

1. Identification

Product identifier	PERCHLORIC ACID, 50%, REAGENT (ACS)	
Other means of identification		
Product code	6601	
Recommended use	professional, scientific and technical activities: other professional, scientific and technical activities	
Recommended restrictions	None known.	
Manufacturer/Importer/Supplier/Distributor information		
Manufacturer		
Company name	GFS Chemicals, Inc.	
Address	P.O. Box 245 Powell, OH 43065 United States	
Telephone	Phone	740-881-5501
	Toll Free	800-858-9682
	Fax	740-881-5989
Website	www.gfschemicals.com	
E-mail	service@gfschemicals.com	
Emergency phone number	Emergency Assistance	Chemtrec 800-424-9300

2. Hazard(s) identification

Physical hazards	Oxidizing liquids	Category 2
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
Environmental hazards	Not classified.	
OSHA defined hazards	Not classified.	

Label elements



Signal word	Danger
Hazard statement	May intensify fire; oxidizer. Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage.
Precautionary statement	
Prevention	Keep away from heat. Take any precaution to avoid mixing with combustibles. Keep/Store away from clothing/combustible materials. Do not breathe mist or vapor. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink or smoke when using this product.
Response	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. Immediately call a POISON CENTER or doctor/physician. In case of fire: Use water to extinguish. Wash contaminated clothing before reuse.
Storage	Store locked up.
Disposal	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.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
PERCHLORIC ACID		7601-90-3	50
WATER		7732-18-5	50

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

4. First-aid measures

Inhalation

Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact

IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

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. Call a physician or poison control center immediately.

Ingestion

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.

Most important symptoms/effects, acute and delayed

Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information

Take off all contaminated clothing immediately. Contact with combustible material may cause fire. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media

Water. Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

Greatly increases the burning rate of combustible materials. Containers may explode when heated. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Firefighters should wear full protective clothing including self contained breathing apparatus. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions

In case of fire and/or explosion do not breathe fumes. Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. In case of fire: Stop leak if safe to do so. Move containers from fire area if you can do so without risk.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards

May intensify fire; oxidizer. Contact with combustible material may cause fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Keep away from clothing and other combustible materials. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Dilute with water. Keep combustibles (wood, paper, oil, etc.) away from spilled material. Ventilate the contaminated area. This product is miscible in water. Should not be released into the environment. Prevent entry into waterways, sewers, basements or confined areas.

Large Spills: Stop leak if you can do so without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas. Neutralize with lime or soda ash. Following product recovery, flush area with water.

Small Spills: Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Wear appropriate protective equipment and clothing during clean-up.

Environmental precautions

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

7. Handling and storage**Precautions for safe handling**

Keep away from heat. Keep away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. When using, do not eat, drink or smoke. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices. Take off contaminated clothing and wash before re-use.

Conditions for safe storage, including any incompatibilities

Store locked up. Do not store around flammable or combustible materials. Keep away from heat. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Do not store near combustible materials. Store away from incompatible materials (see Section 10 of the SDS).

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

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. General ventilation normally adequate. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection**Hand protection**

Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Other

Wear appropriate chemical resistant clothing.

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

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Keep from contact with clothing and other combustible materials. Remove and wash contaminated clothing promptly. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

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

Not available.

Initial boiling point and boiling range

266 °F (130 °C)

Material name: PERCHLORIC ACID, 50%, REAGENT (ACS)

6601

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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
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	1.4 g/cm3
Specific gravity	1.4

10. Stability and reactivity

Reactivity	Greatly increases the burning rate of combustible materials. Reacts violently with strong alkaline substances. This product may react with reducing agents.
Chemical stability	hygroscopic. Becomes oxidizing at elevated temperatures (>150 C).
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Heat. Do not mix with other chemicals. Contact with incompatible materials. Avoid temperatures above 300°F (150°C). Drying of this product on clothing or combustible materials may cause fire.
Incompatible materials	Bases. Combustible material. Reducing agents. Flammable materials.
Hazardous decomposition products	Toxic gas.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns. Harmful if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity	Harmful if swallowed.
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Product	Species	Test Results
PERCHLORIC ACID (CAS Mixture)		
Acute		
<i>Oral</i>		
LD50	Rat	1100 mg/kg

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

Skin corrosion/irritation	Causes severe skin burns and eye damage.
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Serious eye damage/eye irritation	Causes serious eye damage.
Respiratory or skin sensitization	
Respiratory sensitization	Not available.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
IARC Monographs. Overall Evaluation of Carcinogenicity	Not available.
US. National Toxicology Program (NTP) Report on Carcinogens	Not available.
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not available.

12. Ecological information

Ecotoxicity	This product has no known eco-toxicological effects. This material is not expected to be harmful to aquatic life. Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Dispose of contents/container in accordance with local/regional/national/international regulations. Solutions with low pH-value must be neutralized before discharge.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	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).
Contaminated packaging	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

UN number	UN1802
UN proper shipping name	Perchloric acid with not more than 50 percent acid by mass
Transport hazard class(es)	
Class	8
Subsidiary risk	5.1
Label(s)	8, 5.1
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	IB2, N41, T7, TP2
Packaging exceptions	None
Packaging non bulk	202
Packaging bulk	243

IATA

UN number	UN1802
UN proper shipping name	Perchloric acid 50% or less acid, by weight

Material name: PERCHLORIC ACID, 50%, REAGENT (ACS)

Transport hazard class(es)

Class	8
Subsidiary risk	5.1
Packing group	II
Environmental hazards	No.
ERG Code	8X
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Forbidden
Cargo aircraft only	Allowed.

IMDG

UN number	UN1802
UN proper shipping name	PERCHLORIC ACID with not more than 50% acid, by mass
Transport hazard class(es)	
Class	8
Subsidiary risk	5.1
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	F-H, S-Q
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

DOT**IATA; IMDG****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.

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

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

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.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
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 September-29-2015

Version # 01

Disclaimer

GFS Chemicals cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

Revision Information

Product and Company Identification: Product Codes