

According to the UN GHS revision 8

Creation Date: April 22, 2026

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1. IDENTIFICATION

1.1 GHS Product identifier

Product name: Carmustine

Catalog Number: T3091

CAS Number: 154-93-8

1.2 Other means of identification

Other names: -

1.3 Recommended use of the chemical and restrictions on use

Identified uses: no data available

1.4 Supplier's details

Company: Targetmol Chemicals Inc.

Address: 34 Washington Street, Wellesley Hills, Massachusetts 02481 USA

Tel/Fax: (781) 999-4286

1.5 Emergency phone number

Emergency phone number: 781-999-4286

Service hours: Monday to Friday, 9am-5pm (Standard timezone: UTC/GMT -5 hours).

2. HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

Acute toxicity - Category 2, Oral

Carcinogenicity, Category 1B

Reproductive toxicity, Category 1B

2.2 GHS label elements, including precautionary statements

Pictogram(s):



Signal word: Danger

Hazard statement(s):

H300 Fatal if swallowed
H350 May cause cancer
H360 May damage fertility or the unborn child

Precautionary statement(s):

Prevention:

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P203 Obtain, read and follow all safety instructions before use.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

Response:

P301+P316 IF SWALLOWED: Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P330 Rinse mouth.
P318 IF exposed or concerned, get medical advice.

| | |
|------------------|---|
| Storage: | P405 Store locked up. |
| Disposal: | P501 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. |

2.3 Other hazards which do not result in classification

no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

| Chemical name | Common names and synonyms | CAS number | EC number |
|---------------|---------------------------|------------|-----------|
| Carmustine | - | 154-93-8 | 205-838-2 |

4. FIRST-AID MEASURES

4.1 Description of necessary first-aid measures

General advice

no data available

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

4.2 Most important symptoms/effects, acute and delayed

Maintain an open airway and assist ventilation if necessary. Treat coma, seizures, hypotension, and arrhythmias if they occur. Treat nausea and vomiting with metoclopramide and fluid loss caused by gastroenteritis with intravenous crystalloid fluids. Bone marrow depression should be treated with the assistance of an experienced hematologist or oncologist. Extravasation: Immediately stop the infusion and withdraw as much fluid as possible by negative pressure on the syringe. Then give the following specific treatment: Place a heating pad over the area and apply heat intermittently for 24 hours; elevate the limb. Local injection of hyaluronidase may be beneficial. Do not use ice packs. For decontamination administer activated charcoal orally if conditions are appropriate. Gastric lavage is not necessary after small to moderate ingestions if activated charcoal can be given promptly. Because of the rapid intracellular incorporation of these agents, dialysis and other extracorporeal removal procedures are generally not effective. Antineoplastic agents

4.3 Indication of immediate medical attention and special treatment needed, if necessary

SYMPTOMS: Symptoms of exposure to this compound may include bone-marrow suppression; delayed onset of leukopenia and thrombocytopenia; cytotoxic effects on the liver, kidneys and central nervous system; nausea; vomiting; flushing of the skin; esophagitis; diarrhea; dyspnea and hepatotoxicity. **ACUTE/CHRONIC HAZARDS:** When heated to decomposition this compound emits toxic fumes. (NTP, 1992)

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Specific hazards arising from the chemical

Flash point data for this chemical are not available. It is probably combustible. (NTP, 1992)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Evacuate personnel to safe areas. Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Carmustine powder must be refrigerated at 2 - 8 deg C. Both the powder and its solutions must be protected from light.

Keep away from direct sunlight

Powder: -20°C for 3 years | In solvent: -80°C for 1 year

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|------------------------------|-------------------|
| Physical state | Liquid |
| Color | Yellow |
| Odour | no data available |
| Melting point/freezing point | 32°C(lit.) |

| | |
|---|---|
| Boiling point or initial boiling point and boiling range | 240°C/3mmHg(lit.) |
| Flammability | no data available |
| Lower and upper explosion limit/flammability limit | no data available |
| Flash point | 182°C(lit.) |
| Auto-ignition temperature | no data available |
| Decomposition temperature | no data available |
| pH | no data available |
| Kinematic viscosity | no data available |
| Solubility | DMSO: 62.5 mg/mL (291.99 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble) |
| N-octanol-water partition coefficient | no data available |
| Vapour pressure | 2.9X10 ⁻⁴ mm Hg at 25 deg C (est) |
| Density and/or relative density | 1.46 g/ml |
| Relative vapour density | no data available |
| Particle characteristics | no data available |

10. STABILITY AND REACTIVITY

10.1 Reactivity

no data available

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

1,3-BIS(2-CHLOROETHYL)-1-NITROSOUREA decomposes rapidly in acid and in solutions above pH 7; most stable in petroleum ether or aqueous solution at pH 4. (NTP, 1992)

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Materials to avoid: Acids.

10.6 Hazardous decomposition products

When heated to decomposition, it emits very toxic fumes of /chlorine/ and /nitrogen oxides/.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral: LD50 Rat oral 20 mg/kg

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

bis(Chloroethyl) nitrosourea (BCNU) is reasonably anticipated to be a human carcinogen based on sufficient evidence of carcinogenicity in experimental animals.

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

An estimated BCF of 5 was calculated in fish for carmustine(SRC), using a log Kow of 1.53(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bi°Concentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the K^{oc} of 150 can be estimated to be carmustine(SRC). According to a classification scheme(2), this estimated K^{oc} value suggests that carmustine is expected to have high mobility in soil. However, by analogy to N-nitroso-N-ethylurea which exhibited a hydrolysis half-life of 47 minutes at pH 9(3), adsorption may be precluded by hydrolysis(SRC).

12.5 Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14. TRANSPORT INFORMATION

14.1 UN Number

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no data available

14.2 UN Proper Shipping Name

no data available

14.3 Transport hazard class(es)

no data available

14.4 Packing group, if applicable

no data available

14.5 Environmental hazards

no data available

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question

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|--|-------------|
| European Inventory of Existing Commercial Chemical Substances (EINECS) | Listed. |
| EC Inventory | Listed. |
| United States Toxic Substances Control Act (TSCA) Inventory | Not Listed. |
| China Catalog of Hazardous chemicals 2015 | Not Listed. |
| New Zealand Inventory of Chemicals (NZI ^o C) | Not Listed. |
| Philippines Inventory of Chemicals and Chemical Substances (PICCS) | Not Listed. |
| Vietnam National Chemical Inventory | Not Listed. |
| Chinese Chemical Inventory of Existing Chemical Substances (China IECSC) | Not Listed. |
| Korea Existing Chemicals List (KECL) | Not Listed. |

16. OTHER INFORMATION

Information on revision

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Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

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IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_l°Cale=en

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

no data available

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product. All products are for Research Use Only - Not For Human or Veterinary or Therapeutic Use