


# MATERIAL SAFETY DATA SHEET

## Silver (I) Nitrate

<b>NFPA</b> 	<b>HMIS</b> <table border="1"> <tr> <td style="background-color: #00B0F0; color: white;">HEALTH</td> <td style="text-align: center;">03</td> </tr> <tr> <td style="background-color: #FF0000; color: white;">FLAMMABILITY</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="background-color: #FFFF00; color: black;">REACTIVITY</td> <td style="text-align: center;">3</td> </tr> <tr> <td>PERSONAL PROTECTION</td> <td style="text-align: center;">J</td> </tr> </table>	HEALTH	03	FLAMMABILITY	0	REACTIVITY	3	PERSONAL PROTECTION	J
HEALTH	03								
FLAMMABILITY	0								
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PERSONAL PROTECTION	J								

### 1. Product And Company Identification

<p><b>Supplier</b>                  Colonial Metals, Inc.                  Building 20                  505 Blue Ball Road                  Elkton, MD 21921 United States</p> <p><b>Company Contact:</b> Michael Doss - Dir. of Regulatory Affairs  <b>Telephone Number:</b> 410-398-7200  <b>FAX Number:</b> 410-398-2918  <b>E-Mail:</b> mdoss@colonialmetals.com  <b>Web Site:</b> www.colonialmetals.com</p>	<p><b>Manufacturer</b>                  Colonial Metals, Inc.                  Building 20                  505 Blue Ball Road                  Elkton, MD 21921 United States</p> <p><b>Company Contact:</b> Michael Doss - Dir. of Regulatory Affairs  <b>Telephone Number:</b> 410-398-7200  <b>FAX Number:</b> 410-398-2918  <b>E-Mail:</b> mdoss@colonialmetals.com  <b>Web Site:</b> www.colonialmetals.com</p>
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<p><b>Supplier Emergency Contacts &amp; Phone Number</b>                  Chemtrac: 800-424-9300                  World Wide - Call COLLECT to U.S: 703-527-3887</p>	<p><b>Manufacturer Emergency Contacts &amp; Phone Number</b>                  Chemtrac: 800-424-9300                  World Wide - Call COLLECT to U.S: 703-527-3887</p>
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**Issue Date:** 07/31/2012

**Product Name:** Silver (I) Nitrate  
**Chemical Name:** Nitric Acid Silver (I) Salt, Silver (I) Nitrate  
**CAS Number:** 7761-88-8  
**Chemical Family:** Group 1B Metal Salts  
**Chemical Formula:** AgNO<sub>3</sub>  
**MSDS Number:** 9007  
**Product Code:** 9007

**Synonyms**  
 Nitric Acid Silver (I) Salt, Silver (I) Nitrate

### 2. Composition/Information On Ingredients

Ingredient Name	CAS Number	Percent Of Total Weight
Silver Nitrate	7761-88-8	99.9

**EMERGENCY OVERVIEW**

**Oxidizer. Delayed target organ effects. Corrosive. Carcinogen.**

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## Silver (I) Nitrate

### Hazards Identification (Pictograms)



### 3. Hazards Identification

**Primary Routes(s) Of Entry** - Eye: Likely

**Inhalation:** Likely

**Skin:** Likely

**Ingestion:** Likely

**Eye Hazards** - Causes burns, irritating.

**Skin Hazards** - May be harmful if absorbed through the skin, causes burns to the skin.

**Ingestion Hazards** - May be harmful if swallowed. Causes burns.

**Inhalation Hazards** - May be harmful if inhaled. May cause irritation to the respiratory tract. Material is extremely destructive to the tissue of the upper respiratory tract and mucous membranes.

**Subchronic (Target Organ Effects)** - Eyes, nerves, blood, lungs.

#### **Reactivity Profile**

SILVER NITRATE is noncombustible but, as an oxidizing agent, can accelerate the burning of combustible materials. If large quantities are involved in a fire or the combustible material is finely divided, an explosion may result. Prolonged exposure to fire or heat may result in an explosion. Toxic oxides of nitrogen are produced in fires [© AAR, 1999]. Light sensitive. Mixtures with alkyl esters may explode owing to the formation of alkyl nitrates. Mixtures with phosphorus, tin(II) chloride, or other reducing agents may react explosively [Bretherick 1979 p. 108-109]. Reacts with acetylene in the presence of ammonia to form silver acetylide, a powerful detonator when dry [Bretherick 1979 p. 198]. Reaction with ethyl alcohol (or other alcohols) may produce silver fulminate, which can explode when disturbed [Bretherick 1979 p. 200]. An intimate mixture of silver nitrate and magnesium may ignite spontaneously on contact with a drop of water [Bretherick 1979 p. 200]. An explosion occurred when purified phosphine was passed rapidly into a concentrated solution of silver nitrate [Mellor 3:471 1946-47]. When a mixture of 28% ammonium hydroxide and silver nitrate solution was treated with a small amount of sodium hydroxide. Black precipitate, silver nitride exploded on stirring [MCA Case History 1554 1968].

### First Aid (Pictograms)



### 4. First Aid Measures

**Eye** - First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

**Skin** - IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. If symptoms such as redness or irritation develop, IMMEDIATELY call a physician and be prepared to transport the victim to a hospital for treatment.

**Ingestion** - CYANIDES ARE EXTREMELY TOXIC AND FAST-ACTING POISONS. Even though the induction of vomiting is not usually recommended outside of a physician's care if the victim is conscious and not convulsing, it may be worth the risk if a cyanide has been ingested. Ipecac syrup or salt water may be used

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### 4. First Aid Measures - Continued

to induce vomiting in such an emergency.

IMMEDIATELY call a hospital or poison control center and transport the victim to a hospital. If the victim is convulsing or unconscious, do not give anything by mouth, assure that the victim's airway is open and lay the victim on his/her side with the head lower than the body.

DO NOT INDUCE VOMITING. IMMEDIATELY transport the victim to a hospital. (NTP, 1992)

**Inhalation** - IMMEDIATELY leave the contaminated area; take deep breaths of fresh air.

IMMEDIATELY call a physician and be prepared to transport the victim to a hospital even if no symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop.

Provide proper respiratory protection to rescuers entering an unknown atmosphere. Whenever possible, Self-Contained Breathing Apparatus (SCBA) should be used; if not available, use a level of protection greater than or equal to that advised under Protective Clothing.

### Fire Fighting (Pictograms)



### 5. Fire Fighting Measures

**Flash Point:** NA °C

**Autoignition Point:** NA °C

**Flammability Class:** NA

**Fire And Explosion Hazards** - Use proper safety equipment. Container explosion may occur under fire conditions.

**Extinguishing Media** - Flood with water. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible

**Fire Fighting Instructions** - Use NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.

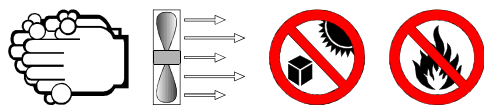
### 6. Accidental Release Measures

Ensure adequate ventilation. Sweep or soak up and place in sealed container taking care to avoid dusting. Person protected with full face shield and proper respirator for dust.

#### Non-Fire Response

Keep sparks, flames, and other sources of ignition away. Keep material out of water sources and sewers. Land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. Cover solids with a plastic sheet to prevent dissolving in rain or fire fighting water. Water spill: If dissolved, apply sodium sulfide (Na<sub>2</sub>S) solution to precipitate heavy metals. Neutralize with agricultural lime (CaO), crushed limestone (CaCO<sub>3</sub>), or sodium bicarbonate (NaHCO<sub>3</sub>). Use mechanical dredges or lifts to remove immobilized masses of pollutants and precipitates. (AAR, 2003)

### Handling & Storage (Pictograms)



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### 7. Handling And Storage

**Handling And Storage Precautions** - Keep containers tightly closed. Use only with adequate ventilation. Wash thoroughly after handling.

**Handling Precautions** - Avoid formation of dust and aerosols. Ensure proper ventilation where dust is formed.

**Storage Precautions** - Keep in a tightly sealed container in a dry, well ventilated place.

**Work/Hygienic Practices** - Use good personal hygiene. Wash thoroughly with soap and water after handling.

#### Other Precautions

0.01 ppm high efficiency particular respirator/supplied air respirator/self-contained breathing apparatus; 0.2 ppm same as above with full face piece; 1 ppm powdered air purifying respirator with high efficiency filter/type C supplied air respirator operated in pressure demand mode. Store in a sealed container, plastic or plastic liner, in a cool, well ventilated, dry area away from oxidizers.

### Protective Clothing (Pictograms)



### 8. Exposure Controls/Personal Protection

**Engineering Controls** - **Ventilation:** **Local Exhaust:** Required in handling area

**Mechanical:** Desirable to insure concentration of material below TLV/TWA levels

**Other:** Closed Ventilation system (Laboratory Fume Hood)

#### Safety shower and eyewash

**Eye/Face Protection** - Goggles or face shield; rubber gloves

**Skin Protection** - Rubber/Neoprene (use compatible chemical-resistant gloves).

**Respiratory Protection** - NIOSH approved chemical cartridge respirator for dust/mist/fume/radionuclide or self-contained breathing apparatus with full face shield.

**Other/General Protection** - Lab coat/apron, flame and chemical resistant protective clothing, eye wash, safety shower, and hygiene facilities for washing.

#### Ingredient(s) - Exposure Limits

Silver Nitrate

TWA - 0.01 mg/m<sup>3</sup> (Ag) - ACGIH ; TWA - 0.01 mg/m<sup>3</sup> (Ag) - OSHA PEL

Lab coat/apron, flame and chemical resistant protective clothing, eye wash, safety shower, and hygiene facilities for washing.

### 9. Physical And Chemical Properties

**Appearance** - Colorless crystals/White powder

**Odor** - Odorless

**Chemical Type:** Mixture

**Physical State:** Solid

**Melting Point:** 414 °F 212 °C

**Boiling Point:** 824 (decomposes) °F 440 (decomposes) °C

**Specific Gravity:** 4.350

**Molecular Weight:** 169.87

**Vapor Pressure:** NA

**pH Factor:** NA

**Solubility:** Very Soluble

**Evaporation Rate:** NA

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## Silver (I) Nitrate

### 10. Stability And Reactivity

**Stability:** Stable

**Hazardous Polymerization:** Will not occur

**Conditions To Avoid (Stability)** - Exposure to light.

**Incompatible Materials** - Strong reducing agents, alcohols, ammonia, magnesium, strong bases.

**Hazardous Decomposition Products** - Formed under fire conditions: silver/ silver oxides, nitrogen oxides (NOx).

### 11. Toxicological Information

**Acute Studies** - LD50 Oral- rat- 1,173 mg/kg

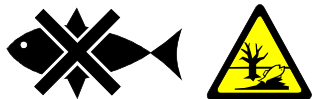
remarks: behavioral: Tetany. Cyanosis diarrhoea

Irritation and corrosion:

eyes- rabbit- severe eye irritation

May cause argyria (a slate gray or bluish discoloration of the skin and deep tissues due to the deposit of insoluble albuminate or silver). Absorption into the body leads to formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2-4 hours longer.

### Ecological (Pictograms)



### 12. Ecological Information

**Ecotoxicological Information** - Toxicity to fish: mortality NOEC - Oncorhynchus mykiss (rainbow trout) - 0.108 mg/l - 96 h

mortality LOEC - Oncorhynchus mykiss (rainbow trout) - > 0.007 mg/l - 7 d

LC50 - Oncorhynchus mykiss (rainbow trout) - 0.006 mg/l - 96 h

Toxicity to daphnia: EC50 - Daphnia magna (Water flea) - 0.0006 mg/l - 48 h  
and other aquatic invertebrates.

**Other Environmental Information** - Elimination information (persistence and degradability)

Bioaccumulation: Lepomis macrochirus - 60 d

Bioconcentration factor (BCF): 120

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

### 13. Disposal Considerations

Place in sealed container. Consult Federal EPA, State and local regulations for proper disposal/recycle/reclamation

NOTE: Chemical additions, processing, or otherwise altering this material may make the waste management information presented above incomplete, inaccurate, or otherwise inappropriate.

**RCRA Information** - EPA HW NO. D001 D002 (Ignitable, corrosive waste)

### 14. Transport Information

**Proper Shipping Name** - Ag Nitrate - Oxidizing Agent & Environmentally Hazardous Substances, Solid, N.O.S.

**Hazard Class**

5.1

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### 14. Transport Information - Continued

**Secondary Hazard Class**

9

**DOT Identification Number**

UN1493

**DOT Shipping Label**

Oxidizer

**Packaging Requirements**

II

**Additional Shipping Paper Description** - IATA: Same as DOT, always consult IATA regulations before shipping.**DOT (Pictograms)**

### 15. Regulatory Information

**U.S. Regulatory Information** - OSHA hazards: oxidizer, delayed target organ effects, corrosive, carcinogen

This product is TSCA listed.

**SARA Hazard Classes**

Acute Health Hazard; Reactivity Hazard

**SARA Section 313 Notification** - Silver Nitrate

CAS No. 7761-88-8

Revision date: 1989-12-01

**Ingredient(s) - U.S. Regulatory Information**

Silver Nitrate

SARA Title III - Section 313 Form "R"/TRI Reportable Chemical; RCRA Hazardous Waste

**Ingredient(s) - State Regulations**

Silver Nitrate

New Jersey - Workplace Hazard; California - Proposition 65

**Canadian Regulatory Information** - This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

**European Union (EU) Regulatory Information** - Symbol of Danger: O (EN)**Indication of Danger:** Oxidizer**R:** 8, 20/22, 34, 50/53**Risk Phrase:** Contact with combustible material may cause fire. Harmful by inhalation and if swallowed. Causes burns. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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### 15. Regulatory Information - Continued

**S:** 24/25, 28, 36/37/39, 45

**Safety Phrase:** Avoid contact with skin and eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical attention immediately. (show label and MSDS when possible)

**Other International Regulations - Indication of Danger:** Oxidizer

**R:** 8, 20/22, 34, 50/53

**Risk Phrase:** Contact with combustible material may cause fire. Harmful by inhalation and if swallowed. Causes burns. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**S:** 24/25, 28, 36/37/39, 45

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### Right-To-Know (Pictograms)



### DSCL - Europe (Pictograms)



### NFPA



### HMIS

HEALTH	03
FLAMMABILITY	0
REACTIVITY	3
PERSONAL PROTECTION	J

### 16. Other Information

**Precautionary Label - Inhalation Hazard**

#### Revision/Preparer Information

MSDS Preparer: Michael W. Doss - Dir Reg Affairs

MSDS Preparer Phone Number: 410-398-7200

This MSDS Supersedes A Previous MSDS Dated: 11/14/2007

#### Revision Summary

Product And Company Identification (02/11/2005)

Composition/Information On Ingredients (02/11/2005)

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### 16. Other Information - Continued

#### Revision Summary - Continued

Hazards Identification (04/10/2012)

First Aid Measures (04/10/2012)

Fire Fighting Measures (04/10/2012)

Accidental Release Measures (04/10/2012)

Handling And Storage (07/31/2012)

Exposure Controls/Personal Protection (04/10/2012)

Physical And Chemical Properties (11/14/2007)

Stability And Reactivity (11/14/2007)

Toxicological Information (11/14/2007)

Ecological Information (11/14/2007)

Disposal Considerations (07/06/2004)

Transport Information (07/31/2012)

Regulatory Information (07/31/2012)

Other Information (07/31/2012)

#### Disclaimer

In compliance with the OSHA Hazard Communication Standard, 2.9 C.F.R 1910.1200, we are providing you with a Materials Safety Data Sheet (MSDS) for the hazardous material you are purchasing.

It is your responsibility to educate your employees on the safe use of the hazardous material. With this in mind, a copy should be forwarded to the supervisor of the user or to the user themselves, and copy should be retained in your files for future reference.

Colonial Metals, Inc. makes no presentation as to the accuracy of the information in the MSDS. The information is believed to be correct; however, you (the customer), should perform your own investigation and independent verification. If you resell the product, you are responsible to forward the information in the MSDS to your customer.

Colonial Metals, Inc.

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