

Material Safety Data Sheet

Cyanogen Bromide

ACC# 84299

Section 1 - Chemical Product and Company Identification

MSDS Name: Cyanogen Bromide

Catalog Numbers: AC110780000, AC110780050, AC110780250, AC110781000, AC110785000, AC405950000, AC405950250, AC405951000, AC405955000, NC9903466, O6103-100, O6103-25, XXAC11078-50

Synonyms: Bromine cyanide; Bromocyanogen; Cyanogen monobromide.

Company Identification:

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
506-68-3	Cyanogen Bromide	97-100	208-051-2

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white crystals.

Danger! May be fatal if inhaled, absorbed through the skin or swallowed. Causes burns by all exposure routes. Poison! Corrosive. May cause blood abnormalities. May cause central nervous system effects. May cause blindness. Air sensitive. Light sensitive. Moisture sensitive.

Target Organs: Blood, central nervous system, respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes eye burns. Lachrymator (substance which increases the flow of tears). Causes redness and pain.

Skin: May be fatal if absorbed through the skin. Causes skin burns. If absorbed, may cause symptoms similar to those for ingestion. May be metabolized to cyanide which in turn acts by inhibiting cytochrome oxidase impairing cellular respiration. Substance is readily absorbed through the skin.

Ingestion: May be fatal if swallowed. May cause severe gastrointestinal tract irritation with nausea, vomiting and possible burns. May cause central nervous system effects. Metabolism may release cyanide, which may result in headache, dizziness, weakness, collapse, unconsciousness and possible death. Ingestion may result in symptoms similar to cyanide poisoning which is characterized by asphyxiation.

Inhalation: May cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. May cause nausea, dizziness, and headache. May produce cardiovascular effects. May be metabolized to cyanide which in turns act by inhibiting cytochrome oxidase impairing cellular respiration. Inhalation may result in symptoms similar to cyanide poisoning which include tachypnea, hyperpnea (abnormally rapid or deep breathing), and dyspnea (labored breathing) followed rapidly by respiratory depression. Pulmonary edema may occur.

Chronic: Chronic exposure to cyanide solutions may lead to the development of a "cyanide" rash, characterized by itching, and by macular, papular, and vesicular eruptions, and may be accompanied by secondary infections. Exposure to small amounts of cyanide compounds over long periods of time is reported to cause loss of appetite, headache, weakness, nausea, dizziness, and symptoms of irritation of the upper respiratory tract and eyes.

Section 4 - First Aid Measures

Eyes: Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask. SPEED IS ESSENTIAL, OBTAIN MEDICAL AID IMMEDIATELY.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or

combustion. Will react with water to form toxic and corrosive fumes. This chemical poses an explosion hazard. Reaction with water may generate much heat which will increase the concentration of fumes in the air. Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated or if contaminated with water.

Extinguishing Media: Use carbon dioxide or dry chemical. Do NOT get water inside containers. Most foams will react with the material and release corrosive/toxic gases. DO NOT USE WATER OR FOAM.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 4; Flammability: 0; Instability: 1

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation. Do not get water inside containers.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Do not allow contact with water. Use only in a chemical fume hood. Keep from contact with moist air and steam.

Storage: Do not store in direct sunlight. Store in a tightly closed container. Keep refrigerated. (Store below 4°C/39°F.) Keep away from acids. Store protected from moisture.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Cyanogen Bromide	none listed	none listed	none listed

OSHA Vacated PELs: Cyanogen Bromide: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Crystals

Appearance: white

Odor: penetrating odor

pH: Not available.

Vapor Pressure: 100 mm Hg @ 22 C

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 61 - 62 deg C

Freezing/Melting Point: 49 - 54 deg C

Decomposition Temperature: Not available.

Solubility: Reacts with water.

Specific Gravity/Density: 2.015g/cm³

Molecular Formula: CBrN

Molecular Weight: 105.9107

Section 10 - Stability and Reactivity

Chemical Stability: Polymerization at low temperatures may occur. Reacts with water to form toxic fumes. Unstable. May react with carbon dioxide in the air to form toxic hydrogen cyanide.

Conditions to Avoid: Light, dust generation, excess heat, exposure to moist air or water, prolonged exposure to air.

Incompatibilities with Other Materials: Moisture, oxidizing agents, metals, alcohols, ammonia, amines, acids.

Hazardous Decomposition Products: Hydrogen cyanide, nitrogen oxides, carbon monoxide, carbon dioxide, hydrogen bromide.

Hazardous Polymerization: May occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 506-68-3: GT2100000

LD50/LC50:
Not available.

Carcinogenicity:
CAS# 506-68-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found
Teratogenicity: No information found
Reproductive Effects: No information found
Mutagenicity: No information found
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series:

CAS# 506-68-3: waste number U246.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	CYANOGEN BROMIDE	CYANOGEN BROMIDE
Hazard Class:	6.1	6.1(8)
UN Number:	UN1889	UN1889
Packing Group:	I	I

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 506-68-3 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 506-68-3: 1000 lb final RQ; 454 kg final RQ

SARA Section 302 Extremely Hazardous Substances

CAS# 506-68-3: 500 lb TPQ (lower threshold); 10000 lb TPQ (upper threshold)

SARA Codes

CAS # 506-68-3: immediate, reactive.

Section 313

No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 506-68-3 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations
European Labeling in Accordance with EC Directives

Hazard Symbols:

T+

Risk Phrases:

R 26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.
R 34 Causes burns.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 28A After contact with skin, wash immediately with plenty of water

WGK (Water Danger/Protection)

CAS# 506-68-3: 3

Canada - DSL/NDSL

CAS# 506-68-3 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1B, E.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 506-68-3 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 6/02/1998

Revision #5 Date: 6/07/2006

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.