

## MATERIAL SAFETY DATA SHEET

MSDS 0681

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 Section 1 -- PRODUCT AND COMPANY IDENTIFICATION  
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|                            | HMIS CODES                      |   |
|----------------------------|---------------------------------|---|
| PRODUCT NAME               | Health                          | 3 |
| Calci-Free                 | Flammability                    | 0 |
|                            | Reactivity                      | 0 |
| PRODUCT CODES              | PPI                             | D |
| 68708                      |                                 |   |
| CHEMICAL FAMILY            |                                 |   |
| Inorganic Acids            |                                 |   |
| USE                        |                                 |   |
| Scale Remover              |                                 |   |
| MANUFACTURER'S NAME        | EMERGENCY TELEPHONE NO.         |   |
| The RectorSeal Corporation | Chemtrec 24 Hours               |   |
| 2601 Spenwick Drive        | (800)424-9300 USA               |   |
| Houston, Texas 77055 USA   | (703)527-3887 International     |   |
| DATE OF VALIDATION         | TECHNICAL SERVICE TELEPHONE NO. |   |
| October 9, 2012            | (800)231-3345 or (713)263-8001  |   |
| DATE OF PREPARATION        |                                 |   |
| October 9, 2012            |                                 |   |

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 Section 2 -- HAZARDS IDENTIFICATION  
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## Emergency Overview

OSHA Hazards

Corrosive

GHS Classification

Acute toxicity, Oral (Category 5)

Skin irritation (Category 2)

Serious eye damage (Category 1)

Acute aquatic toxicity (Category 3)

## GHS Label elements, including precautionary statements

Pictogram - Corrosive

Signal word - Danger

Hazard statement(s)

H303 May be harmful if swallowed.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H402 Harmful to aquatic life.

Precautionary statement(s)

P280 Wear protective gloves/ eye protection/ face protection.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

## SUMMARY OF ACUTE HAZARDS

Exposure to human tissue will result in irritation and subsequent chemical burns, bronchitis, pulmonary edema and chemical pneumonitis.

## INHALATION

Respiratory and mucous membrane irritation, coughing, difficulty breathing.

## EYE CONTACT

Corrosive, causes eye burns.

## SKIN CONTACT

Causes skin irritation. Prolonged contact may cause skin burns.

## INGESTION

Burns on mouth and lips, sour acrid taste, severe gastrointestinal irritation, nausea, vomiting, bloody diarrhea, difficult swallowing, severe abdominal pains, thirst, acidemia, difficult breathing, convulsions, collapse, shock, possible death.

SUMMARY OF CHRONIC HAZARDS

Bronchitis, pulmonary edema and chemical burns, bronchitis and chemical pneumonitis; possible death.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Skin disorders, eye problems, impaired liver and kidney, or respiratory function.

Section 3 -- COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT: Sulfamic Acid
PERCENTAGE BY WEIGHT: 70-99
CAS#: 5329-14-6
EC#: 226-218-8

Section 4 -- FIRST AID MEASURES

- If INHALED: If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.
If on SKIN: Immediately flush with large amounts of water; use soap if available. Remove contaminated clothing.
If in EYES: Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.
If SWALLOWED: If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

Section 5 -- FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Use agents appropriate for surrounding fires.

SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus (SCBA) and other protective clothing. Hazardous decomposition products possible (see Section 10). Evacuate immediate area.

UNUSUAL FIRE AND EXPLOSION HAZARDS: May release sulfur dioxide (SO2), sulfur trioxide (SO3), and ammonia gas (NH3) if involved in a fire.

Section 6 -- ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Sweep up spillage and flush the area with large quantities of water. May be neutralized with sodium bicarbonate mixed with water.

Section 7 -- HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Prevent from absorption of moisture and possible caking. Should be stored in a cool and dry place. Do not store with cyanides, sulfides, chlorine, hypochlorous acid, or hypochlorites.

OTHER PRECAUTIONS: Refrain from splashing product when pouring. Avoid all contact with skin or clothing. Empty containers may contain residues and vapors. KEEP OUT OF REACH OF CHILDREN.

Section 8 -- EXPOSURE CONTROLS/PERSONAL PROTECTION

Table with 2 columns: INGREDIENT, UNITS. Row 1: Sulfamic Acid, ACGIH TLV N/D, OSHA PEL N/D.

RESPIRATORY PROTECTION (SPECIFY TYPE): In confined poorly ventilated areas, use NIOSH/MSHA approved air purifying or supplied air purifying or supplied air respirators.

VENTILATION - LOCAL EXHAUST: Acceptable

SPECIAL: N/A

MECHANICAL (GENERAL): Acceptable

OTHER: N/A

PROTECTIVE GLOVES: Wear acid resistant gloves (neoprene, PVC, butyl rubber).

EYE PROTECTION: Full-face shield and chemical splash goggles (ANSI Z-87.1 or equivalent).

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Acid resistant vinyl or polyethylene coated coveralls.

WORK/HYGIENIC PRACTICES: Where use can result in skin contact, wash exposed areas thoroughly before eating, drinking, smoking, or leaving work area.

Launder contaminated clothing before reuse.

Section 9 -- PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT: 214 F (101 C) @ 760mm Hg  
 SPECIFIC GRAVITY (H2O = 1): 2.126  
 VAPOR PRESSURE (mm Hg): N/A  
 MELTING POINT: N/A  
 VAPOR DENSITY (AIR = 1): N/A  
 EVAPORATION RATE (ETHYL ACETATE = 1): N/A  
 APPEARANCE/ODOR: White solid / None  
 SOLUBILITY IN WATER: Soluble  
 FLASH POINT: None  
 LOWER EXPLOSION LIMIT: N/D  
 UPPER EXPLOSION LIMIT: N/D  
 VOLATILE ORGANIC COMPOUNDS(VOC)Content  
 (Theoretical Percentage By Weight): 0% or (0 g/L)

Section 10 -- STABILITY AND REACTIVITY

STABILITY: Stable  
 CONDITIONS TO AVOID: Incompatibles  
 INCOMPATIBILITY (MATERIALS TO AVOID): Hazardous reaction in aqueous solution may occur with chlorine, hypochlorous acid, hypochlorites, cyanides, nitric acid, or sulfides. An explosion occurred when chlorine was being passed at room temperature into a reaction mixture which included sulfamic acid and water. It is suspected that nitrogen trichloride, a very sensitive explosive, was formed. Fuming nitric acid combined with sulfamic acid causes violent releases of nitrous oxide.  
 HAZARDOUS DECOMPOSITION PRODUCTS: Decomposes with heat (209C) to release sulfur dioxide (SO2), sulfur trioxide (SO3), nitrogen (N2), water (H2O), and ammonia gas (NH3).  
 HAZARDOUS POLYMERIZATION: Will not occur.

Section 11 -- TOXICOLOGY INFORMATION

CHRONIC HEALTH HAZARDS  
No ingredient in this product is an IARC, NTP or OSHA listed carcinogen.

TOXICOLOGY DATA  
Ingredient Name

Sulfamic Acid  
 Oral-Rat LD50:3160 mg/kg  
 Inhalation-Rat LC50:N/D

Section 12 -- Ecological Information

ECOLOGICAL DATA  
Ingredient Name

Sulfamic Acid  
 Food Chain Concentration Potential N/D  
 WATERFOWL TOXICITY N/D

BOD N/D  
AQUATIC TOXICITY N/D

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Section 13 -- DISPOSAL CONSIDERATIONS  
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Waste Classification: Corrosive(D002)  
Disposal Method: Neutralization  
RCRA classified hazardous waste. Dispose of absorbed materials and liquid waste in accordance with all local, state and federal regulations.

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Section 14 -- TRANSPORTATION INFORMATION  
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DOT: UN1759, Corrosive solid, n.o.s. (sulfamic acid), Class 8, PGIII, ERG#154  
Individual containers under 11 lbs.: Consumer Commodity, ORM-D  
OCEAN (IMDG): UN1759, Corrosive solid, n.o.s. (sulfamic acid), Class 8, PGIII, EMS-No: F-A, S-B  
Individual containers under 11 lbs.: UN1759, Corrosive solid, n.o.s. (sulfamic acid), Class 8, PGIII, EMS-No: F-A, S-B, Limited Quantities or Ltd Qty  
AIR (IATA): UN1759, Corrosive solid, n.o.s. (sulfamic acid), Class 8, UN1759, PGIII, ERG#154

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Section 15 -- REGULATORY INFORMATION  
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REGULATORY DATA  
Ingredient Name

|               |                |     |
|---------------|----------------|-----|
| Sulfamic Acid |                |     |
|               | SARA 313       | No  |
|               | TSCA Inventory | Yes |
|               | CERCLA RQ      | N/A |
|               | RCRA Code      | N/A |

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Section 16 -- OTHER INFORMATION  
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This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). The information herein is given in good faith, but no warranty, expressed or implied is made. Consult RectorSeal for further information: (713) 263-8001