



# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

**Material name** GFS ETCHANT FORMULA 13  
**Catalog #** 5913  
**Version #** 03  
**Revision date** 06-Aug-2009  
**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. 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** Risk of serious damage to eyes. Do not get this material in contact with eyes.

**Skin** Causes skin burns. Do not get this material in contact with skin.

**Inhalation** May cause irritation of respiratory tract. Avoid breathing dust/fume/gas/mist/vapors/spray.

**Ingestion** May cause toxic effects 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
NITRIC ACID	7697-37-2	2.5 - 10
CERIC NITRATE	13093-17-9	20 - 40
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. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens. 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. For minor skin contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse. Get medical attention if irritation develops or persists.

**Inhalation** Move to fresh air. Oxygen or artificial respiration if needed. 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. Get medical attention if symptoms persist.

## **Ingestion**

Give water with milk of magnesia and ice to suck. Have victim rinse mouth thoroughly with water. Never give anything by mouth to a victim who is unconscious or is having convulsions. 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. If material is ingested, immediately contact a poison control center. Get medical attention immediately.

## **Notes to physician**

In case of shortness of breath, give oxygen. Keep victim warm. Symptoms may be delayed.

## **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**

The product is not flammable. Not a fire hazard.

### **Extinguishing media**

#### **Suitable extinguishing media**

Water. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).

### **Protection of firefighters**

#### **Protective equipment and precautions for firefighters**

In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers. Cool containers exposed to flames with water until well after the fire is out.

### **Specific methods**

In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers.

## **6. Accidental Release Measures**

### **Personal precautions**

Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Keep upwind. Keep out of low areas. Keep people away from and upwind of spill/leak. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Ventilate closed spaces before entering them. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

### **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 spill for later disposal. Neutralize with sodium hydroxide, soda ash or lime.

Small Spills: Dilute with water. Neutralize the spilled material before disposal. Clean surface thoroughly to remove residual contamination. Following product recovery, flush area with water.

Never return spills in original containers for re-use.

## **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 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 locked-up. Store 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.

## 8. Exposure Controls / Personal Protection

### Occupational exposure limits

#### ACGIH

Components	CAS #	Type	Value	Form
NITRIC ACID	7697-37-2	STEL	4 ppm	
		TWA	2 ppm	

#### U.S. - OSHA

Components	CAS #	Type	Value	Form
NITRIC ACID	7697-37-2	PEL	2 ppm	
			5 mg/m3	
		STEL	10 mg/m3	
			4 ppm	
		TWA	2 ppm	
5 mg/m3				

**Engineering controls** Ensure adequate ventilation, especially in confined areas.

### Personal protective equipment

**Respiratory protection** None required where adequate ventilation conditions exist.

**Hand protection** Rubber gloves.

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

**Skin protection** Do not get this material on clothing. Wear chemical protective equipment that is specifically recommended by the manufacturer. Wear appropriate chemical resistant clothing. It may provide little or no thermal protection. 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 appropriate chemical resistant gloves.

**General hygiene 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

<b>Appearance</b>	Not available.
<b>Color</b>	Red-orange.
<b>Odor</b>	Odorless.
<b>Odor threshold</b>	Not available.
<b>Physical state</b>	Liquid.
<b>Form</b>	Liquid.
<b>pH</b>	< 0
<b>Melting point</b>	< 32 °F (< 0 °C)
<b>Freezing point</b>	Not available.
<b>Boiling point</b>	> 212 °F (> 100 °C)
<b>Flash point</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Flammability</b>	Not available.
<b>Flammability limits in air, upper, % by volume</b>	Not available.
<b>Flammability limits in air, lower, % by volume</b>	Not available.
<b>Vapor pressure</b>	Not available.
<b>Vapor density</b>	Not available.

<b>Specific gravity</b>	1.21
<b>Relative density</b>	1.21 g/cm <sup>3</sup>
<b>Solubility (water)</b>	Miscible
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Percent volatile</b>	75.625 % estimated
<b>Molecular weight</b>	514.1800 g/mol
<b>Molecular formula</b>	H <sub>2</sub> Ce(NO <sub>3</sub> ) <sub>6</sub>

## 10. Chemical Stability & Reactivity Information

<b>Chemical stability</b>	Stable at normal conditions. No hazardous self-reactivity.
<b>Incompatible materials</b>	Reducing agents Combustible material. Wood, paper, etc.
<b>Hazardous decomposition products</b>	May include oxides of nitrogen.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.

## 11. Toxicological Information

**Acute effects** Causes burns.

### Acute Inhalation: LC 50

NITRIC ACID	7697-37-2	Mouse 67 mg/l 4 h
NITRIC ACID	7697-37-2	Rat 138 mg/l 30 min
NITRIC ACID	7697-37-2	Rat 244 mg/l 30 min
NITRIC ACID	7697-37-2	Rat 334 mg/l 30 min
NITRIC ACID	7697-37-2	Rat 65 mg/l 4 h
NITRIC ACID	7697-37-2	Mouse 244 mg/l 30 min

### Toxicology data for the preparation

Acute LC50: 4607 mg/l, Mouse, Inhalation, estimated

<b>Chronic effects</b>	Hazardous by OSHA criteria. Prolonged exposure may cause chronic effects.
<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
<b>Corrosivity</b>	Hazardous by OSHA criteria.

## 12. Ecological Information

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

## 13. Disposal Considerations

<b>Waste codes</b>	D002: Waste Corrosive material [pH ≤2 or ≥12.5, or corrosive to steel]
<b>Disposal instructions</b>	Dispose of this material and its container at hazardous or special waste collection point. Do not allow this material to drain into sewers/water supplies. Solutions with low pH-value must be neutralized before discharge. Dispose in accordance with all applicable regulations.
<b>Waste from residues / unused products</b>	Not applicable.

## 14. Transport Information

### DOT

#### Basic shipping requirements:

<b>Proper shipping name</b>	Corrosive liquid, acidic, inorganic, n.o.s. (NITRIC ACID RQ=29630 LBS)
<b>Hazard class</b>	8
<b>UN number</b>	UN3264
<b>Packing group</b>	II
<b>Additional information:</b>	
<b>Special provisions</b>	A6, B2, IB2, T11, TP2, TP27
<b>Packaging exceptions</b>	154
<b>Packaging non bulk</b>	202
<b>Packaging bulk</b>	242
<b>ERG number</b>	154



## 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

NITRIC ACID 7697-37-2 1000 LBS

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

NITRIC ACID 7697-37-2 1000 LBS

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

NITRIC ACID 7697-37-2 1.0 %

#### CERCLA (Superfund) reportable quantity

NITRIC 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

#### 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)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of New and Existing Chemicals (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
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**

NITRIC ACID 7697-37-2 500 LBS

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

NITRIC ACID 7697-37-2 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 in the sheet was written based on the best knowledge and experience currently available. 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**

06-Aug-2009