

1. Identification

Product identifier	Cyanco® Sodium Cyanide Solution - Mining Quality (23-32% by weight) Dyed
Other means of identification	None.
Recommended use	Electroplating Agent, Gold and silver extraction in mining operations.
Recommended restrictions	For industrial use only.
Manufacturer/Importer/Supplier/Distributor information	
Company name	Cyanco
Address	2245 Texas Drive, Suite 500 Sugar Land, TX 77479 United States of America
Telephone	+1-832-590-3644
Website	www.cyanco.com
Email	sales@cyanco.com
Poison Control Center	US: 1-800-222-1222
Emergency telephone number	CANUTEC Canada: 613-996-6666

2. Hazard identification

Physical hazards	Not classified.	
Health hazards	Acute toxicity, oral	Category 1
	Acute toxicity, dermal	Category 1
	Acute toxicity, inhalation	Category 1
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity following repeated exposure	Category 1 (thyroid)
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 1

Label elements



Signal word	Danger
Hazard statement	Fatal if swallowed. Fatal in contact with skin. Fatal if inhaled. Causes severe skin burns and eye damage. Causes damage to organs (thyroid) through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Do not breathe mist/vapours. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

Response	IF SWALLOWED: Immediately call a POISON CENTRE/doctor. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE/doctor. Specific treatment is urgent. Collect spillage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Supplemental information	None.
Other hazards	Contact with acids liberates very toxic gas.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Water		7732-18-5	> 68 - < 77
Sodium cyanide		143-33-9	23 - 32
Carmoisine		3567-69-9	< 0.1

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim 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. Call a physician or poison control centre immediately. If patient finds breathing difficult and develops a bluish discoloration of the skin (which suggests a lack of oxygen in the blood - cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask. If breathing stops, provide artificial respiration. Immediately contact an emergency physician and notify of cyanide / hydrocyanic acid poisoning.

Skin contact

Take off immediately all contaminated clothing. Wash with plenty of soap and water. Call a physician or poison control centre immediately. Wash contaminated clothing before reuse. Rinse skin with water/shower. Chemical burns must be treated by a physician.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control centre immediately. Eye burns may not be apparent for up to 48 hours post exposure due to the caustic properties of sodium cyanide.

Ingestion

Call a physician or poison control centre immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms/effects, acute and delayed

Burning pain and severe corrosive skin damage. Causes serious eye damage. Permanent eye damage including blindness could result. Signs and symptoms may include: Symptoms of the central nervous system: Headaches, dizziness, fatigue, nausea and vomiting. Coma. Seizures. Pulmonary symptoms: dyspnea, tachypnea, hyperventilation, Cheyne-Stokes respiration, apnea. Cardiovascular symptoms: hypertension, sinus arrhythmia, atrioventricular arrhythmia, bradycardia, tachycardia, complex arrhythmia, cardiac arrest. Skin symptoms: rosy skin color, cyanosis.

Indication of immediate medical attention and special treatment needed

CYANIDES: may be fatal if absorbed through the skin, if swallowed or inhaled. Get medical attention immediately. It is highly recommended that procedures be established by your company's physician, concerning first aid and medical treatment to be used in case of cyanide poisoning. Such procedure may include the administration of oxygen, activated charcoal, or antidotes such as amyl nitrite, sodium thiosulfate, sodium nitrite or methylene blue.

Commonly Used Antidotes:

Met hemoglobin-Forming Agent. For Moderate to Severe Exposures (patient still conscious). Sodium nitrite 300-600 mg administered intravenously over a period of 5 to 15 minutes. Sodium thiosulfate (12.5 g - 100-500 mg/kg weight) intravenously over a period of 15-20 minutes. If patient is conscious, then sodium thiosulfate may be administered as an antidote by itself: (See antidote package information insert) Sodium thiosulfate (12.5 g - 100-500 mg/kg weight) IV may be administered depending on the clinical presentation and symptoms.

Complexing Antidote Agent. Hydroxocobalamin - commonly known as the Cyanokit®. Administer hydroxocobalamin (Cyanokit®) 5 g i.v. (70 mg/kg b.w. in adults) by infusion over a period of 20-30 minutes. Administration of this dose can be repeated as required depending on the severity of poisoning. Infusion time for repeated dose: 30 minutes to 2 hours. The only permissible route of administration for hydroxocobalamin is intravenously. The physician should read the medication package information carefully to ensure proper reconstitution to liquid state and administration of antidote!

General information

At all places where there is a risk of cyanide poisoning, items to facilitate the prompt and effective treatment of cyanide poisoning (as determined by the treatment protocol to be employed) should be kept in an accessible and convenient location. Take off immediately all contaminated clothing. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Discard any shoes or clothing items that cannot be decontaminated.

5. Fire-fighting measures

Suitable extinguishing media

Powder.

Unsuitable extinguishing media

Carbon dioxide. Foam. Water. Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

Fire may produce irritating, corrosive and/or toxic gases.

Special protective equipment and precautions for firefighters

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Decomposes on heating emitting toxic fumes, including those of hydrogen cyanide and ammonia.

Fire fighting equipment/instructions

Decomposes on heating emitting toxic fumes, including those of hydrogen cyanide and ammonia. Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Specific methods

In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers.

General fire hazards

The product is non-combustible. Contact with certain metals liberates flammable gas.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid any exposure. Local authorities should be advised if significant spillages cannot be contained. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering. Keep unnecessary personnel away. Stay upwind. Keep out of low areas. Use Personal Protective Equipment recommended in section 8 of the SDS. Wear appropriate protective equipment and clothing during clean-up. See Section 8 of the SDS for Personal Protective Equipment.

Methods and materials for containment and cleaning up

Clean up in accordance with all applicable regulations. Allow 1 hour for complete decomposition before washing spillage area down with large quantities of water to ensure maximum dilution. Spillage area and contaminated solids can be detoxified by treatment with an excess of dilute sodium hypochlorite, calcium hypochlorite, or ferrous sulfate after the addition of soda ash or lime to raise the pH to greater than 10.5. Should not be released into the environment.

Never return spills in original containers for re-use.

Environmental precautions

Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Precautions for safe handling

Avoid any exposure. Do not breathe vapour. Do not get this material in your eyes, on your skin, or on your clothing. Use care in handling/storage. Observe good industrial hygiene practices. Wear appropriate personal protective equipment. Container may be opened only under exhaust ventilation hood. Seal container hermetically immediately after use. Always have on hand a cyanide antidote kit and trained medical responders who can administer first aid before beginning work with this product.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep container tightly closed in a dry and well-ventilated place. Do not store near acids. Store away from incompatible materials (see section 10 of the SDS). Keep away from food, drink and animal feeding stuffs. Store at temperatures below 43°C (110°F).

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
Sodium cyanide (CAS 143-33-9)	Ceiling	5 mg/m ³

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
Sodium cyanide (CAS 143-33-9)	Ceiling	5 mg/m ³

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
Sodium cyanide (CAS 143-33-9)	Ceiling	5 mg/m ³

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value
Sodium cyanide (CAS 143-33-9)	Ceiling	5 mg/m ³

Canada. New Brunswick OELs: Threshold Limit Values (TLVs) Based on the 1991 and 1997 ACGIH TLVs and BEIs Publication (New Brunswick Regulation 91-191)

Components	Type	Value
Sodium cyanide (CAS 143-33-9)	Ceiling	5 mg/m ³

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value
Sodium cyanide (CAS 143-33-9)	Ceiling	5 mg/m ³

Canada. Quebec OELs. (Ministry of Labor - Regulation respecting occupational health and safety)

Components	Type	Value
Sodium cyanide (CAS 143-33-9)	Ceiling	11 mg/m ³
		10 ppm

Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21)

Components	Type	Value
Sodium cyanide (CAS 143-33-9)	Ceiling	5 mg/m ³

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

Canada - Alberta OELs: Skin designation

Sodium cyanide (CAS 143-33-9) Can be absorbed through the skin.

Canada - British Columbia OELs: Skin designation

Sodium cyanide (CAS 143-33-9) Can be absorbed through the skin.

Canada - Manitoba OELs: Skin designation

Sodium cyanide (CAS 143-33-9)

Danger of cutaneous absorption

Canada - Ontario OELs: Skin designation

Sodium cyanide (CAS 143-33-9)

Can be absorbed through the skin.

Canada - Quebec OELs: Skin designation

Sodium cyanide (CAS 143-33-9)

Can be absorbed through the skin.

Canada - Saskatchewan OELs: Skin designation

Sodium cyanide (CAS 143-33-9)

Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Sodium cyanide (CAS 143-33-9)

Danger of cutaneous absorption

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Impact resistant chemical protection goggles. Face shield with forehead protector.

Skin protection**Hand protection**

Wear appropriate chemical resistant gloves. Wear protective gloves. Natural rubber. Nitrile. Polychloroprene w / natural rubber latex. Polyvinyl chloride (PVC). Suitable gloves can be recommended by the glove supplier.

Other

Wear appropriate chemical resistant clothing. Wear a full chemical protective suit. (Tychem®). Rubber boots. Use gloves with long sleeves. Full-length face shields with forehead protection shall be worn by employees engaged in any operation wherein there is danger or likelihood that dusts, molten salts, or solutions of cyanide salts may contact the face. Suitable items can be recommended by the protective equipment supplier or by a qualified industrial hygienist. An emergency shower or water supply should be readily accessible to the work area.

Respiratory protection

Wear positive pressure self-contained breathing apparatus (SCBA). In case of inadequate ventilation or risk of inhalation of dust, use a suitable NIOSH approved respirator with an appropriate particulate filter. In case of inadequate ventilation or risk of inhalation of vapors, use suitable respiratory equipment with particulate filter (ABEK2/P3).

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Ensure safe disposal of contaminated clothing.

9. Physical and chemical properties**Appearance****Physical state**

Liquid.

Form

Liquid.

Colour

Red to Light Pink with carmoisine dye added

Odour

'Bitter almonds'.

Odour threshold

> 0.5 - < 5 ppm as HCN

pH

12 Aqueous solution

Melting point/freezing point

5 - 23 °F (- 15 to - 5 °C) Crystal Precipitation

Initial boiling point and boiling range

105 °C (221 °F)

Flash point

None

Evaporation rate

Property has not been measured.

Flammability (solid, gas)

Non combustible.

Upper/lower flammability or explosive limits**Explosive limit - lower (%)**

Not applicable.

Explosive limit – upper (%)

Not applicable.

Vapour pressure

20.2 hPa Calculated (20 °C (68 °F))

Vapour density

Property has not been measured.

Relative density1.15 g/cm³ (20 °C (68 °F))

Solubility(ies)	
Solubility (water)	Completely miscible
Partition coefficient (n-octanol/water)	Not applicable, product is a mixture.
Auto-ignition temperature	Not applicable.
Decomposition temperature	> 43 °C (> 109.4 °F)
Viscosity	2 mPa·s (20 °C (68 °F))
Other information	
Density	Property has not been measured.
Explosive properties	Not explosive.
Kinematic viscosity	Property has not been measured.
Oxidising properties	Not oxidising.

10. Stability and reactivity

Reactivity	Contact with acids liberates very toxic gas.
Chemical stability	Stable at normal conditions.
Possibility of hazardous reactions	Contact with acids liberates very toxic gas. Reacts with water liberating toxic hydrogen cyanide gas.
Conditions to avoid	Moisture. Contact with incompatible materials.
Incompatible materials	Acids. Oxidizing agents. Metals. Moisture. Halogens.
Hazardous decomposition products	Thermal decomposition or combustion may liberate toxic gases or fumes. Hazardous decomposition products: Hydrocyanic acid (hydrogen cyanide). Ammonia.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Fatal if inhaled.
Skin contact	Fatal in contact with skin. Causes severe skin burns. Components of the product may be absorbed into the body through the skin.
Eye contact	Causes serious eye damage.
Ingestion	Fatal if swallowed. Causes digestive tract burns.

Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Permanent eye damage including blindness could result. Signs and symptoms may include: Symptoms of the central nervous system: Headaches, dizziness, fatigue, nausea and vomiting. Seizures. Coma. Pulmonary symptoms: dyspnea, tachypnea, hyperventilation, Cheyne-Stokes respiration, apnea. Cardiovascular symptoms: hypertension, sinus arrhythmia, atrioventricular arrhythmia, bradycardia, tachycardia, complex arrhythmia, cardiac arrest. Skin symptoms: rosy skin color, cyanosis.
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Information on toxicological effects

Acute toxicity	Fatal if inhaled. Fatal in contact with skin. Fatal if swallowed.
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Components	Species	Test Results
Sodium cyanide (CAS 143-33-9)		
Acute		
Dermal		
LD50	Rabbit	11.83 mg/kg
Inhalation		
Gas		
LC50	Rat	63 ppm, 1 Hours
Oral		
LD50	Rat	>= 5.09 mg/kg

Skin corrosion/irritation	Causes severe skin burns.
Serious eye damage/eye irritation	Causes serious eye damage.

Respiratory or skin sensitisation

Respiratory sensitisation Not a respiratory sensitiser.

Skin sensitisation This product is not expected to cause skin sensitisation.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Not classifiable as to carcinogenicity to humans.

Reproductive toxicity Does not meet classification criteria.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Causes damage to organs (thyroid) through prolonged or repeated exposure.

Aspiration hazard Not an aspiration hazard.

Chronic effects Chronic exposure to low levels of cyanides may cause loss of appetite, headache, nausea, dizziness, irritation of eyes and upper respiratory tract, easy fatigue and skin disorders.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Components		Species	Test Results
Sodium cyanide (CAS 143-33-9)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	0.3 mg/l
<i>Acute</i>			
Fish	LC50	Carp (Leuciscus idus melanotus)	0.07 mg/l
Other	EC50	Escherichia coli	0.004 mg/l

Persistence and degradability Inherently biodegradable.

Bioaccumulative potential Low bioconcentration potential.

Mobility in soil This product is miscible in water.

Other adverse effects No data available for this product.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

TDG

UN number UN3414

UN proper shipping name SODIUM CYANIDE SOLUTION

Transport hazard class(es)

Class 6.1

Subsidiary risk -

Packing group I

Environmental hazards Yes

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IATA

UN number UN3414

UN proper shipping name Sodium cyanide solution
Transport hazard class(es)
Class 6.1
Subsidiary risk -
Packing group I
Environmental hazards Yes
ERG Code 6L
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN3414
UN proper shipping name SODIUM CYANIDE SOLUTION
Transport hazard class(es)
Class 6.1
Subsidiary risk -
Packing group I
Environmental hazards
Marine pollutant Yes
EmS F-A, S-A
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not established.

15. Regulatory information

Canadian regulations This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Controlled Drugs and Substances Act

Not regulated.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Ontario. Toxic Substances. Toxic Reduction Act, 2009. Regulation 455/09 (July 1, 2011)

Sodium cyanide (CAS 143-33-9)

Precursor Control Regulations

Not regulated.

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto Protocol

Not applicable.

Montreal Protocol

Not applicable.

Basel Convention

Not applicable.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date 24-May-2022

Revision date 05-December-2022

Version No. 02

Disclaimer Cyanco cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.