

**** MATERIAL SAFETY DATA SHEET ****
 Silver Nitrate

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Silver Nitrate
 Catalog Number: S181 100, S181 25, S181 500, S181-, S181-100, S181-25, S181-500, S486 100,
 Synonyms: Nitric acid, silver salt
 Company Identification: Fisher Scientific
 Reagent
 Purity: 99.999%
 For information, call: 201-776-7100
 Emergency Number: 201-201-706-7100
 For CHEMTREC assistance, call: 800-424-9300

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
7781-88-8	Nitric acid, silver(+1) salt	100	231-853-9

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: White or colorless crystals.
 Danger! Strong oxidizer. Contact with other material may cause a fire. May cause severe respiratory and digestive tract irritation with possible burns. May cause severe eye and skin irritation with possible burns. May cause cyanosis with bluish skin.
 Target Organs: Blood.
 Potential Health Effects
 Eyes: Contact with eyes may cause severe irritation, and possible eye burns.
 Skin: Causes severe skin irritation. Causes skin burns.
 Ingestion: Harmful if swallowed. May cause severe gastrointestinal tract irritation with nausea, vomiting and possible burns.
 Lethal dose for humans is 2 grams.

**** SECTION 4 - FIRST AID MEASURES ****

Inhalation: Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma.
 Chronic: May cause methemoglobinemia, which is characterized by chocolate-brown colored blood, headache, weakness, dizziness, breath shortness, cyanosis, rapid heart rate, unconsciousness and possible death.
 Chronic inhalation or ingestion may cause "argyria", which is characterized by blue-gray pigmentation of the skin and mucous membranes. These are no other symptoms or physical impairment associated with argyria. Cyanosis may cause focal argyria, a permanent discoloration of the skin.

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information: Strong oxidizer. Contact with combustible materials may cause a fire. 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.
 Extinguishing Media: Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.
 Autoignition Temperature: Not applicable.
 Flash Point: Not applicable.
 NFPA Rating: Not applicable.
 Explosion Limits: Lower: Not available. Upper: Not available.

**** 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. Avoid generating dusty conditions. Remove all sources of ignition.

**** SECTION 7 - HANDLING AND STORAGE ****

Handling: Wash thoroughly after handling. Use with adequate ventilation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Do not store near combustible materials.
 Storage: Keep away from sources of ignition. Do not store near combustible materials. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls: Use adequate ventilation to keep airborne concentrations low.
 Exposure Limits
 Chemical Name ACGIH NIOSH OSHA - Final PELs
 Nitric acid, silver none listed as Ag: 0.01 mg/m3 0.01 mg/m3 TWA (11) salt TYVA listed under SILVER
 OSHA Vacated PELs:
 Nitric acid, silver(1+) salt:
 No OSHA Vacated PELs are listed for this chemical.
 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.
 Skin: Wear impervious gloves.
 Clothing: Wear appropriate protective clothing to prevent skin exposure.
 Respirators: Follow the OSHA respirator regulations found in 29CFR 1910.134. Always use a NIOSH-approved respirator when necessary.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Solid
 Appearance: White or colorless crystals.
 Odor: Not available.
 pH: Not available.
 Vapor Pressure: Not available.
 Vapor Density: Not available.
 Evaporation Rate: Not available.
 Boiling Point: Not available.
 Freezing/Melting Point: 824.1 F
 Decomposition Temperature: 474.5 F
 Solubility: Soluble in water.
 Specific Gravity/Density: 4.35
 Molecular Formula: AgNO3
 Molecular Weight: 169.8731

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**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
 Stable under normal temperatures and pressures.
Conditions to Avoid:
 Incompatible materials, combustible materials, reducing agents.
Incompatibilities with Other Materials:
 Reacts dangerously (explosion, ignition, propellant type of burning, formation explosive products) with acetylene, ammonium hydroxide, ethylamine, sodium cyanide, ethanol, ethanal and nitric acid.
 ethylamine, sodium cyanide, propyne, charcoal, chlorine trifluoride, ethylene oxide, ethylene hydroperoxide, hydrogen peroxide, magnesium acrylate, or cuprous acrylylde.
Hazardous Decomposition Products:
 Nitrogen oxides, silver oxides.
Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTCS#:
 CAS# 7761-88-8: V44725000
LD50/CS0:
 CAS# 7761-88-8: Oral, mouse: LD50 = 50 mg/kg.
Carcinogenicity:
 Nitric acid, silver(1+) salt -
 Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
 No data available.
Toxicogenecity:
 No data available.
Reproductive Effects:
 No data available.
Newborn Toxicity:
 No data available.
Mutagenicity: available.
 No data available.
Other Studies:
 No data available.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity:
 Not available.
Environmental Fate:
 Not available.
Physical/Chemical:
 Not available.
Other:
 Not available.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.
 RCRA D-Series Maximum Concentration of Contaminants: Not listed.
 RCRA F-Series: Not listed.
 RCRA P-Series: Not listed.
 RCRA U-Series: Not listed.
 Not listed as a material banned from land disposal according to RCRA.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
 Shipping Name: SILVER NITRATE
 Hazard Class: 5.1
 Packing Group: II
IMO
 Packing Group: II
IATA
 No information available.
RID/ADR
 No information available.
Canadian TDG
 Shipping Name: SILVER NITRATE
 Hazard Class: 5.1
 UN Number: UN1493

**** SECTION 15 - REGULATORY INFORMATION ****

A. Federal TSCA
 CAS# 7761-88-8 is listed on the TSCA inventory.
Health & Safety Reporting List
 None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
 None of the chemicals in this product are under a Chemical Test Rule 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.
Section 302 (PO)
 None of the chemicals in this material have an RO.
Section 302 (FPD)
 None of the chemicals in this product have a TPC.
SARA Codes
 CAS # 7761-88-8: acute, chronic, flammable.
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.
 Clean Water Act:
 CAS# 7761-88-8 is listed as a Hazardous Substance under the CWA.
 None of the chemicals in this product are listed as Priority Pollutants under the CWA.
 None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
 None of the chemicals in this product are considered highly hazardous by OSHA.

B. State

Nitric acid, silver(1+) salt can be found on the following state right to know lists: New Jersey, Florida, Pennsylvania, California.
C. International
 None of the chemicals in this product are listed.

Canada
 CAS# 7761-88-8 is listed on Canada's DSL/NDL List.
 CAS# 7761-88-8 is listed on Canada's Ingredient Disclosure List.
 European Labeling in Accordance with EC Directives
 Hazard Symbols: Not available.
 Risk Phrases:
 R 34 Causes burns.

Safety Phrases:

R 26 Keep out of reach of children.
 S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Exposure Limits:
 OEL-ARAB Republic of Egypt: TWA 0.01 mg(Ag)/m³, OEL-AUSTRALIA: TWA 0.01 mg(Ag)/m³, OEL-BELGIUM: TWA 0.01 mg(Ag)/m³, OEL-DENMARK: TWA 0.01 mg(Ag)/m³, OEL-FINLAND: TWA 0.01 mg(Ag)/m³, OEL-GERMANY: TWA 0.03 mg(Ag)/m³, OEL-THE NETHERLANDS: TWA 0.01 mg(Ag)/m³, OEL-THE PHILIPPINES: TWA 0.01 mg(Ag)/m³, OEL-SWITZERLAND: TWA 0.01 mg(Ag)/m³, OEL-UNITED KINGDOM: TWA 0.01 mg(Ag)/m³, OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TWA 0.01 mg(Ag)/m³, OEL IN BULGARIA, SINGAPORE, VIETNAM check ACGI TLV OEL 1 mg(Ag)/m³

**** SECTION 16 - ADDITIONAL INFORMATION ****

Additional Information:
 Added NFPA codes to Section 5. Added SARA classifications to Section 15.
 Section 3. Emer Overview, added "DANGEROUS."
 Section 3. Emer Overview, added "STRONG OXIDIZER. CONTACT WITH OTHERS."
 Section 3. Emer Overview, added "MAY CAUSE SEVERE EYE AND SKIN IRRITATION."
 Section 3. Emer Overview, added "MAY CAUSE SEVERE RESPIRATORY AND DI..."
 Section 3. Emer Overview, added "MAY CAUSE CYANOSIS WITH BLUSH SKIN."
 Section 3. Eye Effects, added "Contact with eyes may cause severe..."
 Section 3. Skin Effects, added "Causes severe skin irritation..."
 Section 3. Skin Effects, added "Causes skin burns..."
 Section 3. Inhalation Effects, added "Causes severe irritation of upper r..."
 Section 3. Ingestion Effects, added "Harmful if swallowed..."
 Section 3. Ingestion Effects, added "May cause severe gastrointestinal irritation..."
 Section 3. Chronic Effects, added "May cause methemoglobinemia, which..."
 Section 4. Eye First Aid, added "Immediately flush eyes with plenty..."
 Section 4. Eye First Aid, added "Get medical aid immediately..."
 Section 4. Eye First Aid, added "Do NOT allow victim to rub or keep..."
 Section 4. Skin First Aid, added "Get medical aid immediately..."
 Section 4. Skin First Aid, added "Immediately flush skin with plenty..."
 Section 4. Inhalation First Aid, added "Get medical aid immediately..."
 Section 4. Inhalation First Aid, added "Remove from exposure to fresh air..."

DATE: 11/20/96
INDEX: 663246864

ACCT: 496700001
CAT NO: 578171

PG. NR: 31961

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Section 4. Inhalation First Aid, added "If not breathing, give artificial respiration."
Section 4. Inhalation First Aid, added "If breathing is difficult, alert, g..."
Section 4. Ingestion First Aid, added "Never give anything by mouth to an..."
Section 4. Ingestion First Aid, added "Get medical aid immediately..."
Section 4. Ingestion First Aid, added "Do NOT induce vomiting..."
Section 5. Extinguishing Media, added "Substance is noncombustible..."
Section 5. General Firefighting, added "Strong oxidizer. Contact with..."
Section 5. General Firefighting, added "Wear appropriate protective clothing..."
Section 6. Spills/Leaks, added "Vacuum or sweep up material and pla..."
Section 6. Spills/Leaks, added "Avoid generating dusty conditions..."
Section 6. Spills/Leaks, added "Remove all sources of ignition..."
Section 7. Handling, added "Wash thoroughly after handling..."
Section 7. Handling, added "Use with adequate ventilation..."
Section 7. Handling, added "Do not get in eyes, on skin, or on..."
Section 7. Handling, added "Keep container tightly closed..."
Section 7. Handling, added "Do not ingest or inhale..."
Section 7. Storage, added "Keep away from combustible mater..."
Section 7. Storage, added "Do not store near sources of ignition..."
Section 7. Storage, added "Store in a tightly closed container..."
Section 7. Storage, added "Store in a cool, dry, well-ventilate..."
Section 8. Engine Controls, added "Use adequate ventilation to keep..."
Section 8. Eye Protection, added "Wear appropriate protective eyega..."
Section 8. Skin Protection, added "Wear impermeous gloves..."
Section 8. Clothing, added "Wear appropriate protective clothing..."
Section 8. Respirators, added "Follow the OSHA respirator regulati..."
Section 9. Physical Properties has changed.
Section 10. Stability, added "Stable under normal temperatures an..."
Section 10. Condit. to Avoid, added "Incompatible materials..."
Section 10. Condit. to Avoid, added "reducing agents..."
Section 10. Decomposition Prod., added "nitrogen oxides..."
Section 10. Decomposition Prod., added "silver oxides..."
Section 10. Incompatibility has changed.
Section 10. Incompatibility has changed.
Section 11. Neurotoxicity has changed.
Section 11. Neurotoxicity has changed.
Section 11. Mutagenicity has changed.
Section 11. Reproductive has changed.
Section 11. Other Info has changed.
Section 12. Ecology Info has changed.
Section 12. Environ. Info has changed.
Section 12. Physical Info has changed.
Section 12. Other Info has changed.
MSDS Creation Date: 1/09/1995 Revision Date: 3/04/1998

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