# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

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| **Material name** | **CERIC SULFATE, SOLUTION, 0.5N** |
| **Catalog #** | 25 |
| **Version #** | 02 |
| **Revision date** | 18-Jun-2008 |
| **CAS #** | Mixture |
| **Manufacturer information** | GFS Chemicals, Inc.<br>P.O. Box 245<br>Powell, OH 43065 US<br>www.gfschemicals.com<br>Fax 740-881-5989<br>Phone 740-881-5501<br>Toll Free 800-858-9682<br>Emergency Assistance Chemtrec 800-424-8300 |

## 2. Hazards Identification

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| **Emergency overview** | DANGER<br><br>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 | 20 - 40 |
| **Non-hazardous components** | **CAS #** | **Percent** |
| WATER | 7732-18-5 | 60 - 80 |

## 4. First Aid Measures

**First aid procedures**

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| **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. |

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| **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

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| **Flammable properties** | Not a fire hazard. The product is not flammable. |
| **Extinguishing media** | |
| **Suitable extinguishing media** | Water fog. Foam. Dry chemical powder. Carbon dioxide ($CO_2$). 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

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| **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.<br><br>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.<br><br>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean contaminated surface thoroughly.<br><br>Never return spills in original containers for re-use. Neutralize the spilled material before disposal. |

## 7. Handling and Storage

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| **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** 244.4 °F (118 °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** 1.268

**Relative density** 1.268 g/cm3

**Solubility (water)** Completely miscible

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| **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

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| **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**

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

**Toxicology data for the preparation**

Acute LC50: 0.33 mg/l, Guinea pig, Inhalation, estimated

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| **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

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

## 13. Disposal Considerations

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| **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:**

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| **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**

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|---|---|---|
| SULFURIC ACID | 7664-93-9 | 1000 LBS |

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

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|---|---|---|
| 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)**

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| **Hazard categories** | Immediate Hazard - Yes<br>Delayed Hazard - Yes<br>Fire Hazard - No<br>Pressure Hazard - No<br>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)

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| **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**

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|---|---|---|
| SULFURIC ACID | 7664-93-9 | 500 LBS |

**US - Pennsylvania RTK - Hazardous Substances: Listed substance**

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|---|---|---|
| SULFURIC ACID | 7664-93-9 | Listed. |

## 16. Other Information

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| **Further information** | HMIS® is a registered trade and service mark of the NPCA. |
| **HMIS® ratings** | Health: 3*<br>Flammability: 0<br>Physical hazard: 1 |
| **NFPA ratings** | Health: 3<br>Flammability: 0<br>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. |