Material Safety Data Sheet

Cyanogen bromide

MSDS# 84299

Section 1 - Chemical Product and Company Identification

MSDS Name: Cyanogen bromide

Catalog Numbers: AC110780000, AC110780050, AC110785000, AC405950000, AC405950250, AC405951000 AC405951000, AC405955000, 11078-0250, 11078-1000, O6103-100, O6103-25

Synonyms: Bromocyanide.

Company Identification:	Fisher Scientific One Reagent Lane Fair Lawn, NJ 07410
For information in the US, call:	201-796-7100
Emergency Number US:	201-796-7100
CHEMTREC Phone Number, US:	800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#:	506-68-3
Chemical Name:	Cyanogen bromide
%:	97+
EINECS#:	208-051-2

Hazard Symbols: T+ N

Risk Phrases: 26/27/28 34 50

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Danger! Lachrymator (substance which increases the flow of tears). May cause cardiac disturbances. May cause pulmonary edema. May cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). Causes burns by all exposure routes. May be fatal if inhaled, absorbed through the skin or swallowed. Material is a solid at room temperature that melts upon moderate heating into a combustible liquid with a flash point below 200°F(93.3°C). Very toxic to aquatic organisms. Target Organs: Blood, central nervous system, respiratory system, gastrointestinal system, eyes, skin.

Potential Health Effects

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

Skin: May be fatal if absorbed through the skin. Causes skin burns. 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. Causes gastrointestinal tract burns. May cause severe gastrointestinal tract irritation with nausea, vomiting and possible burns. Metabolism may release cyanide, which may result in headache, dizziness, weakness, collapse, unconsciousness and possible death.

Inhalation: May be fatal if inhaled. May cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). Causes chemical burns to the respiratory tract. May cause dyspnea (difficult or labored breathing). 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. May cause chest pain and lung irritation.

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: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

Skin: POISON material. In case of contact, get medical aid immediately. Immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

Ingestion: POISON material. If swallowed, get medical aid immediately. Only induce vomiting if directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

Inhalation: Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. SPEED IS ESSENTIAL, OBTAIN MEDICAL AID IMMEDIATELY. Do not use mouth-to-mouth resuscitation if victim ingested or 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.

Notes to Physician:

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. Combustion generates toxic fumes. Will burn if involved in a fire. Containers may explode in the heat of a fire. This chemical poses an explosion hazard. Material is a solid at room temperature that melts upon moderate heating into a combustible liquid with a flash point below 200° F(93.3°C).

Extinguishing Media: Use carbon dioxide or dry chemical. DO NOT USE WATER OR FOAM.

Autoignition Temperature: Not applicable.

Flash Point: > 65 deg C (> 149.00 deg F)

Explosion Limits: Lower: Not available

Explosion Limits: Upper: Not available

NFPA Rating: health: 4; flammability: 2; instability: 3;

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. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Avoid generating dusty conditions. Remove all sources of ignition. Use a spark-proof tool. Evacuate unnecessary personnel. Do not let this chemical enter the environment.

Section 7 - Handling and Storage

Handling: Minimize dust generation and accumulation. Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Keep away from heat, sparks and flame. Do not ingest or inhale. Container should be opened by a technically qualified person. Use only in a chemical fume hood.

Storage: Keep away from sources of ignition. Store in a tightly closed container. Store in a dry area. Keep refrigerated. (Store below 4°C/39°F.) Store protected from moisture. Store protected from light.

Section 8 - Exposure Controls, Personal Protection

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

OSHA Vacated PELs: Cyanogen bromide: None listed

Engineering Controls:

Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

Exposure Limits

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:	A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State:	Crystals
Color:	white
Odor:	pungent odor
pH:	Not available
Vapor Pressure:	116 mbar @ 20 deg C
Vapor Density:	Not available
Evaporation Rate:	Not available
Viscosity:	Not available
Boiling Point:	61 - 62 deg C @ 760 mmHg
Freezing/Melting Point:	49 - 54 deg C
Decomposition Temperature:	Not available
Solubility in water:	Decomposes.
Specific Gravity/Density:	2.015
Molecular Formula:	CBrN
Molecular Weight:	105.93

Section 10 - Stability and Reactivity

Chemical Stability:	Unstable. May decompose on exposure to moist air or water. May undergo autopolymerization. Moisture sensitive. Light sensitive.
Conditions to Avoid:	Incompatible materials, light, ignition sources, dust generation, metals, exposure to moist air or water.
Incompatibilities with Other Materials	Metals, oxidizing agents, acids, alcohols, amines, ammonia.
Hazardous Decomposition Products	Hydrogen cyanide, nitrogen oxides, hydrogen bromide.
Hazardous Polymerization	May occur.

Section 11 - Toxicological Information

RTECS#:	CAS# 506-68-3: GT2100000
LD50/LC50:	RTECS: Not available.
Carcinogenicity:	Cyanogen bromide - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Other:	The hazards associated with cyanide may be seen in this product.

Section 12 - Ecological Information

Other:	Do not empty into drains.

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: CYANOGEN BROMIDE
Hazard Class: 6.1

UN Number: UN1889
Packing Group: I
Canada TDG
Shipping Name: CYANOGEN BROMIDE
Hazard Class: 6.108
UN Number: UN1889
Packing Group: I

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

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: T+ N

Risk Phrases:

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

R 34 Causes burns.

R 50 Very toxic to aquatic organisms.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 28A After contact with skin, wash immediately with plenty of water.

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 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

WGK (Water Danger/Protection)

CAS# 506-68-3: 3

Canada

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

Canadian WHMIS Classifications: B3, D1A, E, F

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.

CAS# 506-68-3 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

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

Section 16 - Other Information

MSDS Creation Date: 6/02/1998

Revision #7 Date 7/20/2009
