1. Identification

Product identifier: CHLORAMINE T, REAGENT (ACS)

Other means of identification

Product code: 889

Recommended use: professional, scientific and technical activities: other professional, scientific and technical activities

Recommended restrictions: None known.

Manufacturer/Importer/Supplier/Distributor information

Company name: GFS Chemicals, Inc.
Address: P.O. Box 245
Powell
OH
43065
US

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: Not classified.
Health hazards:
- Acute toxicity, oral Category 4
- Skin corrosion/irritation Category 1
- Serious eye damage/eye irritation Category 1
- Sensitization, respiratory Category 1

OSHA hazard(s): Not classified.

Label elements

Signal word: Danger

Hazard statement: Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention: Do not breathe dust. Avoid breathing dust. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation wear respiratory protection.

Response: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. 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. Rinse mouth.

Storage:
Disposal: Dispose of contents/container to an approved waste disposal plant.

Hazard(s) not otherwise classified (HNOC): Not classified.

Environmental hazards: Hazardous to the aquatic environment, acute hazard Category 2
Supplemental information
Precautionary statement
Prevention
Avoid release to the environment.
Response
Collect spillage.
Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations.

3. Composition/information on ingredients
Substances
<table>
<thead>
<tr>
<th>Hazardous components</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHLORAMINE T</td>
<td>7080-50-4</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

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

4. First-aid measures

Inhalation
If dust from the material is inhaled, remove the affected person immediately 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.

Skin contact
Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. For minor skin contact, avoid spreading material on unaffected skin.

Eye contact
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.

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
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. May cause allergic respiratory reaction.

Indication of immediate medical attention and special treatment needed
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.

General information
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
Suitable extinguishing media
Unsuitable extinguishing media
None known.
Specific hazards arising from the chemical
Not applicable.
Special protective equipment and precautions for firefighters
Wear suitable protective equipment.

Fire-fighting equipment/instructions
In the event of fire, cool tanks with water spray. Water runoff can cause environmental damage.

Specific methods
Cool containers exposed to flames with water until well after the fire is out.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Wear appropriate protective equipment and clothing during clean-up. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. 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. Avoid inhalation of dust. Wear appropriate personal protective equipment.
Methods and materials for containment and cleaning up

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). This product is miscible in water. Prevent entry into waterways, sewers, basements or confined areas. Collect spillage. Collect dust or particulates using a vacuum cleaner with a HEPA filter. If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product. Sweep up or vacuum up spillage and collect in suitable container for disposal. This material and its container must be disposed of as hazardous waste. Collect dust using a vacuum cleaner equipped with HEPA filter. Avoid the generation of dusts during clean-up. Following product recovery, flush area with water. Small Dry Spills: With clean shovel place material into clean, dry container and cover loosely; move containers from spill area. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. For waste disposal, see section 13 of the MSDS.

Environmental precautions

Contact local authorities in case of spillage to drain/aquatic environment. Avoid discharge into drains, water courses or onto the ground. Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water.

7. Handling and storage

Precautions for safe handling

Avoid dust formation. Do not breathe dust from this material. In case of insufficient ventilation, wear suitable respiratory equipment. Guard against dust accumulation of this material. Provide appropriate exhaust ventilation at places where dust is formed. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not taste or swallow. Avoid contact with skin and eyes. Do not get this material on clothing. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains. Practice good housekeeping.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in a well-ventilated place. Keep container tightly closed. Avoid dust formation. Guard against dust accumulation of this material. Keep out of the reach of children. Store in a well sealed bottle in cool, dry location. 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

Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear eye/face protection. Use tight fitting goggles if dust is generated.

Skin protection

Hand protection

Wear protective gloves.

Other

Wear appropriate chemical resistant clothing. It may provide little or no thermal protection. Wear protective gloves.

Respiratory protection

Wear respirator with dust filter. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.

Thermal hazards

Not available.

General hygiene considerations

When using, do not eat, drink or smoke. Do not breathe dust. 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.

9. Physical and chemical properties

Appearance

Powder.

Physical state

Solid.

Form

Powder. Crystalline powder.

Color

White.

Odor

Chlorine.

Odor threshold

Not available.

pH

Not available.

Melting point/freezing point

329 - 338 °F (165 - 170 °C)

Initial boiling point and boiling range

Not available.

Flash point

377.60 °F (192.00 °C)

Evaporation rate

Not available.

Flammability (solid, gas)

Not applicable.
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) soluble
Partition coefficient (n-octanol/water) Not available.
Auto-ignition temperature Not available.
Decomposition temperature Not available.
Viscosity Not available.

Other information

- **Flammability class** Combustible IIIB estimated
- **Flash point class** Combustible IIIB
- **Molecular formula** CH3C6H4SO2NClNa.3H2O
- **Molecular weight** 281.7 g/mol

10. Stability and reactivity

- **Reactivity** Not available.
- **Chemical stability** Material is stable under normal conditions.
- **Possibility of hazardous reactions** Hazardous polymerization does not occur.
- **Conditions to avoid** Avoid spread of dust. Avoid temperatures exceeding the flash point. Stable; however, may decompose if heated.
- **Incompatible materials** Strong oxidizing agents. Strong acids. Ammonia.

11. Toxicological information

Information on likely routes of exposure

- **Ingestion** Causes digestive tract burns. Harmful if swallowed.
- **Inhalation** May cause allergy or asthma symptoms or breathing difficulties if inhaled. Inhalation of dusts may cause respiratory irritation.
- **Skin contact** Causes severe skin burns.
- **Eye contact** Causes severe eye burns. Causes serious eye damage.
- **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.

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHLORAMINE T (CAS 7080-50-4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>Mouse</td>
<td>1100 mg/kg</td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>935 mg/kg</td>
</tr>
</tbody>
</table>

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

- **Skin corrosion/irritation** Causes severe skin burns and eye damage.
Serious eye damage/eye irritation
Causes severe eye burns. Causes serious eye damage. Dust in the eyes will cause irritation.

Respiratory sensitization
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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
Due to lack of data the classification is not possible.

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

Ecotoxicity
Toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected. Contains a substance which causes risk of hazardous effects to the environment.

<table>
<thead>
<tr>
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<th>Species</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CHLORAMINE T (CAS 7080-50-4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic</td>
<td>Fish</td>
<td>LC50 Rainbow trout,donaldson trout (Oncorhynchus mykiss)</td>
</tr>
</tbody>
</table>

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

Persistence and degradability
None known.

Bioaccumulative potential
Not available.

Mobility in soil
Not available.

Other adverse effects
Not available.

13. Disposal considerations

Disposal instructions
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. Incinerate the material under controlled conditions in an approved incinerator. 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.

Local disposal regulations
Not available.

Hazardous waste code
D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]

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
UN3263
UN proper shipping name
Corrosive solid, basic, organic, n.o.s. (CHLORAMINE T)
Transport hazard class(es) 8
Subsidiary class(es) Not available.
Packing group III
Special precautions for user
Read safety instructions, SDS and emergency procedures before handling.
Labels required
8
Special provisions
IB8, IP3, T1, TP33
Packaging exceptions
154
Packaging non bulk
213
Packaging bulk
240

IATA
UN number
UN3263
UN proper shipping name
Corrosive solid, basic, organic, n.o.s. (CHLORAMINE T)
Material name: CHLORAMINE T, REAGENT (ACS)
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) Not regulated.
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 Not regulated.
US. New Jersey Worker and Community Right-to-Know Act Not regulated.
US. Pennsylvania RTK - Hazardous Substances Not regulated.
US. Rhode Island RTK Not regulated.
US. California Proposition 65

International Inventories
<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*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       March-13-2014
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: Physical States
Hazards Identification: US Hazard Categories
Composition / Information on Ingredients: Disclosure Overrides
Physical & Chemical Properties: Multiple Properties
Toxicological Information: Toxicological Data
Transport Information: Proper Shipping Name/Packing Group
Regulatory Information: Safety Phrases
HazReg Data: International Inventories