicological Information</b>	
<b>Routes of exposure:</b>	Skin, eyes, inhalation, Ingestion
<b>Acute Symptoms (acute):</b>	<ul style="list-style-type: none"> <li>Inhalation: Respiratory tract irritant.</li> <li>Eye Contact: Irritant.</li> <li>Skin Contact: May cause skin irritation.</li> <li>Ingestion: N/A</li> </ul>
<b>Symptoms (chronic): Chronic effects from short and long term exposure:</b>	<ul style="list-style-type: none"> <li>Inhalation: May cause irritation to the respiratory tract.</li> <li>Eye: Splashes may cause irritation.</li> <li>Skin: May cause skin irritation.</li> <li>Eye: Splashes may cause irritation.</li> <li>Ingestion: Low toxicity in small quantities but larger dosages may cause nausea, vomiting, diarrhea, and black stool. Pink urine discoloration is a strong indicator of iron poisoning. Liver damage, coma, and death from iron poisoning has been reported.</li> </ul>
<b>Numerical measures of toxicity (e.g., acute toxicity estimates):</b>	No LD50/LC50 information found relating to normal routes of occupational exposure.
<b>NTP carcinogen:</b>	Not available
<b>EPA carcinogen:</b>	Not available
<b>ACGIH carcinogen:</b>	Not available
<b>IARC potential carcinogen:</b>	Not identified
<b>OSHA carcinogen:</b>	Not available

<b>Section 12. Ecological Information (Non-mandatory)</b>	
<b>Ecotoxicity (aquatic and terrestrial, where available):</b>	Not available
<b>Persistence and degradability:</b>	Not available
<b>Bioaccumulative potential:</b>	Not available
<b>Mobility in soil:</b>	Not available
<b>Other adverse effects:</b>	Not available

<b>Section 13. Disposal Considerations (Non-mandatory)</b>	
<b>Safe methods of disposal:</b>	Contact a licensed professional waste disposal service. Observe all federal, state, and local environmental regulations.

<b>Section 14. Transport Information (Non-mandatory)</b>					
<b>US DOT</b>	<b>UN number:</b>	N/A	<b>Class:</b>	N/A	<b>Packing Group:</b> N/A
<b>UN proper shipping name:</b>		N/A			
<b>Packing group, if applicable:</b>		N/A			
<b>Environmental hazards (marine pollutant, etc...)</b>		N/A			
<b>Special transport precautions:</b>		N/A			

<b>Section 15. Regulatory Information (Non-mandatory)</b>	
<b>Specific safety, health, and environmental regulations:</b>	N/A

<b>Section 16. Other information</b>	
<b>Date of preparation or last revision:</b>	February 13, 2015