

SAFETY DATA SHEET

1. Identification**Product identifier** Perchloromethyl mercaptan**Other means of identification**

Item N-12845

CAS number 594-42-3

Recommended use For Laboratory Use Only**Recommended restrictions** None known.**Manufacturer/Importer/Supplier/Distributor information****Manufacturer****Company name** Chem Service, Inc.**Address** 660 Tower Lane
West Chester, PA 19380
United States**Telephone** Toll Free 800-452-9994
Direct 610-692-3026**Website** www.chemservice.com**E-mail** info@chemservice.com**Emergency phone number** Chemtrec US 800-424-9300
Chemtrec outside US +1 703-527-3887**2. Hazard(s) identification****Physical hazards** Not classified.**Health hazards** Acute toxicity, oral Category 3

Acute toxicity, dermal Category 3

Acute toxicity, inhalation Category 1

Skin corrosion/irritation Category 2

Serious eye damage/eye irritation Category 1

Specific target organ toxicity, single exposure Category 1

Specific target organ toxicity, repeated exposure Category 1

Environmental hazards Not classified.**OSHA defined hazards** Not classified.**Label elements****Signal word** Danger**Hazard statement**

Toxic if swallowed. Toxic in contact with skin. Causes skin irritation. Causes serious eye damage. Fatal if inhaled. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure.

Precautionary statement**Prevention**

Do not breathe vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear eye protection/face protection. Wear protective gloves/protective clothing. Wear respiratory protection.

Response

If swallowed: Immediately call a poison center/doctor. Rinse mouth. If on skin: Wash with plenty of 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 skin irritation occurs: Get medical advice/attention. Take off immediately all contaminated clothing and wash it before reuse.

| | |
|--|---|
| Storage | Store in a well-ventilated place. Keep container tightly closed. Store locked up. |
| Disposal | Dispose of contents/container in accordance with local/regional/national/international regulations. |
| Hazard(s) not otherwise classified (HNOC) | None known. |
| Supplemental information | 100% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 100% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment. |

3. Composition/information on ingredients

Substances

| Chemical name | Common name and synonyms | CAS number | % |
|---------------------------|--------------------------|------------|-----|
| Perchloromethyl mercaptan | | 594-42-3 | 100 |

4. First-aid measures

| | |
|---|--|
| Inhalation | Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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. Wash with plenty of soap and water. Get medical advice/attention if you feel unwell. If skin irritation occurs: Get medical advice/attention. 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. Get medical attention immediately. |
| Ingestion | Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. |
| Most important symptoms/effects, acute and delayed | Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Coughing. Skin irritation. May cause redness and pain. Prolonged exposure may cause chronic effects. |
| Indication of immediate medical attention and special treatment needed | Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed. |
| General information | Take off immediately all contaminated clothing. If you feel unwell, seek medical advice (show the label where possible). 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. |

5. Fire-fighting measures

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| Suitable extinguishing media | 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 | During fire, gases hazardous to health may be formed. |
| Special protective equipment and precautions for firefighters | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |
| Fire fighting equipment/instructions | 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 | No unusual fire or explosion hazards noted. |

6. Accidental release measures

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|--|---|
| Personal precautions, protective equipment and emergency procedures | Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe vapors or spray mist. 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

The product is immiscible with water and will spread on the water surface. 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.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Environmental precautions

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Do not breathe vapors or spray mist. Do not get this material in contact with eyes. Do not taste or swallow. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

| Material | Type | Value |
|---|------|-----------------------|
| Perchloromethyl mercaptan (CAS 594-42-3) | PEL | 0.8 mg/m ³ |
| | | 0.1 ppm |

US. ACGIH Threshold Limit Values

| Material | Type | Value |
|---|------|---------|
| Perchloromethyl mercaptan (CAS 594-42-3) | TWA | 0.1 ppm |

US. NIOSH: Pocket Guide to Chemical Hazards

| Material | Type | Value |
|---|------|-----------------------|
| Perchloromethyl mercaptan (CAS 594-42-3) | TWA | 0.8 mg/m ³ |
| | | 0.1 ppm |

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. Provide eyewash station. Eye wash fountain and emergency showers are recommended.

Individual protection measures, such as personal protective equipment

Eye/face protection

Chemical respirator with organic vapor cartridge and full facepiece.

Skin protection

Wear appropriate chemical resistant gloves.

Hand protection

Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Other

Chemical respirator with organic vapor cartridge and full facepiece.

Respiratory protection

Chemical respirator with organic vapor cartridge and full facepiece.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

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

| | |
|---|---|
| Physical state | Liquid. |
| Form | Liquid |
| Color | Pale yellow |
| Odor | Not available. |
| Odor threshold | Not available. |
| pH | Not available. |
| Melting point/freezing point | Not available. |
| Initial boiling point and boiling range | 296.6 - 298.4 °F (147 - 148 °C) 101.325 kPa |
| Flash point | Not available. |
| 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 | 0.4 kPa (68 °F (20 °C)) |
| Vapor density | 6.414 |
| Relative density | Not available. |
| Solubility(ies) | |
| Solubility (water) | Insoluble |
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | Not available. |
| Decomposition temperature | 298.4 - 300.2 °F (148 - 149 °C) |
| Viscosity | Not available. |
| Other information | |
| Density | 1.6998 g/cm3 estimated at 20 °C |
| Explosive properties | Not explosive. |
| Molecular formula | C-Cl4-S |
| Molecular weight | 185.88 g/mol |
| Oxidizing properties | Not oxidizing. |
| Percent volatile | 100 % |
| Specific gravity | 1.7 at 20 °C |
| Surface tension | 35.02 mN/m (68 °F (20 °C)) |
| VOC | 100 % |
| | 100 % EPA estimated |

10. Stability and reactivity

| | |
|---|--|
| Reactivity | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| Chemical stability | Material is stable under normal conditions. |
| Possibility of hazardous reactions | Hazardous polymerization does not occur. |
| Conditions to avoid | Avoid temperatures exceeding the decomposition temperature. Contact with incompatible materials. |
| Incompatible materials | Amines. |

Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

| | |
|---|---|
| Inhalation | Fatal if inhaled. May cause damage to organs by inhalation. May cause damage to organs through prolonged or repeated exposure by inhalation. |
| Skin contact | Toxic in contact with skin. Causes skin irritation. |
| Eye contact | Causes serious eye damage. |
| Ingestion | Toxic if swallowed. |
| Symptoms related to the physical, chemical and toxicological characteristics | Nausea, vomiting. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Coughing. Skin irritation. May cause redness and pain. |

Information on toxicological effects

Acute toxicity Fatal if inhaled. Toxic in contact with skin. Toxic if swallowed.

| Product | Species | Test Results |
|--|----------------|---------------------|
| Perchloromethyl mercaptan (CAS 594-42-3) | | |

Acute

Inhalation

LC50 Rat 10 mg/l, 1 Hours

Oral

LD50 Rat 83 mg/kg

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

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

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 Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Causes damage to organs.

Specific target organ toxicity - repeated exposure Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard Not an aspiration hazard.

Chronic effects Causes damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects The product contains volatile organic compounds which have a photochemical ozone creation potential.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

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.

US RCRA Hazardous Waste P List: Reference

Perchloromethyl mercaptan (CAS 594-42-3)

P118

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 Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number UN1670

UN proper shipping name Perchloromethyl mercaptan, MARINE POLLUTANT

Transport hazard class(es)

| | |
|------------------------|--------------|
| Class | 6.1(PGI, II) |
| Subsidiary risk | - |
| Label(s) | 6.1 |
| Packing group | I |

Environmental hazards

| | |
|-------------------------|-----|
| Marine pollutant | Yes |
|-------------------------|-----|

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Special provisions 2, B9, B14, B32, N34, T20, TP2, TP13, TP38, TP45

Packaging exceptions None

Packaging non bulk 227

Packaging bulk 244

IATA

UN number UN1670

UN proper shipping name Perchloromethyl mercaptan

Transport hazard class(es)

| | |
|------------------------|------------|
| Class | 6.1(PGIII) |
| Subsidiary risk | - |

Packing group Not available.

Environmental hazards No.

ERG Code 6L

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Other information

| | |
|-------------------------------------|-----------|
| Passenger and cargo aircraft | Forbidden |
| Cargo aircraft only | Forbidden |

IMDG

UN number UN1670

UN proper shipping name PERCHLOROMETHYL MERCAPTAN, MARINE POLLUTANT

Transport hazard class(es)

| | |
|------------------------|--------------|
| Class | 6.1(PGI, II) |
| Subsidiary risk | - |

Packing group I

Environmental hazards

| | |
|-------------------------|-----|
| Marine pollutant | Yes |
|-------------------------|-----|

EmS F-A, S-A

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

DOT



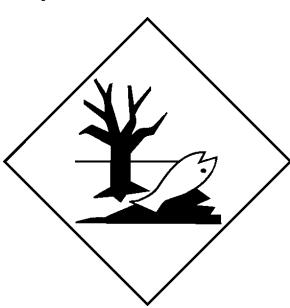
IATA



IMDG



Marine pollutant



General information

IMDG Regulated Marine Pollutant. DOT Regulated Marine Pollutant.

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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

Perchloromethyl mercaptan (CAS 594-42-3)

1.0 % One-Time Export Notification only.

CERCLA Hazardous Substance List (40 CFR 302.4)

Perchloromethyl mercaptan (CAS 594-42-3)

Listed.

SARA 304 Emergency release notification

Perchloromethyl mercaptan (CAS 594-42-3)

100 LBS

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

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

SARA 302 Extremely hazardous substance

| Chemical name | CAS number | Reportable quantity (pounds) | Threshold planning quantity (pounds) | Threshold planning quantity, lower value (pounds) | Threshold planning quantity, upper value (pounds) |
|---------------------------|------------|------------------------------|--------------------------------------|---|---|
| Perchloromethyl mercaptan | 594-42-3 | 100 | 500 | | |

SARA 311/312 Hazardous chemical

SARA 313 (TRI reporting)

| Chemical name | CAS number | % by wt. |
|---------------------------|------------|----------|
| Perchloromethyl mercaptan | 594-42-3 | 100 |

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)

Perchloromethyl mercaptan (CAS 594-42-3)

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.

International Inventories

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Australia | Australian Inventory of Chemical Substances (AICS) | No |
| Canada | Domestic Substances List (DSL) | No |
| Canada | Non-Domestic Substances List (NDSL) | Yes |
| China | Inventory of Existing Chemical Substances in China (IECSC) | No |
| 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 01-31-2015

Revision date 03-01-2021

Version # 02

NFPA ratings

| |
|-----------------|
| Health: 4 |
| Flammability: 0 |
| Instability: 0 |

Disclaimer

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Revision information

This document has undergone significant changes and should be reviewed in its entirety.