



# SAFETY DATA SHEET

Distributed by:



4621 Technology Drive, Golden, CO 80403  
ph: (303) 762-0800 fax: (303) 762-1240

Part #: P1110

## 1. Identification

<b>Product identifier</b>	<b>PERCHLORIC ACID, 70%, REAGENT (ACS)</b>		
<b>Other means of identification</b>			
<b>Product code</b>	66		
<b>Recommended use</b>	manufacture of other chemical products, professional, scientific and technical activities: other professional, scientific and technical activities		
<b>Recommended restrictions</b>	None known.		
<b>Manufacturer/Importer/Supplier/Distributor information</b>			
<b>Manufacturer</b>			
<b>Company name</b>	GFS Chemicals, Inc.		
<b>Address</b>	P.O. Box 245 Powell, OH 43065 United States		
<b>Telephone</b>	Phone	740-881-5501	
	Toll Free	800-858-9682	
	Fax	740-881-5989	
<b>Website</b>	www.gfschemicals.com		
<b>E-mail</b>	service@gfschemicals.com		
<b>Emergency phone number</b>	Emergency Assistance	Chemtrec 800-424-9300	

## 2. Hazard(s) identification

<b>Physical hazards</b>	Oxidizing liquids	Category 1
<b>Health hazards</b>	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 1A
	Serious eye damage/eye irritation	Category 1
<b>Environmental hazards</b>	Not classified.	
<b>OSHA defined hazards</b>	Not classified.	

### Label elements



<b>Signal word</b>	Danger
<b>Hazard statement</b>	May cause fire or explosion; strong oxidizer. Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage. May cause damage to organs ( ).
<b>Precautionary statement</b>	
<b>Prevention</b>	Keep away from heat. Keep/Store away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
<b>Response</b>	In case of fire: Use water for extinction. If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If on clothing: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Immediately call a POISON CENTER or doctor/physician. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
<b>Storage</b>	Store locked up. Store away from combustibles.
<b>Disposal</b>	Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
<b>Hazard(s) not otherwise classified (HNOC)</b>	None known.
<b>Supplemental information</b>	None.

### 3. Composition/information on ingredients

#### Mixtures

Chemical name	Common name and synonyms	CAS number	%
PERCHLORIC ACID		7601-90-3	70
WATER		7732-18-5	30

\*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

### 4. First-aid measures

<b>Inhalation</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a physician or poison control center immediately.
<b>Skin contact</b>	IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Get medical attention if irritation develops or persists. Call a physician or poison control center immediately. For minor skin contact, avoid spreading material on unaffected skin.
<b>Eye contact</b>	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
<b>Ingestion</b>	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
<b>Most important symptoms/effects, acute and delayed</b>	Corrosive effects. Irritation of eyes and mucous membranes. May cause temporary blindness and severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
<b>Indication of immediate medical attention and special treatment needed</b>	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. Provide general supportive measures and treat symptomatically.
<b>General information</b>	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wash contaminated clothing before reuse.

### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Water. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards arising from the chemical</b>	May cause fire or explosion; strong oxidizer. Strong oxidizer - contact with other material may cause fire.
<b>Special protective equipment and precautions for firefighters</b>	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
<b>Fire fighting equipment/instructions</b>	In case of fire: Stop leak if safe to do so. In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Move containers from fire area if you can do so without risk. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.
<b>General fire hazards</b>	May cause fire or explosion; strong oxidizer.

### 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep upwind. Keep out of low areas. Ensure adequate ventilation. Wear appropriate personal protective equipment.
<b>Methods and materials for containment and cleaning up</b>	DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Should not be released into the environment. Keep combustibles (wood, paper, oil, etc.) away from spilled material. Prevent entry into waterways, sewer, basements or confined areas. This product is miscible in water.  Large Spills: Stop leak if you can do so without risk. Dike the spilled material, where this is possible. Dilute with water. Neutralize with lime or soda ash. Flush to sewer if local regulations permit. Following product recovery, flush area with water. Clean up in accordance with all applicable regulations.  Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.  Never return spills in original containers for re-use. For waste disposal, see section 13 of the SDS.

**Environmental precautions** Avoid discharge into drains, water courses or onto the ground. Prevent further leakage or spillage if safe to do so. Do not contaminate water.

## 7. Handling and storage

**Precautions for safe handling** Take any precaution to avoid mixing with combustibles. Keep away from heat. Do not breathe mist or vapor. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not taste or swallow. Do not get this material on clothing. When using, do not eat, drink or smoke. Wash hands thoroughly after handling.

**Conditions for safe storage, including any incompatibilities** Store locked up. Do not store around flammable or combustible materials. Keep away from heat. Keep container tightly closed. Keep out of the reach of children. Store in a cool, dry place out of direct sunlight.

## 8. Exposure controls/personal protection

**Occupational exposure limits** No exposure limits noted for ingredient(s).

**Biological limit values** No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls** An eye wash and safety shower must be available in the immediate work area.

### Individual protection measures, such as personal protective equipment

**Eye/face protection** Wear eye/face protection.

#### Skin protection

**Hand protection** Wear protective gloves.

**Other** Wear appropriate chemical resistant clothing. It may provide little or no thermal protection. Wear fire/flame resistant/retardant clothing. Wear protective gloves.

**Respiratory protection** In case of insufficient ventilation, wear suitable respiratory equipment. In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.

**Thermal hazards** Not available.

**General hygiene considerations** When using, do not eat, drink or smoke. Do not get in eyes. Do not get this material in contact with skin. Do not get this material on clothing. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice. Provide eyewash station and safety shower.

## 9. Physical and chemical properties

**Appearance** Clear.

**Physical state** Liquid.

**Form** Liquid.

**Color** Colorless.

**Odor** Odorless.

**Odor threshold** Not available.

**pH** < 1 very acidic

**Melting point/freezing point** -22 °F (-30 °C)

**Initial boiling point and boiling range** 397 °F (203 °C)

**Flash point** Not available.

**Evaporation rate** Not available.

**Flammability (solid, gas)** Not available.

### Upper/lower flammability or explosive limits

**Flammability limit - lower (%)** Not available.

**Flammability limit - upper (%)** Not available.

**Explosive limit - lower (%)** Not available.

**Explosive limit - upper (%)** Not available.

**Vapor pressure** Not available.

**Vapor density** Not available.

**Relative density** Not available.

### Solubility(ies)

**Solubility (water)** Completely miscible

<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>Density</b>	1.66 g/cm <sup>3</sup>
<b>Molecular formula</b>	HClO <sub>4</sub>
<b>Molecular weight</b>	100.47 g/mol
<b>Specific gravity</b>	1.66

## 10. Stability and reactivity

<b>Reactivity</b>	Not available.
<b>Chemical stability</b>	Risk of explosion. Stable at normal conditions. Becomes oxidizing at elevated temperatures (>150 C). hygroscopic.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.
<b>Conditions to avoid</b>	Avoid temperatures above 300°F (150°C). Drying of this product on clothing or combustible materials may cause fire.
<b>Incompatible materials</b>	Flammable materials and Combustible material. This product may react with reducing agents.
<b>Hazardous decomposition products</b>	Toxic gas. Irritants.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	May cause irritation to the respiratory system.
<b>Skin contact</b>	Causes severe skin burns and eye damage.
<b>Eye contact</b>	Causes severe eye burns. Causes serious eye damage.
<b>Ingestion</b>	Causes digestive tract burns. Harmful if swallowed.

**Symptoms related to the physical, chemical and toxicological characteristics** Burning pain and severe corrosive skin damage. Permanent eye damage including blindness could result.

### Information on toxicological effects

**Acute toxicity** Causes severe skin burns and eye damage. Harmful if swallowed.

<b>Product</b>	<b>Species</b>	<b>Test Results</b>
----------------	----------------	---------------------

PERCHLORIC ACID (CAS Mixture)

#### **Acute**

*Oral*

LD50

Rat

1100 mg/kg

\* Estimates for product may be based on additional component data not shown.

**Skin corrosion/irritation** Corrosive to skin and eyes. Causes severe skin burns and eye damage.

**Serious eye damage/eye irritation** Causes severe eye burns. Causes serious eye damage.

### **Respiratory or skin sensitization**

**Respiratory sensitization** Due to lack of data the classification is not possible.

**Skin sensitization** Due to lack of data the classification is not possible.

**Germ cell mutagenicity** Due to lack of data the classification is not possible.

**Carcinogenicity** This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

**Reproductive toxicity** Due to lack of data the classification is not possible.

**Specific target organ toxicity - single exposure** May cause damage to organs ( ).

**Specific target organ toxicity - repeated exposure** Due to lack of data the classification is not possible.

**Aspiration hazard** Due to lack of data the classification is not possible.

## 12. Ecological information

<b>Ecotoxicity</b>	Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.
<b>Persistence and degradability</b>	No data is available on the degradability of this product.
<b>Bioaccumulative potential</b>	Not available.
<b>Mobility in soil</b>	Not available.
<b>Other adverse effects</b>	Not available.

## 13. Disposal considerations

<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Neutralize with soda ash/slaked lime and discharge to sewer with lots of water. Do not contaminate ponds, waterways or ditches with chemical or used container. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Hazardous waste code</b>	D001: Waste Flammable material with a flash point <140 F D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Taking into account local regulations the product may be disposed of as waste water after neutralisation.
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

## 14. Transport information

### DOT

<b>UN number</b>	UN1873
<b>UN proper shipping name</b>	Perchloric acid with more than 50 percent but not more than 72 percent acid, by mass
<b>Transport hazard class(es)</b>	
<b>Class</b>	5.1
<b>Subsidiary risk</b>	8
<b>Label(s)</b>	5.1, 8
<b>Packing group</b>	I
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Special provisions</b>	A2, A3, N41, T10, TP1, TP12
<b>Packaging exceptions</b>	None
<b>Packaging non bulk</b>	201
<b>Packaging bulk</b>	243

### IATA

<b>UN number</b>	UN1873
<b>UN proper shipping name</b>	Perchloric acid 72% or less but more than 50% acid, by weight
<b>Transport hazard class(es)</b>	
<b>Class</b>	5.1
<b>Subsidiary risk</b>	8
<b>Packing group</b>	I
<b>Environmental hazards</b>	No.
<b>ERG Code</b>	5C
<b>Special precautions for user</b>	Not available.
<b>Other information</b>	
<b>Passenger and cargo aircraft</b>	Forbidden
<b>Cargo aircraft only</b>	Allowed.

### IMDG

<b>UN number</b>	UN1873
<b>UN proper shipping name</b>	PERCHLORIC ACID with more than 50% but not more than 72% acid, by mass
<b>Transport hazard class(es)</b>	
<b>Class</b>	5.1
<b>Subsidiary risk</b>	8
<b>Packing group</b>	I

**Environmental hazards**

**Marine pollutant**

No.

**EmS**

F-A, S-Q

**Special precautions for user**

Not available.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

This substance/mixture is not intended to be transported in bulk.

**DOT**



**IATA; IMDG**



**15. Regulatory information**

**US federal regulations**

CERCLA/SARA Hazardous Substances - Not applicable.

All components are on the U.S. EPA TSCA Inventory List.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Not listed.

**SARA 304 Emergency release notification**

Not regulated.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories**

Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - Yes  
Pressure Hazard - No  
Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312**

No

**Hazardous chemical**

**SARA 313 (TRI reporting)**

Not regulated.

**Other federal regulations**

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**Safe Drinking Water Act (SDWA)**

Not regulated.

**US state regulations**

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

Material name: PERCHLORIC ACID, 70%, REAGENT (ACS)

**US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)**

Not listed.

**US. Massachusetts RTK - Substance List**

PERCHLORIC ACID (CAS 7601-90-3)

**US. New Jersey Worker and Community Right-to-Know Act**

PERCHLORIC ACID (CAS 7601-90-3)

**US. Pennsylvania Worker and Community Right-to-Know Law**

PERCHLORIC ACID (CAS 7601-90-3)

**US. Rhode Island RTK**

Not regulated.

**US. California Proposition 65**

Not Listed.

**International Inventories**

<b>Country(s) or region</b>	<b>Inventory name</b>	<b>On inventory (yes/no)*</b>
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (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	Yes
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)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information, including date of preparation or last revision****Issue date** February-04-2013**Revision date** November-03-2014**Version #** 02

**Disclaimer** The information in the sheet was written based on the best knowledge and experience currently available. 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.

**Revision Information** Product and Company Identification: Product and Company Identification  
Hazard(s) identification: Disposal