

Material Safety Data Sheet

Sodium cyanide

ACC# 21160

Section 1 - Chemical Product and Company Identification

MSDS Name: Sodium cyanide

Catalog Numbers: AC194660010, AC194660050, AC370310010, AC370310050, AC424300025, AC424300050, AC424305000, S283I-250, S283I-500, S284I-100, S284I-500

Synonyms: Hydrocyanic acid, sodium salt; Cyanide of sodium; Prussiate of soda; NaCN.

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
143-33-9	Sodium cyanide	> 95	205-599-4

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white solid.

Danger! May be fatal if inhaled, absorbed through the skin or swallowed. May cause burns by all exposure routes. Contact with acids liberates hydrogen cyanide, a very toxic, flammable gas or liquid. May cause central nervous system effects. Hygroscopic (absorbs moisture from the air). Marine pollutant. Corrosive to aluminum.

Target Organs: Central nervous system, lungs, eyes, thyroid, skin.

Potential Health Effects

Eye: Contact with eyes may cause severe irritation, and possible eye burns. Cyanide can be absorbed through the eyes causing the symptoms described for inhalation.

Skin: May be fatal if absorbed through the skin. If absorbed, causes symptoms similar to those of ingestion. Causes severe skin irritation and possible burns. 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 tissue anoxia, characterized by weakness, headache, dizziness, confusion, cyanosis (bluish skin due to deficient oxygenation of the blood), weak and irregular heart beat, collapse, unconsciousness, convulsions, coma and death. Human fatalities have been reported from acute poisoning. Contact with stomach acid releases poisonous hydrogen cyanide.

Inhalation: May be fatal if inhaled. 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: May interfere with iodine uptake of the thyroid gland and enlarge it. 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: Treat patient as for inhalation. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

Skin: SPEEDY ACTION IS CRITICAL, GET MEDICAL AID IMMEDIATELY. 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: POISON material. If inhaled, get medical aid immediately. Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician: Exposure should be treated as a cyanide poisoning.

Antidote: Always have a cyanide antidote kit on hand when working with cyanide compounds. Get medical advice to use.

Section 5 - Fire Fighting Measures

General Information: Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. Non-combustible, substance itself does not burn but may decompose upon heating to produce irritating, corrosive and/or toxic fumes. Runoff from fire control or dilution water may cause pollution. Combustion by-products include oxides of nitrogen and hydrogen cyanide.

Extinguishing Media: DO NOT USE carbon dioxide or acidic dry chemical extinguishers since very toxic and flammable HCN will be released.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower: Not available.

Upper: Not available.

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

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. Do not flush into a sewer. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation. Evacuate unnecessary personnel.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Wash hands before eating. Minimize dust generation and accumulation. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Wash clothing before reuse. Discard contaminated shoes. Acids should not be used around sodium cyanide or potassium cyanide unless absolutely necessary and then only after careful planning. Hydrogen cyanide (HCN) formation is the greatest potential hazard in using sodium cyanide or potassium cyanide solutions because some HCN gas will be released. Use only with adequate ventilation or respiratory protection. Change contaminated clothing promptly.

Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from strong acids. Poison room locked. Keep containers tightly closed. Store protected from moisture.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Sodium cyanide	Skin - potential significant contribution to overall exposure by the cutaneous route; 5 mg/m ³ Ceiling (as CN, listed under hydrogen cyanide and cyanide salts)	25 mg/m ³ IDLH (as CN)	5 mg/m ³ TWA (listed under Cyanide anion).

OSHA Vacated PELs: Sodium cyanide: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear chemical splash goggles.

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: Solid

Appearance: white

Odor: faint odor of bitter almond

pH: Strongly alkaline in soln

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 1496 deg C

Freezing/Melting Point: 563.7 deg C

Decomposition Temperature: Not available.

Solubility: Soluble.

Specific Gravity/Density: 1.6000g/cm³

Molecular Formula: NaCN

Molecular Weight: 49.01

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Readily absorbs carbon dioxide and moisture from the air and deliquesces (to absorb atmospheric water vapor and become liquid). May react with carbon dioxide in the air to form toxic hydrogen cyanide.

Conditions to Avoid: High temperatures, dust generation, exposure to moist air or water.

Incompatibilities with Other Materials: Strong oxidizing agents, acids.

Hazardous Decomposition Products: Hydrogen cyanide, oxides of nitrogen, sodium hydroxide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 143-33-9: VZ7525000

LD50/LC50:

CAS# 143-33-9:

Oral, rat: LD50 = 6440 ug/kg;

Oral, rat: LD50 = 4.7 mg/kg;

Skin, rabbit: LD50 = 10400 ug/kg;

Skin, rabbit: LD50 = 300 mg/kg;

Carcinogenicity:

CAS# 143-33-9: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: Increased incidence of several symptoms was seen in individuals exposed to cyanide, for approximately 7 years, compared to control subjects. The symptoms experienced, in descending order of frequency, were headache, weakness, changes in taste and smell, irritation of the throat, vomiting, and effort dyspnea. Enlargement of the thyroid was reported in 50% of the workers; it was attributed possibly to the effects of thiocyanate, the chief metabolite of cyanide.

Teratogenicity: Teratogenic effects have occurred in experimental animals.

Reproductive Effects: Adverse reproductive effects have occurred in experimental animals.

Mutagenicity: Mutagenic effects have occurred in experimental animals.

Neurotoxicity: Neurotoxic effects have occurred in humans.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.

Environmental: No information available.

Physical: No information available.

Other: Marine pollutant.

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: CAS# 143-33-9: waste number P106.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	SODIUM CYANIDE, SOLID	SODIUM CYANIDE, Solid
Hazard Class:	6.1	6.1(9.2)
UN Number:	UN1689	UN1689
Packing Group:	I	I

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 143-33-9 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 143-33-9: Effective 10/29/90, Sunset 12/19/95

Chemical Test Rules

CAS# 143-33-9: Test for Chemical Fate; Test for Terrestrial Effects

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# 143-33-9: 10 lb final RQ; 4.54 kg final RQ

SARA Section 302 Extremely Hazardous Substances

CAS# 143-33-9: 100 lb TPQ (This material is a reactive solid. The TPQ does not default to 10000 pounds for non-powder, non-molten, non-solv ent form)

SARA Codes

CAS # 143-33-9: immediate.

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:

CAS# 143-33-9 is listed as a Hazardous Substance under the CWA. CAS# 143-33-9 is listed as a Priority Pollutant under the Clean Water Act. CAS# 143-33-9 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

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

STATE

CAS# 143-33-9 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, 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 + N

Risk Phrases:

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

R 32 Contact with acids liberates very toxic gas.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 29 Do not empty into drains.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 7 Keep container tightly closed.

S 60 This material and its container must be disposed of as hazardous waste.

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

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

WGK (Water Danger/Protection)

CAS# 143-33-9: 3

Canada - DSL/NDSL

CAS# 143-33-9 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1A, D2B, 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# 143-33-9 (listed as Cyanides, inorganic salts) is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 1/14/1998

Revision #9 Date: 8/16/2005

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, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.