MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	**CERIC SULFATE SOLUTION, 0.4 N**
Catalog #	1983
Version #	02
Revision date	18-Jun-2008
CAS #	Mixture
Manufacturer information	GFS Chemicals, Inc. P.O. Box 245 Powell, OH 43065 US www.gfschemicals.com Fax 740-881-5989 Phone 740-881-5501 Toll Free 800-858-9682 Emergency Assistance Chemtrec 800-424-8300

2. Hazards Identification

Emergency overview	DANGER Corrosive. Causes skin and eye burns. Harmful if inhaled. Harmful if swallowed. Harmful if absorbed through the skin. Irritating to respiratory system. Prolonged exposure may cause chronic effects.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	This product causes eye burns. Harmful in contact with eyes. Risk of serious damage to eyes. Do not get this material in contact with eyes.
Skin	Causes skin burns. Harmful in contact with skin. Do not get this material in contact with skin.
Inhalation	Causes burns. Harmful if inhaled. Irritating to respiratory system. Do not breathe dust/fume/gas/mist/vapors/spray.
Ingestion	Harmful if swallowed. Components of the product may be absorbed into the body by ingestion. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract. Do not ingest.
Target organs	Eyes. Respiratory system. Skin.
Potential environmental effects	Components of this product are hazardous to aquatic life. May cause long-term adverse effects in the environment.

3. Composition / Information on Ingredients

Hazardous components	**CAS #**	**Percent**
SULFURIC ACID	7664-93-9	2.5 - 10
CERIC SULFATE	17106-39-7	10 - 20
Non-hazardous components	**CAS #**	**Percent**
WATER	7732-18-5	60 - 80

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
Skin contact	Remove and isolate contaminated clothing and shoes. Immediately flush skin with plenty of water. Get medical attention immediately. For minor skin contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse.

Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.
Ingestion	If material is ingested, immediately contact a poison control center. Have victim rinse mouth thoroughly with water. Do not induce vomiting without advice from poison control center. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
Notes to physician	In case of shortness of breath, give oxygen. Keep victim warm.
General advice	Immediate medical attention is required. In case of shortness of breath, give oxygen. Keep victim warm. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties	Not a fire hazard. The product is not flammable.
Extinguishing media	
Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). Use extinguishing agent suitable for type of surrounding fire.
Protection of firefighters	
Specific hazards arising from the chemical	In the event of fire oxides of sulfur may be formed.

6. Accidental Release Measures

Personal precautions	Local authorities should be advised if significant spillages cannot be contained. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering. Keep unnecessary personnel away. Stay upwind. Keep out of low areas.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not contaminate water.
Methods for containment	Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas.
Methods for cleaning up	Should not be released into the environment. Large Spills: Dike far ahead of liquid spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean contaminated surface thoroughly. Never return spills in original containers for re-use. Neutralize the spilled material before disposal.

7. Handling and Storage

Handling	Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get this material on clothing. Use only with adequate ventilation. Wear personal protective equipment. Avoid prolonged exposure. Wash thoroughly after handling. Avoid release to the environment. Handle and open container with care.
Storage	Keep in a well-ventilated place. Keep container tightly closed. Keep this material away from food, drink and animal feed. Keep out of the reach of children. Use care in handling/storage.

8. Exposure Controls / Personal Protection

Occupational exposure limits

ACGIH

Components	CAS #	Type	Value	Form
SULFURIC ACID	7664-93-9	TWA	0.2 mg/m3	Thoracic fraction.

U.S. - OSHA

Components	CAS #	Type	Value	Form
SULFURIC ACID	7664-93-9	PEL	1 mg/m3	
		TWA	1 mg/m3	

Engineering controls Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Respiratory protection Do not breathe dust/fume/gas/mist/vapors/spray. None required where adequate ventilation conditions exist.

Hand protection Protective gloves.

Eye / face protection Do not get this material in contact with eyes. Wear chemical goggles. Face-shield.

Skin protection Do not get this material in contact with skin. Do not get this material on clothing. Wear appropriate chemical resistant gloves. Wear appropriate chemical resistant clothing. Structural firefighters protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations. Use chemical splash goggles and face shield (ANSI Z87.1 or approved equivalent). Wear chemical protective equipment that is specifically recommended by the manufacturer. It may provide little or no thermal protection.

General hygeine considerations Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not get this material on clothing. When using, do not eat, drink or smoke. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice.

General Structural firefighters protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations.

9. Physical & Chemical Properties

Appearance Clear.

Color Yellow-orange.

Odor Odorless.

Odor threshold Not available.

Physical state Liquid.

Form Aqueous solution.

pH < 1

Melting point Not available.

Freezing point Not available.

Boiling point 242.6 °F (117 °C) estimated

Flash point Not available.

Evaporation rate Not available.

Flammability Not available.

Flammability limits in air, upper, % by volume Not available.

Flammability limits in air, lower, % by volume Not available.

Vapor pressure Not available.

Vapor density Not available.

Specific gravity 1.22

Relative density 1.22 g/cm3

Solubility (water) Completely miscible

Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Molecular weight	528.4300
Molecular formula	H4Ce(SO4)4

10. Chemical Stability & Reactivity Information

Chemical stability	Stable at normal conditions.
Incompatible materials	Contact with metals may evolve flammable hydrogen gas. Bases This product may react with reducing agents.
Hazardous decomposition products	May include oxides of sulphur.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Acute effects Causes burns.

Acute Inhalation: LC 50

SULFURIC ACID	7664-93-9	Guinea pig 0.018 mg/l 8 h Young animal

Toxicology data for the preparation

Acute LC50: 0.32 mg/l, Guinea pig, Inhalation, estimated

Local effects	Irritating to respiratory system.
Chronic effects	Hazardous by OSHA criteria. Prolonged exposure may cause chronic effects.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Corrosivity	Hazardous by OSHA criteria.

12. Ecological Information

Ecotoxicity	Components of this product are hazardous to aquatic life.
Environmental effects	Harmful to aquatic life.
Persistence and degradability	Not available.

13. Disposal Considerations

Disposal instructions	Consult authorities before disposal. Do not allow this material to drain into sewers/water supplies. Solutions with low pH-value must be neutralized before discharge. This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose in accordance with all applicable regulations.
Waste from residues / unused products	Not applicable.

14. Transport Information

DOT

Basic shipping requirements:

Proper shipping name	Sulfuric acid with not more than 51% acid
Hazard class	8
UN number	UN2796
Packing group	II
Additional information:	
Special provisions	A3, A7, B2, B15, IB2, N6, N34, T8, TP2, TP12
Packaging exceptions	154
Packaging non bulk	202
Packaging bulk	242
ERG number	157

15. Regulatory Information

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.

CERCLA/SARA Hazardous Substances - Not applicable.

US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Spill: Reportable quantity

SULFURIC ACID	7664-93-9	1000 LBS

US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Substance: Threshold Planning Quantity

SULFURIC ACID	7664-93-9	1000 LBS

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

SULFURIC ACID	7664-93-9	1.0 %

CERCLA (Superfund) reportable quantity

None

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

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of New and Existing Chemicals (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	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)

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

US - New Jersey Community RTK (EHS Survey): Reportable threshold

SULFURIC ACID	7664-93-9	500 LBS

US - Pennsylvania RTK - Hazardous Substances: Listed substance

SULFURIC ACID	7664-93-9	Listed.

16. Other Information

Further information	HMIS® is a registered trade and service mark of the NPCA.
HMIS® ratings	Health: 3* Flammability: 0 Physical hazard: 1
NFPA ratings	Health: 3 Flammability: 0 Instability: 1
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
Issue date	18-Jun-2008
This data sheet contains changes from the previous version in section(s):	This document has undergone significant changes and should be reviewed in its entirety.