

MATERIAL SAFETY DATA SHEET

MSDS DATE: 22/08/05

FILE NO.: ALX-400-037

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Carmustine
SYNONYMS: BCNU; 1,3-bis[2-Chloroethyl]-1-nitrosourea
PRODUCT CODES: ALX-400-037

MANUFACTURER: ALEXIS Corporation
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SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

<u>Formula:</u>	<u>CAS #</u>	<u>EC #</u>	<u>Annex I Index #</u>
C ₅ H ₉ Cl ₂ N ₃ O ₂	154-93-8	N/A	N/A

SECTION 3: HAZARDS IDENTIFICATION

ACUTE HEALTH EFFECTS: IRRITANT by inhalation, ingestion, or skin absorption. May be CARCINOGENIC.

SECTION 4: FIRST AID MEASURES

EYES: Rinse immediately with plenty of water for 15 minutes. Check for and remove any contact lenses. Seek medical attention if symptoms appear.

SKIN: Wash immediately with water for 15 minutes. Remove contaminated clothing. Seek medical attention if symptoms appear.

INGESTION: Rinse mouth with water. Do not induce vomiting. Seek medical attention if symptoms appear. Provide MSDS and label information if possible.

INHALATION: Take into fresh air. If breathing is difficult, administer oxygen. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Water spray, water foam, polymer foam, carbon dioxide, dry chemicals.

SPECIAL FIRE FIGHTING PROCEDURES: In case of fire, watch out for the formation of toxic smoke and gases. Wear self-contained respiration equipment. Prevent contact with skin and eyes.

UNUSUAL FIRE AND EXPLOSION HAZARDS: N/A

HAZARDOUS DECOMPOSITION PRODUCTS: N/A

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Evacuate area. Wear respirator, chemical safety goggles, rubber boots and heavy rubber gloves.

ACCIDENTAL RELEASE MEASURES: Avoid formation of dust, sweep up spill and place in sealed container and hold for disposal. Ventilate area and wash spill site after material pickup is complete.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE: Keep locked up. Keep away from heat, sources of ignition and incompatibles such as oxidizing agents. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Avoid contact with skin and eyes; do not breathe dust. Avoid prolonged or repeated exposure. Immediately remove all contaminated clothing. Wash hands before breaks and after work. Avoid eating, drinking and storage of food in the work room. Store tightly sealed at -20°C.

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Use only in chemical fume hood. Safety shower and eye bath.
VENTILATION: Government approved respirator.
EYE PROTECTION: Chemical safety goggles.
SKIN PROTECTION: Compatible gloves, protective coat or clothing.
SECTION 8 NOTES: Wash thoroughly after handling. Wash contaminated clothing before reuse.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Off-white to yellow crystalline solid.
ODOR: N/A
PHYSICAL STATE: N/A
pH AS SUPPLIED: N/A
BOILING POINT: N/A
MELTING POINT: N/A
FREEZING POINT: N/A
VAPOR PRESSURE (mmHg): N/A
VAPOR DENSITY (AIR = 1): N/A
SPECIFIC GRAVITY (H₂O = 1): N/A
EVAPORATION RATE: N/A
BASIS (=1): N/A
SOLUBILITY: Soluble in water or 50% ethanol.
MOLECULAR WEIGHT: 214.1

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable. Avoid strong oxidizing agents.
HAZARDOUS DECOMPOSITION: Carbon monoxide, carbon dioxide, nitrogen oxides, halogenated compounds.
HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

RTECS # : N/A
TOXICOLOGICAL INFORMATION: IRRITANT. May be irritating by inhalation, ingestion, or skin absorption. Breathing can irritate the nose and throat. Can cause loss of appetite, nausea and vomiting. May damage the liver and kidneys. To the best of our knowledge, the toxicological properties have not been thoroughly investigated.
LD50: Not available.
CHRONIC EXPOSURE: Not available.
CHRONIC EXPOSURE-CARCINOGEN: May be a CARCINOGEN.
CHRONIC EXPOSURE-MUTAGEN: Not available.
CHRONIC EXPOSURE-TERATOGEN: There is limited evidence is a teratogen in animals. Until further testing has been done, it should be treated as a possible teratogen in humans.

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SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: N/A

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

SECTION 14: TRANSPORT INFORMATION

INTERNATIONAL TRANSPORT REGULATIONS:

LAND – ROAD/RAILWAY: ADR/RID: Not available.
SEA: IMDG: Not available.
AIR: IATA-DGR: Not available.
SPECIAL PROVISIONS FOR TRANSPORT: N/A

SECTION 15: REGULATORY INFORMATION

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES:

SYMBOL OF DANGER: Not classified.
R-PHRASES: R36/37/38 - Irritating to eyes, respiratory system and skin.
R40/20/21/22 - Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.
S-PHRASES: S7 - Keep container tightly closed.
S35 - This material and its container must be disposed of in a safe way.
S45 - In case of accident or if you feel unwell, seek medical advice immediately.

U.S. FEDERAL REGULATIONS: IARC (International Agency for Research on Cancer): GROUP 2A. The chemical, group of chemicals, industrial process or occupational exposure is probably carcinogenic to humans.
NTP (National Toxicology Program): Group A. Substances or groups of substances that may reasonably be anticipated to be carcinogens; Compiled from U.S. Department of health and Human Services, National Toxicology Program.

HCS CLASSIFICATION: Not classified.

WHMIS (CANADA): Not classified.

SECTION 16: OTHER INFORMATION

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. Alexis Corporation shall not be held liable for any damage resulting from handling or from contact with the above product.

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