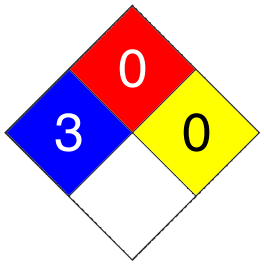
MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product Name	**Ferric Sulphate**
CAS #	Mixture
Product use	Water treatment
Manufacturer	SODROX Chemicals Ltd. 7040 Wellington Road 124, R.R. #6 Guelph, ON N1H 6J3 CA Business Phone: 519-837-2330 Fax: 519-837-3300 Emergency Phone: 1-800-363-6824

LEGEND HMIS/NFPA	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

Health	*	3
Flammability		0
Physical Hazard		0
Personal Protection		B



2. Hazards Identification

Emergency overview

DANGER
HARMFUL IF SWALLOWED.
CAUSES SKIN AND EYE BURNS.

Potential short term health effects

Routes of exposure	Eye, Skin contact, Inhalation, Ingestion.
Eyes	Causes chemical burns. May cause blindness.
Skin	Causes chemical burns.
Inhalation	May cause respiratory tract irritation or chemical burns.
Ingestion	Harmful if swallowed. May cause chemical burns to mouth, throat and stomach.
Target organs	Eyes. Respiratory system. Skin. Liver.
Chronic effects	Prolonged or repeated exposure can cause drying, defatting and dermatitis.
Signs and symptoms	The product causes burns of eyes, skin and mucous membranes.

3. Composition / Information on Ingredients

Ingredient(s)	CAS #	Percent
Sulfuric acid, iron(3+) salt (3:2), hydrate	15244-10-7	40 - 70
Sulfuric acid	7664-93-9	0 - 0.1

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush with cool water. Remove contact lenses, if applicable, and continue flushing for 15 minutes. Obtain medical attention immediately.
Skin contact	Immediately flush with cool water for 15 minutes while removing contaminated clothing and shoes. Discard or wash well before reuse. Obtain medical attention if irritation persists.
Inhalation	If symptoms develop, move victim to fresh air. If symptoms persist, obtain medical attention. If breathing has stopped, trained personnel should administer CPR immediately.
Ingestion	Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Never give anything by mouth if victim is unconscious, or is convulsing. Obtain medical attention.
Notes to physician	Symptoms may be delayed.

General advice	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Keep out of reach of children.

5. Fire Fighting Measures

Flammable properties	Not flammable by WHMIS/OSHA criteria.
Extinguishing media	
Suitable extinguishing media	Treat for surrounding material.
Unsuitable extinguishing media	Not available
Protection of firefighters	
Specific hazards arising from the chemical	Not available
Protective equipment for firefighters	Firefighters should wear full protective clothing including self contained breathing apparatus.
Hazardous combustion products	May include and are not limited to: Oxides of sulphur. Hydrogen gas.
Explosion data	
Sensitivity to mechanical impact	Not available
Sensitivity to static discharge	Not available

6. Accidental Release Measures

Personal precautions	Keep unnecessary personnel away. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak.
Methods for containment	Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas.
Methods for cleaning up	Before attempting clean up, refer to hazard data given above. Small spills may be absorbed with non-reactive absorbent and placed in suitable, covered, labelled containers. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice.

7. Handling and Storage

Handling	Use good industrial hygiene practices in handling this material. Do not get this material in your eyes, on your skin, or on your clothing.
Storage	Keep out of the reach of children. Keep containers tightly closed in a dry, cool and well-ventilated place. Store in rubber-lined, plastic or fiberglass-reinforced plastic containers. Containers should be stored between 10°C (50°F) and 30°C (86°F).

8. Exposure Controls / Personal Protection

Exposure limits

Ingredient(s)	Exposure Limits
Sulfuric acid	**ACGIH-TLV** TWA: 0.2 mg/m3 **OSHA-PEL** TWA: 1 mg/m3
Sulfuric acid, iron(3+) salt (3:2), hydrate	**ACGIH-TLV** Not established **OSHA-PEL** Not established

Engineering controls	Provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapors or mists generated from the handling of this product. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Personal protective equipment	
Eye / face protection	Chemical splash goggles.

Hand protection	Rubber gloves. Confirm with a reputable supplier first.
Skin and body protection	As required by employer code. Use of an impervious apron is recommended.
Respiratory protection	Where exposure guideline levels may be exceeded, use an approved NIOSH respirator.
General hygiene considerations	Use good industrial hygiene practices in handling this material. When using do not eat or drink. Wash hands before breaks and immediately after handling the product.

9. Physical and Chemical Properties

Appearance	Liquid
Color	red/brown
Form	Liquid
Odor	Acidic
Odor threshold	Not available
Physical state	Liquid
pH	< 1
Melting point	480 °C (896.00 °F)
Freezing point	-15 - 25 °C (5.00 - 77.00 °F)
Boiling point	105 - 110 °C (221.00 - 230.00 °F)
Flash point	Not applicable
Evaporation rate	Not available
Flammability limits in air, lower, % by volume	Not applicable
Flammability limits in air, upper, % by volume	Not applicable
Vapor pressure	Not available
Vapor density	Not available
Specific gravity	1.43 - 1.56 @ 20°C (68°C) (H2O = 1)
Octanol/water coefficient	Not available
Solubility (H2O)	Soluble
Auto-ignition temperature	Not applicable
Viscosity	Not available
Percent volatile	Not available

10. Stability and Reactivity

Chemical stability	Stable under recommended storage conditions.
Conditions to avoid	Do not mix with other chemicals.
Incompatible materials	This product may react with mineral acids and strong bases. Strongly corrosive to metals and mild steel.
Hazardous decomposition products	May include and are not limited to: Oxides of sulphur. Hydrogen gas.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Component analysis - LC50

Ingredient(s)	LC50
Sulfuric acid	1020 mg/l/4h rat; 160 mg/m3 mouse
Sulfuric acid, iron(3+) salt (3:2), hydrate	Not available

Component analysis - Oral LD50

Ingredient(s)	LD50
Sulfuric acid	2140 mg/kg rat
Sulfuric acid, iron(3+) salt (3:2), hydrate	Not available

Effects of acute exposure

Eye	Causes chemical burns. May cause blindness.

Skin	Causes chemical burns.
Inhalation	May cause respiratory tract irritation or chemical burns.
Ingestion	Harmful if swallowed. May cause chemical burns to mouth, throat and stomach.
Sensitization	Non-hazardous by WHMIS/OSHA criteria.
Chronic effects	Prolonged exposure of the eyes may cause discoloration. Repeated high exposure could cause too much iron to build up in the body. Symptoms of upset stomach, nausea, constipation and black bowel movements may occur. Chronic exposure may cause liver effects. Extensive lung damage has been seen in guinea pigs exposed to 4 mg/m3 of sulphuric acid. There is also lung damage caused in monkeys exposed to 4.79 mg/m3 for 78 weeks.
Carcinogenicity	There is sufficient evidence that occupational exposure to strong inorganic acid mists containing sulphuric acid is carcinogenic.

ACGIH - Threshold Limit Values - Carcinogens

Sulfuric acid	7664-93-9	A2 - Suspected Human Carcinogen (contained in strong inorganic acid mists)

IARC - Group 1 (Carcinogenic to Humans)

Sulfuric acid	7664-93-9	Monograph 54 [1992] (listed under Occupational exposure to mists and vapours from sulfuric acid and other strong inorganic acids)

Mutagenicity	Non-hazardous by WHMIS/OSHA criteria.
Reproductive effects	Non-hazardous by WHMIS/OSHA criteria.
Teratogenicity	Non-hazardous by WHMIS/OSHA criteria.

12. Ecological Information

Ecotoxicity	Components of this product have been identified as having potential environmental concerns.

Ecotoxicity - Freshwater Fish Species Data

Sulfuric acid	7664-93-9	96 Hr LC50 Brachydanio rerio: >500 mg/L [static]

Ecotoxicity - Water Flea Data

Sulfuric acid	7664-93-9	24 Hr EC50 Daphnia magna: 29 mg/L

Environmental effects	Not available
Aquatic toxicity	Not available
Persistence / degradability	The product is inorganic and therefore non biodegradable, but will hydrolyse.
Bioaccumulation / accumulation	The octanol/water partition coefficient (Pow) indicates that ferric sulphate has a very low bioaccumulation potential.
Partition coefficient	Not available
Mobility in environmental media	Soluble in water and is highly mobile in soil and sediments.
Chemical fate information	Not available
Other adverse effects	None known.

13. Disposal Considerations

Waste codes	Not available
Disposal instructions	Review federal, state/provincial, and local government requirements prior to disposal.
Waste from residues / unused products	Not available
Contaminated packaging	Not available

14. Transport Information

U.S. Department of Transportation (DOT)

Basic shipping requirements:

Proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s. (SULFURIC ACID, IRON(3+) SALT (3:2), HYDRATE)
Hazard class	8
UN number	3264
Packing group	III
Additional information:	
Special provisions	IB3, T7, TP1, TP28
Packaging exceptions	154

Transportation of Dangerous Goods (TDG - Canada)

Basic shipping requirements:

Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULFURIC ACID, IRON(3+) SALT (3:2), HYDRATE)
Hazard class	8
UN number	3264
Packing group	III
Additional information:	
Special provisions	16

15. Regulatory Information

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

Canada - WHMIS - Ingredient Disclosure List

Sulfuric acid	7664-93-9	1 %

US Federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

Sulfuric acid	7664-93-9	1000 Lb final RQ; 454 kg final RQ

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

Sulfuric acid	7664-93-9	1000 Lb EPCRA RQ

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

Sulfuric acid	7664-93-9	1000 Lb TPQ

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

Sulfuric acid	7664-93-9	1.0 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)

U.S. - CWA (Clean Water Act) - Hazardous Substances

Sulfuric acid	7664-93-9	Present

Occupational Safety and Health Administration (OSHA)

29 CFR 1910.1200 hazardous chemical Yes

CERCLA (Superfund) reportable quantity

Sulphuric acid: 1000.0000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
Section 302 extremely hazardous substance	No
Section 311 hazardous chemical	Yes
Clean Air Act (CAA)	Not available
Clean Water Act (CWA)	Not available
WHMIS status	Controlled
WHMIS classification	Class D - Division 2B, Class E - Corrosive Material
WHMIS labeling	

State regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

U.S. - California - 8 CCR Section 339 - Director's List of Hazardous Substances

Sulfuric acid	7664-93-9	Present

U.S. - Illinois - Toxic Air Contaminants

Sulfuric acid	7664-93-9	Present (aerosol)

U.S. - Louisiana - Reportable Quantity List for Pollutants

Sulfuric acid	7664-93-9	1000 Lb final RQ; 454 kg final RQ

U.S. - Massachusetts - Right To Know List

Sulfuric acid	7664-93-9	Extraordinarily hazardous

U.S. - Minnesota - Hazardous Substance List

Sulfuric acid	7664-93-9	Present

U.S. - New Jersey - Right to Know Hazardous Substance List

Sulfuric acid	7664-93-9	sn 1761

U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

Sulfuric acid	7664-93-9	1000 Lb RQ (air); 100 lb RQ (land/water)

U.S. - North Carolina - Control of Toxic Air Pollutants

Sulfuric acid	7664-93-9	0.012 mg/m3 (chronic toxicants); 0.1 mg/m3 (acute systemic toxicants)

U.S. - Ohio - Extremely Hazardous Substances - Threshold Quantities

Sulfuric acid	7664-93-9	500 Lb TQ

U.S. - Pennsylvania - RTK (Right to Know) List

Sulfuric acid	7664-93-9	Environmental hazard

U.S. - Rhode Island - Hazardous Substance List

Sulfuric acid	7664-93-9	Toxic; Flammable

Inventory name

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

Disclaimer Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.

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