# SAFETY DATA SHEET

**Creation Date** 06-Oct-2009 **Revision Date** 18-Dec-2025 **Revision Number** 7

**This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard 2024 (29 CFR 1910.1200)**

## 1. Identification

**Product Name** **Perchloric acid**

**Cat No. :** **A229-61LB, A2298LB, A229-S8LB**

**CAS No** 7601-90-3
**Synonyms** Dioxonium perchlorate; Hydronium perchlorate; Perchloric acid solution

**Recommended Use** Laboratory chemicals.
**Uses advised against** Food, drug, pesticide or biocidal product use.

**Details of the supplier of the safety data sheet**

**Company**
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

**Emergency Telephone Number**
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

## 2. Hazard(s) identification

**Classification**
This chemical is considered hazardous according to [US] OSHA (29 CFR 1910.1200, 2024)

| | |
|---|---|
| Oxidizing liquids | Category 1 |
| Corrosive to metals | Category 1 |
| Acute oral toxicity | Category 4 |
| Skin Corrosion/Irritation | Category 1 A |
| Serious Eye Damage/Eye Irritation | Category 1 |
| Specific target organ toxicity (single exposure) Target Organs - Respiratory system. | Category 3 |
| Specific target organ toxicity - (repeated exposure) Target Organs - Thyroid. | Category 2 |

**Label Elements**

**Signal Word**
Danger

**Hazard Statements**
May cause fire or explosion; strong oxidizer
May be corrosive to metals
Harmful if swallowed
Causes severe skin burns and eye damage
May cause respiratory irritation
May cause damage to organs through prolonged or repeated exposure



**Precautionary Statements**
**Prevention**
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Do not breathe dust/fume/gas/mist/vapors/spray
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
Keep away from clothing and other combustible materials
Take any precaution to avoid mixing with combustibles
Wear fire resistant or flame retardant clothing
Keep only in original packaging
**Response**
Immediately call a POISON CENTER or doctor
**Inhalation**
IF INHALED: Remove person to fresh air and keep comfortable for breathing
**Skin**
Take off contaminated clothing and wash before reuse
IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes
Rinse skin with water or shower
**Eyes**
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
**Ingestion**
Rinse mouth
Do NOT induce vomiting
**Fire**
In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion
In case of fire: Use CO2, dry chemical, or foam to extinguish
**Spills**
Absorb spillage to prevent material damage
**Storage**
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Store in corrosive resistant polypropylene container with a resistant inliner
Store in a dry place
**Disposal**
Dispose of contents/container to an approved waste disposal plant
**Hazards not otherwise classified (HNOC)**
Risk of explosion if heated under confinement

**Hazards classified under paragraph (d)(1)(ii) of 1910.1200**
No information available

## 3. Composition/information on Ingredients

| Component | CAS No | Weight % |
|---|---|---|
| Perchloric acid | 7601-90-3 | 60-70 |
| Water | 7732-18-5 | 30-40 |

## 4. First-aid measures

**General Advice** Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.

**Inhalation** If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.

**Ingestion** Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.

**Most important symptoms and effects** Causes burns by all exposure routes. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated

**Notes to Physician** Treat symptomatically

## 5. Fire-fighting measures

**Suitable Extinguishing Media** $CO_2$, dry chemical, dry sand, alcohol-resistant foam.

**Unsuitable Extinguishing Media** No information available

**Flash Point** 113 °C / 235.4 °F

**Method -** No information available

**Autoignition Temperature** No information available

**Explosion Limits**

**Upper** No data available

**Lower** No data available

**Oxidizing Properties** Oxidizer

**Sensitivity to Mechanical Impact** No information available

**Sensitivity to Static Discharge** No information available

**Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.).

**Hazardous Combustion Products**
Hydrogen chloride gas.
**Protective Equipment and Precautions for Firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

**NFPA**

| Health | Flammability | Instability | Physical hazards |
|---|---|---|---|
| 3 | 0 | 3 | OX |

## 6. Accidental release measures

**Personal Precautions** Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**Environmental Precautions** Should not be released into the environment.

**Methods for Containment and Clean Up** Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Sweep up and shovel into suitable containers for disposal.

## 7. Handling and Storage

**Handling** Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from clothing and other combustible materials.

**Storage.** Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials. Corrosives area. Incompatible Materials. Strong oxidizing agents. Finely powdered metals. Organic materials. Amines. Alcohols. Strong reducing agents. Combustible material.

## 8. Exposure controls / personal protection

**Exposure Guidelines** This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

*OSHA - Occupational Safety and Health Administration*

**Engineering Measures** Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

**Personal Protective Equipment**

**Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection** No protective equipment is needed under normal use conditions.

**Recommended Filter type:** Particulates filter conforming to EN 143. or. Acid gases filter. Type E. Yellow. conforming to EN14387.

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

**Appearance**

| | | | |
|---|---|---|---|
| **Physical State** | Liquid | | |
| **Color** | Colorless | | |
| **Odor** | Strong | | |
| **Odor Threshold** | No information available | | |
| **Property** | **Values** | **Remarks** | **• Method** |
| **Melting Point/Range** | -18 °C / -0.4 °F | | |
| **Softening Point** | No data available | | |
| **Boiling Point/Range** | 203 °C / 397.4 °F | @ 760 mmHg | |
| **Flash Point** | 113 °C / 235.4 °F | **Method -** No information available | |
| **Flammability (liquid)** | No data available | | |
| **Flammability (solid,gas)** | Not applicable | Liquid | |
| **Explosion Limits** | No data available | | |
| **Autoignition Temperature** | No data available | | |
| **Decomposition Temperature** | No data available | | |
| **pH** | 0.1 @ 20°C | | |
| **Viscosity** | 3.5 mPa.s @ 20 °C | | |
| **Water Solubility** | Soluble | | |
| **Solubility in other solvents** | No information available | | |
| **Partition Coefficient (n-octanol/water)** | | | |
| **Vapor Pressure** | 6.8 mmHg @ 25 °C | | |
| **Density / Specific Gravity** | 1.66 | | |
| **Bulk Density** | Not applicable | Liquid | |
| **Vapor Density** | 3.46 | (Air = 1.0) | |
| **Particle characteristics** | Not applicable (liquid) | | |

**Other Information**

| | |
|---|---|
| **Molecular Formula** | H Cl O4 |
| **Molecular Weight** | 100.46 |
| **Oxidizing Properties** | Oxidizer |

## 10. Stability and reactivity

**Reactive Hazard** Yes

**Stability** Oxidizer: Contact with combustible/organic material may cause fire.

**Conditions to Avoid** Incompatible products. Excess heat. Combustible material.

**Incompatible Materials** Strong oxidizing agents, Finely powdered metals, Organic materials, Amines, Alcohols, Strong reducing agents, Combustible material

**Hazardous Decomposition Products** Hydrogen chloride gas

**Hazardous Polymerization** Hazardous polymerization does not occur.

**Hazardous Reactions** None under normal processing.

## 11. Toxicological information

**Information on expected route of exposure**

| | |
|---|---|
| **Inhalation** | Causes severe burns. May be harmful if inhaled. |
| **Ingestion** | Causes severe burns. May be harmful if swallowed. |
| **Eyes** | Causes severe burns. |
| **Skin** | Causes severe burns. May be harmful in contact with skin. |

**Toxicology data for the components**

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| Perchloric acid | LD50 = 200 - 2000 mg/kg (rat) OECD 423 | - | - |
| Water | - | - | - |

**Toxicologically Synergistic Products** No information available

**(b) skin corrosion/irritation;** Category 1 A

**(c) serious eye damage/irritation;** Category 1

**(d) respiratory or skin sensitization;**
**Respiratory** No data available
**Skin** No data available

**(e) germ cell mutagenicity;** No data available

**(f) carcinogenicity;**

The table below indicates whether each agency has listed any ingredient as a carcinogen

| Component | CAS No | IARC | NTP | ACGIH | OSHA | Mexico |
|---|---|---|---|---|---|---|
| Perchloric acid | 7601-90-3 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Water | 7732-18-5 | Not listed | Not listed | Not listed | Not listed | Not listed |

**(g) reproductive toxicity;** No data available

**(h) STOT-single exposure;** No data available

**(i) STOT-repeated exposure;** Category 2

**Target Organs** Thyroid.

**(j) aspiration hazard;** No data available

**Symptoms / effects,both acute and delayed** Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated.

**Other Adverse Effects** The toxicological properties have not been fully investigated.

**Endocrine Disrupting Properties** This product does not contain any known or suspected endocrine disruptors.

## 12. Ecological information

**Ecotoxicity**
Do not empty into drains. .

**Persistence and Degradability** Soluble in water Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Will likely be mobile in the environment due to its water solubility.

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

**DOT**

| | |
|---|---|
| **UN-No** | UN1873 |
| **Proper Shipping Name** | PERCHLORIC ACID |
| **Hazard Class** | 5.1 |
| **Subsidiary Hazard Class** | 8 |
| **Packing Group** | I |

**TDG**

| | |
|---|---|
| **UN-No** | UN1873 |
| **Proper Shipping Name** | PERCHLORIC ACID |
| **Hazard Class** | 5.1 |
| **Subsidiary Hazard Class** | 8 |
| **Packing Group** | I |

**IATA**

| | |
|---|---|
| **UN-No** | UN1873 |
| **Proper Shipping Name** | PERCHLORIC ACID |
| **Hazard Class** | 5.1 |
| **Subsidiary Hazard Class** | 8 |
| **Packing Group** | I |

**IMDG/IMO**

| | |
|---|---|
| **UN-No** | UN1873 |
| **Proper Shipping Name** | PERCHLORIC ACID |
| **Hazard Class** | 5.1 |
| **Subsidiary Hazard Class** | 8 |
| **Packing Group** | I |

## 15. Regulatory Information

**United States of America Inventory**

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | TSCA - EPA Regulatory Flags |
|---|---|---|---|---|
| Perchloric acid | 7601-90-3 | X | ACTIVE | - |
| Water | 7732-18-5 | X | ACTIVE | - |

**Legend:**
**TSCA** US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

**TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)** Not applicable

**TSCA 12(b)** - Notices of Export Not applicable

**International Inventories**
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component | CAS No | DSL | NDSL | EINECS | PICCS | ENCS | ISHL | AICS | IECSC | KECL |
|---|---|---|---|---|---|---|---|---|---|---|
| Perchloric acid | 7601-90-3 | X | - | 231-512-4 | X | X | X | X | X | KE-28137 |
| Water | 7732-18-5 | X | - | 231-791-2 | X | X | | X | X | KE-35400 |

**KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

**U.S. Federal Regulations**

**SARA 313**
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

**SARA 311/312 Hazard Categories**
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

**CWA (Clean Water Act)** Not applicable

**Clean Air Act** Not applicable

**OSHA** - Occupational Safety and Health Administration **OSHA** - United States Occupational Safety and Health Administration

| Component | Specifically Regulated Chemicals | Highly Hazardous Chemicals |
|---|---|---|
| Perchloric acid | - | TQ: 5000 lb |

**CERCLA**
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

**California Proposition 65** This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|---|---|---|---|---|---|
| Perchloric acid | X | X | X | - | X |
| Water | - | - | X | - | - |

**U.S. Department of Transportation**
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security** This product does not contain any DHS chemicals.

**Other International Regulations**

**Mexico - Grade** Slight risk, Grade 1

**Authorisation/Restrictions according to EU REACH**

| Component | CAS No | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|---|---|---|---|---|
| Perchloric acid | 7601-90-3 | - | Use restricted. See entry 75. | - |

| | | | | |
|---|---|---|---|---|
| | | | (see link for restriction details) | |
| Water | 7732-18-5 | - | - | - |

**REACH links**
*https://echa.europa.eu/substances-restricted-under-reach*

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

| Component | CAS No | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|---|---|---|---|---|---|
| Perchloric acid | 7601-90-3 | Listed | Not applicable | Not applicable | Not applicable |
| Water | 7732-18-5 | Listed | Not applicable | Not applicable | Not applicable |

**Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?**
Not applicable

**Other International Regulations**

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|---|---|---|---|---|---|
| Perchloric acid | 7601-90-3 | Not applicable | Not applicable | Not applicable | Not applicable |
| Water | 7732-18-5 | Not applicable | Not applicable | Not applicable | Not applicable |

## 16. Other Information

**Prepared By**
Product stewardship (Regulatory Affairs)
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**Creation Date** 06-Oct-2009
**Revision Date** 18-Dec-2025
**Print Date** 18-Dec-2025
**Revision Summary** Updated to the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) which published its Final Rule in the Federal Register revising the Hazard Communication Standard (HCS/HazCom), 29 CFR 1910.1200 (2024) (HCS §1910.1200, 2024), May 20, 2024, effective July 19, 2024.

**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**

**End of SDS**