

## 1. Identification

|   |  |                       |
|---|--|-----------------------|
| <b>Product identifier</b>                                     | <b>SODIUM PERCHLORATE, MONOHYDRATE, REAGENT (ACS)</b>                                  |                       |
| <b>Other means of identification</b>                          |  |                       |
| <b>Product code</b>   | 92   |                       |
| <b>Synonym(s)</b>   | Perchloric acid, sodium salt, monohydrate  |                       |
| <b>Recommended use</b>  | professional, scientific and technical activities: scientific research and development |                       |
| <b>Recommended restrictions</b>                               | None known.  |                       |
| <b>Manufacturer/Importer/Supplier/Distributor information</b> |  |                       |
| <b>Company name</b>   | GFS Chemicals, Inc.  |                       |
| <b>Address</b>  | P.O. Box 245<br>Powell<br>OH<br>43065<br>US  |                       |
| <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 solids                                  | Category 1                              |
| <b>Health hazards</b>   | Acute toxicity, oral                              | Category 4                              |
|                         | Skin corrosion/irritation                         | Category 2                              |
|                         | Serious eye damage/eye irritation                 | Category 2A                             |
|                         | Specific target organ toxicity, single exposure   | Category 3 respiratory tract irritation |
|                         | Specific target organ toxicity, repeated exposure | Category 2 (blood)                      |
| <b>OSHA hazard(s)</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 skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause damage to organs (blood) through prolonged or repeated exposure.   |
| <b>Precautionary statement</b> |   |
| <b>Prevention</b>              | Keep away from heat. Use only outdoors or in a well-ventilated area. Keep/Store away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/eye protection/face protection. Keep away from clothing and other combustible materials.  |
| <b>Response</b>                | Call a POISON CENTER or doctor/physician if you feel unwell. IF ON SKIN: Wash with plenty of soap and water. 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. Rinse mouth. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. In case of fire: Use appropriate media for extinction. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. |

|  |   |
|--|---|
| <b>Storage</b>                                   | Store in a well-ventilated place. Keep container tightly closed. Store locked up. |
| <b>Disposal</b>                                  | Dispose of contents/container to an approved waste disposal plant.                |
| <b>Hazard(s) not otherwise classified (HNOC)</b> | Not classified.   |

### 3. Composition/information on ingredients

#### Substances

| Hazardous components<br>Chemical name | Common name and synonyms                  | CAS number | %   |
|---------------------------------------|---|------------|-----|
| SODIUM PERCHLORATE,<br>MONOHYDRATE    | Perchloric acid, sodium salt, monohydrate | 7791-07-3  | 100 |

\*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>   | Move to fresh air. Call a POISON CENTER or doctor/physician if you feel unwell.   |
| <b>Skin contact</b>   | IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes. If skin irritation occurs: Get medical advice/attention.   |
| <b>Eye contact</b>  | Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.   |
| <b>Ingestion</b>  | IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.   |
| <b>Most important symptoms/effects, acute and delayed</b>                     | Irritation of eyes and mucous membranes. Irritant effects. Prolonged exposure may cause chronic effects.  |
| <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 spray.  |
| <b>Unsuitable extinguishing media</b>                                | None known.  |
| <b>Specific hazards arising from the chemical</b>                    | May cause fire or explosion; strong oxidizer. Strong oxidizer - contact with other material may cause fire. May ignite combustibles (wood, paper, oil, clothing, etc.).  |
| <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: Evacuate area. Fight fire remotely due to the risk of explosion. Move containers from fire area if you can do so without risk. In the event of fire, cool tanks with water spray. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out. |
| <b>Specific methods</b>  | Cool containers exposed to flames with water until well after the fire is out.   |

### 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. Keep materials which can burn away from spilled material. 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. Ventilate closed spaces before entering them. Avoid inhalation of dust from the spilled material. Avoid excessive skin contact with the spilled material. Wear appropriate personal protective equipment.  |
| <b>Methods and materials for containment and cleaning up</b>               | ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water. Prevent entry into waterways, sewers, basements or confined areas. Stop leak if you can do so without risk. Clean contaminated surface thoroughly. Sweep up or gather material and place in appropriate container for disposal. Thoroughly wash the area with water after a spill or leak clean-up. Avoid dust formation. DO NOT use combustible materials such as sawdust. Following product recovery, flush area with water. Prevent entry into waterways, sewer, basements or confined areas. Clean up in accordance with all applicable regulations. For waste disposal, see section 13 of the MSDS. |
| <b>Environmental precautions</b>   | Avoid discharge into drains, water courses or onto the ground.  |

## 7. Handling and storage

|   |  |
|---|--|
| <b>Precautions for safe handling</b>                                | Take any precaution to avoid mixing with combustibles. Keep away from heat. Avoid breathing dusts from this material. Do not taste or swallow. Avoid contact with skin and eyes. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. |
| <b>Conditions for safe storage, including any incompatibilities</b> | Do not store around flammable or combustible materials. Keep away from heat. Keep container tightly closed. Do not store near combustible materials. Keep out of the reach of children. Store in a cool, dry place out of direct sunlight.                     |

## 8. Exposure controls/personal protection

|  |   |
|--|---|
| <b>Occupational exposure limits</b>  | No exposure limits noted for ingredient(s).   |
| <b>Biological limit values</b>   | No biological exposure limits noted for the ingredient(s).  |
| <b>Appropriate engineering controls</b>                                      | An eye wash and safety shower must be available in the immediate work area.   |
| <b>Individual protection measures, such as personal protective equipment</b> |   |
| <b>Eye/face protection</b>   | Wear eye/face protection. Eye wash fountains are required.  |
| <b>Skin protection</b>   |   |
| <b>Hand protection</b>   | Wear protective gloves.   |
| <b>Other</b>   | Avoid contact with the skin. Wear suitable protective clothing. Wear fire/flamm resistant/retardant clothing. Wear protective gloves.   |
| <b>Respiratory protection</b>  | Respirator must be worn if exposed to dust. In case of insufficient ventilation, wear suitable respiratory equipment.   |
| <b>Thermal hazards</b>   | Not available.  |
| <b>General hygiene considerations</b>  | When using, do not eat, drink or smoke. Avoid contact with eyes. Avoid contact with skin. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice. |

## 9. Physical and chemical properties

|   |   |
|---|---|
| <b>Appearance</b>                                   | Crystalline.  |
| <b>Physical state</b>                               | Solid.  |
| <b>Form</b>   | Solid.  |
| <b>Color</b>  | White.  |
| <b>Odor</b>   | Odorless.   |
| <b>Odor threshold</b>                               | Not available.  |
| <b>pH</b>   | 6 - 8 (5% aqueous solution)   |
| <b>Melting point/freezing point</b>                 | 266 °F (130 °C)   |
| <b>Initial boiling point and boiling range</b>      | Not available.  |
| <b>Flash point</b>                                  | Not available.  |
| <b>Evaporation rate</b>                             | Not available.  |
| <b>Flammability (solid, gas)</b>                    | Not applicable.   |
| <b>Upper/lower flammability or explosive limits</b> |   |
| <b>Flammability limit - lower (%)</b>               | Not available.  |
| <b>Flammability limit - upper (%)</b>               | Not available.  |
| <b>Explosive limit - lower (%)</b>                  | Not available.  |
| <b>Explosive limit - upper (%)</b>                  | Not available.  |
| <b>Vapor density</b>                                | Not available.  |
| <b>Relative density</b>                             | Not available.  |
| <b>Solubility(ies)</b>                              | Very soluble in water   |
| <b>Partition coefficient (n-octanol/water)</b>      | Not available.  |
| <b>Auto-ignition temperature</b>                    | Not available.  |
| <b>Decomposition temperature</b>                    | When heated to decomp, emits toxic fumes of hydrogen chloride and Na2O. |
| <b>Viscosity</b>                                    | Not available.  |

## Other information

|                   |                                      |
|-------------------|--------------------------------------|
| Density           | 2.02 g/cm <sup>3</sup>               |
| Molecular formula | NaClO <sub>4</sub> .H <sub>2</sub> O |
| Molecular weight  | 140.48                               |
| Specific gravity  | 2.02                                 |

## 10. Stability and reactivity

|                                    |  |
|------------------------------------|--|
| Reactivity                         | Contact with combustibles.                                     |
| Chemical stability                 | Risk of explosion. Material is stable under normal conditions. |
| Possibility of hazardous reactions | Hazardous polymerization does not occur.                       |
| Conditions to avoid                | Excessive heat.  |
| Incompatible materials             | Organic materials, Flammable materials, Combustible material.  |
| Hazardous decomposition products   | Hydrogen chloride.   |

## 11. Toxicological information

### Information on likely routes of exposure

|              |   |
|--------------|---|
| Ingestion    | Harmful if swallowed.                           |
| Inhalation   | May cause irritation to the respiratory system. |
| Skin contact | Not available.                                  |
| Eye contact  | Causes serious eye irritation.                  |

**Symptoms related to the physical, chemical and toxicological characteristics** Irritant effects.

### Information on toxicological effects

**Acute toxicity** Harmful if swallowed.

| Product   | Species | Test Results                    |
|---|---------|---------------------------------|
| SODIUM PERCHLORATE, MONOHYDRATE (CAS 7791-07-3) |         |                                 |
| <b>Acute</b>                                    |         |                                 |
| <i>Oral</i>                                     |         |                                 |
| LD50  | Rat     | 2100 mg/kg, (as anhydrous salt) |

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

|   |   |
|---|---|
| <b>Skin corrosion/irritation</b>                          | Causes skin irritation.   |
| <b>Serious eye damage/eye irritation</b>                  | Causes serious eye irritation.  |
| <b>Respiratory sensitization</b>                          | Due to lack of data the classification is not possible.                         |
| <b>Skin sensitization</b>                                 | Due to lack of data the classification is not possible.                         |
| <b>Germ cell mutagenicity</b>                             | Due to lack of data the classification is not possible.                         |
| <b>Carcinogenicity</b>                                    | This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA. |
| <b>Reproductive toxicity</b>                              | Due to lack of data the classification is not possible.                         |
| <b>Specific target organ toxicity - single exposure</b>   | Respiratory tract irritation.   |
| <b>Specific target organ toxicity - repeated exposure</b> | May cause damage to organs (blood) through prolonged or repeated exposure.      |
| <b>Aspiration hazard</b>                                  | Due to lack of data the classification is not possible.                         |
| <b>Chronic effects</b>                                    | May cause damage to organs through prolonged or repeated exposure.              |

## 12. Ecological information

|                                      |  |
|--------------------------------------|--|
| <b>Ecotoxicity</b>                   | This material is not expected to be harmful to aquatic life. |
| <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. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. |
| <b>Local disposal regulations</b>            | Not available.   |
| <b>Hazardous waste code</b>                  | D001: Waste Flammable material with a flash point <140 F   |
| <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).   |
| <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>                    | UN1502  |
| <b>UN proper shipping name</b>      | Sodium perchlorate  |
| <b>Transport hazard class(es)</b>   | 5.1   |
| <b>Subsidiary class(es)</b>         | Not available.  |
| <b>Packing group</b>                | II  |
| <b>Special precautions for user</b> | Read safety instructions, SDS and emergency procedures before handling. |
| <b>Labels required</b>              | 5.1   |
| <b>Special provisions</b>           | IB6, IP2, T3, TP33  |
| <b>Packaging exceptions</b>         | 152   |
| <b>Packaging non bulk</b>           | 212   |
| <b>Packaging bulk</b>               | 242   |

#### IATA

|                                     |                    |
|-------------------------------------|--------------------|
| <b>UN number</b>                    | UN1502             |
| <b>UN proper shipping name</b>      | Sodium perchlorate |
| <b>Transport hazard class(es)</b>   | 5.1                |
| <b>Subsidiary class(es)</b>         | -                  |
| <b>Packaging group</b>              | II                 |
| <b>Environmental hazards</b>        | No                 |
| <b>Labels required</b>              | Not available.     |
| <b>ERG Code</b>                     | 5L                 |
| <b>Special precautions for user</b> | Not available.     |

#### IMDG

|                                     |                    |
|-------------------------------------|--------------------|
| <b>UN number</b>                    | UN1502             |
| <b>UN proper shipping name</b>      | SODIUM PERCHLORATE |
| <b>Transport hazard class(es)</b>   | 5.1                |
| <b>Subsidiary class(es)</b>         | -                  |
| <b>Packaging group</b>              | II                 |
| <b>Environmental hazards</b>        |                    |
| <b>Marine pollutant</b>             | No                 |
| <b>Labels required</b>              | Not available.     |
| <b>EmS</b>                          | F-H, S-Q           |
| <b>Special precautions for user</b> | Not available.     |

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** No information available.

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.  
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.

### US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not on regulatory list.

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

Not listed.

### 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

No

#### SARA 311/312 Hazardous chemical

No

### 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)

Monitoring

#### Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

#### Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated.

#### DEA Exempt Chemical Mixtures Code Number

Not regulated.

#### Food and Drug Administration (FDA)

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.

**US. Massachusetts RTK - Substance List**

SODIUM PERCHLORATE, MONOHYDRATE (CAS 7791-07-3)

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

Not regulated.

**US. Pennsylvania RTK - Hazardous Substances**

SODIUM PERCHLORATE, MONOHYDRATE (CAS 7791-07-3)

**US. Rhode Island RTK**

SODIUM PERCHLORATE, MONOHYDRATE (CAS 7791-07-3)

**US. California Proposition 65****US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Not listed.

**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 this product complies with the inventory requirements administered by the governing country(s)

**16. Other information, including date of preparation or last revision****Issue date** April-10-2013**Version #** 01**Further information** Not available.

**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: Synonyms  
 Hazards Identification: EU Hazard Classifications  
 Composition / Information on Ingredients: Ingredients  
 Physical & Chemical Properties: Multiple Properties  
 Toxicological Information: Toxicological Data  
 Transport Information: Proper Shipping Name/Packing Group  
 Regulatory Information: Risk Phrases - Labeling  
 HazReg Data: Pacific Rim