

Ohio Precious Metals LLC
MATERIAL SAFETY DATA SHEET

Product Name: Silver Cyanide **Dated:** 11/05 **Revision:** A
MSDS code: 01-8050 **Page :** 1 of 9

OPM urges each customer or recipient of this MSDS to study carefully to become aware of and understand the hazards associated with this product. The reader should consider consulting reference works or individuals that are experts in ventilation, toxicology, and fire prevention, as necessary or appropriate to use and understand the data contained in this MSDS.

To promote safe handling, each customer or recipient should: 1) Notify its employees, agents, contractors and others whom it knows or believes will use this material or the information in this MSDS and any other information regarding hazards or safety; 2) Furnish this same information to each of its customers for the product; and 3) Request its customers to notify their employees, customers, and other users of the product of this information.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 IDENTIFICATION

Product name: Silver Cyanide
Chemical name:
Chemical family:
Formula: AgCN

1.2 COMPANY IDENTIFICATION:

Ohio Precious Metals LLC
16064 Beaver Pike
Jackson, Ohio 45640
740-286-6457

1.3 EMERGENCY TELEPHONE NUMBER

24 hours a day: In case of spill, leak, exposure or accident- Call Chemtrec 800-424-9300. Number for non-emergency questions concerning MSDS information 740-286-6457 Monday thru Friday 8am-4pm.

2. COMPOSITION INFORMATION

Principal Hazardous Component(s)	CAS#	Amount (%)
*Silver cyanide	506-64-9	100.0

* This chemical is regulated as a toxic chemical under Section 313 Title III. The Superfund Amendments and Reauthorization Act of 1986 and 40CFR Part 372 and must be reported on the EPA form R. This material is not listed on the California Proposition 65 list. This material is listed in the TSCA inventory. For purposes of the New Jersey Right To Know Law, the contents are partially unknown.

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3. HAZARD IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Appearance white

Physical state solid

Odor very slight almond odor

Hazards of product Toxic. Toxic by inhalation, in contact with skin and if swallowed. Contact with acids liberates very toxic gas. Slow formation of hydrocyanic acid from free cyanide with moist air. Slight formation of free cyanide through the slight water solubility.

3.2 POTENTIAL HEALTH EFFECTS

Routes of Entry

Eyes Yes

Skin Yes

Inhalation Yes

Ingestion Yes

Effects of Single Acute Overexposure

Overexposure may result in weakness, headaches, confusion, nausea, vomiting, eye and skin irritation, slow gasping respiration. Death may occur if material is ingested.

Chronic, Prolonged Exposure or Repeated Overexposure

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. Toxicity of the product to the reproductive system: Not available. This substance is toxic to the lungs, mucous membranes. Repeated or prolonged exposure of this product can produce target organ damage. Repeated exposure to vapors or dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Poisoning has an effect on the central nervous system

3.3 POTENTIAL ENVIRONMENTAL EFFECTS

Do not allow product to reach sewers, ground water or any water bodies.

4. FIRST AID PROCEDURES

Observe self- protection

Remove contaminated or saturated clothing immediately and dispose of safely.

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Bring affected persons out of danger area. Do not leave affected person unattended. Do not use direct mouth to mouth resuscitation. (self-protection) In case of difficulties, supply oxygen. Keep warm and in stable position.. Place person on side in stable position if unconscious.

Possible signs of poisoning: headache dizziness, drowsiness, nausea, seizures, unconsciousness, respiratory disturbance, cessation of breathing, cardiac arrest

Following Inhalation:

Notify ambulance immediately (keyword: poisoning by hydrogen cyanide)

Take affected persons out into fresh air.

Do not leave affected persons unattended.

Keep warm and in stable position.

In case of difficulties in breathing, supply oxygen. Employ artificial respiration if breathing ceases. Do not use mouth-to-mouth resuscitation (own protection), use operated respirator bag.

Place person on side in stable position if unconscious.

Following contact with skin:

Consult doctor immediately

Keep warm and in stable position.

Do not leave affected persons unattended.

In case of difficulties in breathing ,supply oxygen. Employ artificial respiration if breathing ceases. Place person on side in stable position if unconscious.

Following eye contact:

Check for and remove contact lenses. IMMEDIATELY flush eyes with running water for at least 15 minutes. Do not use an eye ointment. Seek medical attention.

If the substance is swallowed:

Notify ambulance immediately (keyword: poisoning by hydrogen cyanide)

Do not force patient to vomit. Only when patient is fully conscious, have patient rinse out mouth with water. Do not leave affected persons unattended. Keep warm and in stable position. In case of difficulties in breathing, supply oxygen. Employ artificial respiration if breathing ceases. Do not use mouth-to-mouth resuscitation (own protection), use operated respirator bag.

Place person on side in stable position if unconscious.

Instructions for Doctor:

Possible signs of poisoning

Discrimination in 2 stages seems appropriate

1. mild poisoning: no unconsciousness

2. very serious poisoning: unconsciousness

Other symptoms provide no reliable guidelines for prognosis

Symptoms of the central nervous system:

Early stage: headache, dizziness, somolence(drowsiness), nausea

Late stage: seizures, coma

Pulmonary symptoms:

Early stage: dyspnea, tachypnea

Late stage: hypoventilation, Cheyne-Stokes respiration,apnea

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Cardiovascular symptoms:

Early stage: hypertension, sinus arrhythmia, atrioventricular arrhythmia, bradycardia

Late stage: tachycardia, complex arrhythmias, cardiac arrest

Skin symptoms:

Early stage: rosy skin color

Late stage: cyanosis

Effect on the metabolism:

Lactate acidosis up to pH 7.1 and lactate level of 17 mmol/L are described.

Treatment

Prevention of absorption

Following inhalation of HCN gas (hydrogen cyanide):

Bring affected persons out of danger. Observe self protection

After skin contact with liquid hydrogen cyanide:

Cyanide intake through skin absorption and inhalation (hydrogen cyanide vapor!)

Remove contaminated clothing immediately and dispose of safely. Wash skin immediately with plenty of water.

After skin contact with dry cyanide salt:

Absorption unlikely through undamaged skin.

Remove contaminated or saturated clothing immediately and dispose of safely.

Wash skin immediately with plenty of water.

After eye contact with cyanide salt:

Primarily expect cauterization.

Rinse thoroughly immediately with plenty of water for at least 5 minutes keeping eyelid open.

After eye contact with cyanide brine:

Primarily expect cauterization.

Wash skin with plenty of water.

When large skin areas have been cauterized, absorption possible.

Rinse thoroughly immediately with plenty of water for at least 5 minutes keeping eyelid open.

If substance is swallowed:

Only when patient fully conscious: Have patient rinse mouth out with water. First give antidote if necessary, then gastric irrigation under gastroscopic observation, administration of charcoal.

Treatment of symptoms:

Administration of oxygen, artificial respiration, treatment of arrhythmias, treatment of spasmodic fit, correction of acid-base balance. Follow-up of patient, if re-absorption possible (after oral intake, after skin absorption)

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Antidote treatment:

In case of slight poisoning or danger of re-absorption(Intake method: skin, gastro-intestinal tract) Administration of sodium thiosulfate possible.

In the event of severe poisoning, administration of antidote necessary.

Observe national methods of treatment – Information about licensing of antidotes in different countries not available.

Common antidote combinations

Warning! Dosage level relevant for adults weighing 70 kg.

Dicobalt edetate: 300 mg (1 ampoule) i.v.

Antidote in the event of false diagnosis or overdosage: sodium calcium edetate

Hydroxocobolamin/sodium thiosulfate:

4g hydroxocobolamin by slow infusion; then 8 g sodium thiosulfate by infusion. The hydroxocobolamin dosage can be raised if necessary.

Amyl nitrite/sodium nitrite/sodium thiosulfate: amyl nitrite every 15 to 30 seconds by inhalation, then 300-600 mg sodium nitrite i.v., then 12.5 g sodium thiosulfate by infusion.

Antidote in the event of false diagnosis or overdosage (methemoglobinemia > 30%): toluidine blue, methylene blue.

4-dimethylaminophenol, 4-DMAP/sodiumthiosulfate: 250 mg (1 vial) 4-DMAP i.v., then 12.5 sodium thiosulfate by infusion.

Antidote in the event of false diagnosis or overdosage (methemoglobinemia > 30%): toluidine blue, methylene blue.

5. FIRE FIGHTING MEASURES

Flash Point (Method used) :Non-Flammable Flammable Limits Uel:N/A

Extinguishing Media : alkali powder quenching agent Lel: N/A

Unsuitable extinguishing media: carbon dioxide

Special Fire Fighting Procedures : In case of fire, wear self-contained breathing apparatus

Unusual Fire and Explosion Hazards : Hydrocyanic acid (HCN) may be released in case of fire. Under the influence of acids (as well as carbon dioxide!) hydrocyanic acid is released which is combustible and may react with air to explosive gas mixtures. Do not allow run-off to reach drains, ground water, sewers, etc.

6. ACCIDENTAL RELEASE MEASURES

Steps to be taken in case material is released or spilled: Liquid or solid spills should be responded to immediately. The spill, if liquid can be absorbed with an inert material; the solid spill can be swept or shoveled and put into a clean container/cover to ensure proper containment. All cleanup materials when contained must be labeled properly and stored in a safe place to await proper disposal. Persons performing the clean-up work should wear personal protective clothing and equipment. Concentration of hydrogen cyanide in surrounding air should be monitored (gas detection instrument)

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7. HANDLING AND STORAGE

7.1 HANDLING

General Handling

Do not breathe vapor

Do not get in eyes, on skin, on clothing

Do not swallow

Keep container tightly closed on dry surface and protect against dampness and corrosion

Use with adequate ventilation

Wash thoroughly after handling

Prevent any penetration into the ground

Wear protective equipment (see section 8)

Ensure suitable suction/aeration at workplace and with operational machinery

Substance to avoid: acids

Storage class: 6.1

Records of stock must be kept

NOT INTENDED FOR DRUG USE. FOR INDUSTRIAL USE ONLY.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Components with work place related limits to be monitored

Silver cyanide, CAS#506-64-9 Typical PEL 5 mg/m³

Respiratory Protection (Specify type) : Use a MSHA/NIOSH approved respirator or equivalent when ventilation is inadequate . If hydrocyanic acid occurs wear respiratory equipment independent of surrounding air. Note time limit for wearing respiratory equipment

Ventilation Local Exhaust : Local exhaust to keep dust and mist below exposure limits

Mechanical : General ventilation required.

Other : Protective Gloves : PVC or nitrile or latex gloves.

Eye Protection : Face shield and splash-proof safety goggles. Contact lens should not be worn.

Other Protective Equipment : Rubber apron or other impervious clothing
The usual precautionary measures for dealing with chemicals should be observed.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point (°F) : N/A **Specific Gravity (H₂O=1) :** 3.95

Melting Point: 320°C (decomposes)

Vapor Pressure (mm Hg) : N/A **% Volatile by Volume :**N/A

Vapor Density (air=1) : N/A **Evaporation Rate :**N/A

Solubility in Water : Insoluble **pH value:** N/A

Appearance and Odor : White solid, very slight almond odor

10. STABILITY AND REACTIVITY

Stability – Depends on the ambient conditions: humidity, CO₂, and air
Condition to Avoid : Moisture, excess heat or open flames
Incompatibility (Materials to avoid) : Reacts with acids and acid fumes, strong oxidizers, nitrates and chlorates
Hazardous Decomposition Products : Containers should be securely closed as moisture will cause slow decomposition and formation of toxic HCN.
Hazardous Polymerization -- Can Not Occur

11. TOXICOLOGICAL INFORMATION

Silver Cyanide
Acute oral toxicity: LD 50 123 mg/kg, rat, literature
Poisoning has an effect on the central nervous system.

12. ECOLOGICAL INFORMATION

Ecological Information
No ecological information available for this product.
Do not allow product to enter drainage, groundwater or waterways. Treat like potassium cyanide

13. DISPOSAL CONSIDERATIONS

Dispose according to Federal, State and local regulations. Do not allow product to reach sewage system, ground water, storm-water drains or water bodies. Dispose of empty containers according to regulations.

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14. TRANSPORT INFORMATION

Shipping Information

DOT

Proper Shipping Name: Silver cyanide
Hazard Class: 6.1
ID number: UN 1684
DOT Labels: Toxic
Special Information
Packing Group: II
Reportable quantity: 100 lb (45.4 kg)

15. REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status: Reported/Included

HAZARDOUS CHEMICAL LISTS

SARA Extremely Hazardous Substance: Yes

CERCLA Hazardous Substance : Yes

SARA Toxic Chemical : Yes

Superfund Amendments and Reauthorization Act of 1986(SARA) Title III Sections 311 and 312

Delayed Hazard: Yes

Fire Hazard: No

Immediate Health Hazard: Yes

Reactive Hazard: Yes

This product contains the following EPCRA Section 313 chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 372)

CAS#	Chemical name	Reportable Percent by weight
NA	Cyanide compounds	100

Canadian Regulations:

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16 OTHER INFORMATION

HMIS Rating : Health (3), Flammability(0), Reactivity (1)

4= Extreme; 3= Severe; 2 = Moderate ; 1= Slight ; 0 =No known hazard

The information, recommendations and suggestions herein are believed to be reliable. However, it is the users responsibility to determine the safe handling and suitability for his/her use of the product described herein. Since the use by others is outside our control, no guarantee, expressed or implied, is made by Ohio Precious Metals LLC as to the effects of such use, the results obtained or the safety and toxicity of the product nor does OPM per se assume any liability arising out of use , by others of the product referred to herein. Nor is the information herein to be construed as absolutely complete since more information may be desirable or necessary when particular or exceptional circumstances exist, or because of applicable laws or government regulations.

End of MSDS