Silver Nitrate



DATE: 08/09/91 ACCT: 162898-01
INDEX: 25912180273 CAT NO: S78173 PO NBR: P0068933

PAIN, ULCERATION, AND DISCOLORATION. RARELY, SENSITIZATION REACTIONS MAY OCCUR FROM TOPICAL APPLICATION OF AGED, BUT NOT FRESH, SILVER NITRATE IN PREVIOUSLY EXPOSED PERSONS. ABSORPTION OF SILVER NITRATE USED TO TREAT BURNED SKIN MAY OCCUR AND CAUSE SERIOUS AND EVEN FATAL METHEMOGLOBINEMIA.
CHRONIC EXPOSURE- PROLONGED OR REPEATED CONTACT MAY CAUSE ARGYRIA. SIGNS AND SYMPTOMS MAY OCCUR AS DESCRIBED IN CHRONIC INHALATION.

Inhalation

FIRST AID- REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVIDENCE OF CHEMICAL REMAINS (AT LEAST 15-20 MINUTES). IN CASE OF CHEMICAL BURNS, COVER AREA WITH STERILE, DRY DRESSING. BANDAGE SECURELY, BUT NOT TOO TIGHTLY. GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT:
SILVER NITRATE:
CORROSIVE
ACUTE EXPOSURE- DUST OR SOLUTIONS MAY CAUSE SEVERE IRRITATION, REDNESS, PAIN, BURNS AND POSSIBLY DISCOLORATION. RAPID APPEARANCE OF EDEMA OF THE CONJUNCTIVA AND LIDS MAY OCCUR WITH BLOODY PURULENT DISCHARGE FROM THE CONJUNCTIVAL SAC. PERMANENT CORNEAL OPACIFICATION, LOSS OF EPITHELIUM AND BLINDNESS MAY RESULT. PARTICLES OF SOLID SILVER NITRATE IN THE CONJUNCTIVAL SAC CAUSED SEVERE INFLAMMATION WITH DEEP INJURY TO SURROUNDING TISSUES, SCARRING, AND SYMBLEPHARON. IN SEVERE CASES, THE SOLID MAY CAUSE THE LENS TO BECOME CATARACTOUS AND THE CORNEA TO BECOME DARK BROWN, POSSIBLY HIDING THE PURIL
CHRONIC EXPOSURE- REPEATED OR PROLONGED CONTACT MAY RESULT IN CONJUNCTIVITIS OR SYMPTOMS SIMILAR TO THOSE IN ACUTE EXPOSURE. PROLONGED EXPOSURE TO DILUTE SOLUTIONS OR FROM INDUSTRIAL EXPOSURE TO DUST HAS CAUSED DISCOLORATION OF THE CORNEA AND CONJUNCTIVA WITHOUT INJURY OR IRRITATION TO THE EYES

FIRST AID- WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (AT LEAST 15-20 MINUTES). CONTINUE IRRIGATING WITH NORMAL SALINE UNTIL THE PH HAS RETURNED TO NORMAL (30-60 MINUTES). COVER WITH STERILE BANDAGES. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:
SILVER NITRATE:
CORROSIVE/HIGHLY TOXIC
ACUTE EXPOSURE- MAY CAUSE PAIN AND BURNING IN THE MOUTH, THROAT AND EPIGASTRIUM, SALIVATION, VIOLENT ABDOMINAL PAIN AND RIGIDITY, BLACK VOMITUS, DIARRHEA, ANURIA, COLLAPSE, SHOCK, VERTIGO, CONVULSIONS, COMA AND DEATH. THE FATAL DOSE IN HUMANS HAS BEEN AS LOW AS 2 GRAMS, AND ALTHOUGH RECOVERY HAS OCCURRED FOLLOWING INGESTION OF LARGER DOSES, 10 GRAMS IS USUALLY FATAL. PATHOLOGICAL FINDINGS INCLUDE LOCAL CORROSIVE DAMAGE TO THE GASTROINTESTINAL TRACT AND POSSIBLY DEGENERATIVE CHANGES IN THE KIDNEYS AND LIVER. APPLICATION TO THE GUMS HAS CAUSED NECROTIZING ULCERATION. RARELY, INORGANIC NITRATES MAY BE CONVERTED TO NITRITES BY NITRATE-REDUCING BACTERIA IN THE DIGESTIVE TRACT, RESULTING IN METHEMOGLOBINEMIA.
CHRONIC EXPOSURE- REPEATED INGESTION MAY CAUSE ARGYRIA. SIGNS AND SYMPTOMS MAY OCCUR AS DESCRIBED IN CHRONIC INHALATION. REPEATED INGESTION OF NITRATES MAY CAUSE ANEMIA, NEPHRITIS, AND POSSIBLY METHEMOGLOBINEMIA. SILVER SALTS FED TO ANIMALS HAVE PRODUCED RENAL CHANGES AND VASCULAR HYPERTENSION.

FIRST AID- IF VICTIM IS CONSCIOUS, DILUTE INGESTED SILVER NITRATE BY GIVING WATER CONTAINING SODIUM CHLORIDE, 10 G/L, REPEATEDLY TO PRECIPITATE SILVER ION AS SILVER CHLORIDE. FOLLOW WITH CATHARSIS USING 30-60 ML OF FLEET'S PHOSPHO-SODA DILUTED 1:4 IN WATER CONTAINING 5 GRAMS OF SODIUM CHLORIDE TO PRECIPITATE AND REMOVE SILVER FROM THE INTESTINE. TREAT METHEMOGLOBINEMIA. (DREISBACH, HANDBOOK OF POISONING, 11TH ED.)

ANTIDOTE:
THE FOLLOWING ANTIDOTE HAS BEEN RECOMMENDED. HOWEVER, THE DECISION AS TO WHETHER THE SEVERITY OF POISONING REQUIRES ADMINISTRATION OF ANY ANTIDOTE AND ACTUAL DOSE REQUIRED SHOULD BE MADE BY QUALIFIED MEDICAL PERSONNEL.

METHEMOGLOBINEMIA:
(WHEN METHEMOGLOBIN CONCENTRATION IS OVER 25-40% OR IN PRESENCE OF SYMPTOMS.)
GIVE METHYLENE BLUE, 1% SOLUTION, 0.1 ML/KG INTRAVENOUSLY OVER A 10-MINUTE PERIOD. CYANOSIS MAY DISAPPEAR WITHIN MINUTES OR PERSIST LONGER DEPENDING ON DEGREE OF METHEMOGLOBINEMIA. INTRAVENOUS ADMINISTRATION OF THERAPEUTIC DOSES OF METHYLENE BLUE MAY CAUSE A RISE IN BLOOD PRESSURE, NAUSEA, AND DIZZINESS. LARGER DOSES (>500 MG) CAUSE VOMITING, DIARRHEA, CHEST PAIN, MENTAL CONFUSION, CYANOSIS, AND SWEATING. HEMOLYTIC ANEMIA HAS ALSO OCCURRED SEVERAL DAYS AFTER ADMINISTRATION. THESE EFFECTS ARE TEMPORARY, AND FATALITIES HAVE NOT BEEN REPORTED. IF METHYLENE BLUE IS NOT AVAILABLE, GIVE ASCORBIC ACID, 1 GRAM SLOWLY INTRAVENOUSLY. WITHOUT TREATMENT, METHEMOGLOBINEMIA LEVELS OF 20-30% REVERT TO NORMAL WITHIN 3 DAYS (DREISBACH, HANDBOOK OF POISONING, 12TH ED.). ANTIDOTE SHOULD BE ADMINISTERED BY QUALIFIED MEDICAL PERSONNEL.

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## REACTIVITY

REACTIVITY:
STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:

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SILVER NITRATE:
ACETALDEHYDE: FORMS EXPLOSIVE SILVER FULMINATE.
ACETYLENE + AMMONIA: FORMATION OF EXPLOSIVE SILVER ACETYLIDE.
ACETYLIDES (CARBIDES): FORM EXPLOSIVE COMPOUNDS.
ACRYLONITRILE: EXPLOSIVE POLYMERIZATION.
ALCOHOLS: MAY FORM EXPLOSIVE FULMINATE.
ALKYNES: FORM EXPLOSIVE SALT.
AMMONIA: MAY EXPLODE ON STANDING.
AMMONIA + ALKALIES: MAY EXPLODE.
AMMONIUM HYDROXIDE + SODIUM HYDROXIDE: FORMS EXPLOSIVE COMPOUND.
AZIRIDINE: FORMATION OF AN EXPLOSIVE COMPOUND.
ARSENITES: INCOMPATIBLE.
BROMIDES: INCOMPATIBLE.
CARBON (POWDER): EXPLOSIVE ON IMPACT.
CARBONATES: INCOMPATIBLE.
CHARCOAL: MIXTURES IGNITE UNDER IMPACT.
CHLORIDES: INCOMPATIBLE.
CHLORINE TRIFLUORIDE: POSSIBLE IGNITION AND VIOLENT REACTION.
CHLOROSULFONIC ACID: VIOLENT REACTION.
COMBUSTIBLE MATERIALS: MAY INCREASE THE RATE OF BURNING MATERIALS OR MAY CAUSE IGNITION OR EXPLOSION ON CONTACT.
CREOSOTE: INCOMPATIBLE.
DISILVER KETENIDE: FORMS EXPLOSIVE COMPOUND.
ETHANOL: MAY FORM EXPLOSIVE FULMINATE.
HYDROGEN PEROXIDE: IGNITION OR VIOLENT DECOMPOSITION.
HYPOPHOSPHITES: INCOMPATIBLE.
IODIDES: INCOMPATIBLE.
MAGNESIUM: EXPLOSIVE IGNITION ON CONTACT WITH WATER.
METALS AND SALTS: MAY CORRODE IN PRESENCE OF MOISTURE.
MORPHINE SALTS: INCOMPATIBLE.
OILS: INCOMPATIBLE.
ORGANIC MATERIALS: MAY CAUSE IGNITION ON CONTACT, OR MAY INCREASE THE RATE OF BURNING MATERIALS.
OXALIC ACID: FORMATION OF AN EXPLOSIVE SALT.
PHOSPHATES: INCOMPATIBLE.
PHOSPHINE: EXPLOSION MAY OCCUR.
PHOSPHONIUM IODIDE: VIGOROUS EXOTHERMIC REACTION.
PHOSPHORUS: MIXTURES EXPLODE ON IMPACT.
PHOSPHORUS ISOCYANATE: VIOLENT REACTION.
PLASTICS, RUBBER, COATINGS: MAY BE ATTACKED.
SULFUR: EXPLOSION ON IMPACT.
TANNIC ACID: INCOMPATIBLE.
TARTARIC ACID: FORMATION OF AN EXPLOSIVE SALT.
VEGETABLE DECOCTIONS AND EXTRACTS: INCOMPATIBLE.
SEE ALSO METAL NITRATES.

METAL NITRATES:
CITRIC ACID: POSSIBLE EXPLOSION HAZARD.
ESTERS: POSSIBLE EXPLOSION HAZARD.
PHOSPHINATES: MAY EXPLODE WHEN HEATED.
PHOSPHOROUS: POSSIBLE EXPLOSIVE REACTION.
POTASSIUM HEXANITROCOBALTATE(3-): MAY EXPLODE VIOLENTLY.
REDUCTANTS: POSSIBLE EXPLOSION HAZARD.
TIN(II) CHLORIDE: POSSIBLE EXPLOSIVE HAZARD.

DECOMPOSITION:
THERMAL DECOMPOSITION PRODUCTS MAY INCLUDE TOXIC OXIDES OF NITROGEN.

POLYMERIZATION:
HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.

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## STORAGE AND DISPOSAL

OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE. FOR ASSISTANCE, CONTACT THE DISTRICT DIRECTOR OF THE ENVIRONMENTAL PROTECTION AGENCY.

### **STORAGE**

PROTECT AGAINST PHYSICAL DAMAGE. SEPARATE FROM COMBUSTIBLE, ORGANIC, OR OTHER READILY OXIDIZABLE MATERIALS (NFPA 49, HAZARDOUS CHEMICALS DATA, 1975).

CONSULT NFPA PUBLICATION 43A, STORAGE OF LIQUID AND SOLID OXIDIZING MATERIALS, FOR STORAGE REQUIREMENTS.

STORE AWAY FROM INCOMPATIBLE SUBSTANCES.

KEEP CONTAINER TIGHTLY CLOSED. PROTECT FROM EXPOSURE TO AIR OR LIGHT.

### **DISPOSAL**

DISPOSAL MUST BE IN ACCORDANCE WITH STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE, 40 CFR 262. EPA HAZARDOUS WASTE NUMBER D001.
100 POUND CERCLA SECTION 103 REPORTABLE QUANTITY.

SILVER - REGULATORY LEVEL: 5.0 MG/L

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AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE.

CLOTHING:
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE (IMPERVIOUS) CLOTHING AND EQUIPMENT TO PREVENT ANY POSSIBILITY OF SKIN CONTACT WITH THIS SUBSTANCE.

GLOVES:
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE GLOVES TO PREVENT CONTACT WITH THIS SUBSTANCE.

EYE PROTECTION:
EMPLOYEE MUST WEAR SPLASH-PROOF OR DUST-RESISTANT SAFETY GOGGLES AND A FACESHIELD TO PREVENT CONTACT WITH THIS SUBSTANCE.

EMERGENCY WASH FACILITIES:
WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES AND/OR SKIN MAY BE EXPOSED TO THIS SUBSTANCE, THE EMPLOYER SHOULD PROVIDE AN EYE WASH FOUNTAIN AND QUICK DRENCH SHOWER WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE.

AUTHORIZED - FISHER SCIENTIFIC, INC.
CREATION DATE: 10/26/84 REVISION DATE: 05/02/91

-ADDITIONAL INFORMATION-
THIS INFORMATION 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.

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MATERIALS WHICH CONTAIN THE ABOVE SUBSTANCE AT OR ABOVE THE REGULATORY LEVEL MEET THE EPA CHARACTERISTIC OF TOXICITY, AND MUST BE DISPOSED OF IN ACCORDANCE WITH 40 CFR PART 262. EPA HAZARDOUS WASTE NUMBER D011.

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## CONDITIONS TO AVOID

MAY IGNITE OTHER COMBUSTIBLE MATERIALS (WOOD, PAPER, OIL, ETC.). REACTION WITH FUELS MAY BE VIOLENT. FLAMMABLE POISONOUS GASES MAY ACCUMULATE IN TANKS AND HOPPER CARS. RUNOFF TO SEWER MAY CREATE FIRE OR EXPLOSION HAZARD.

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## SPILL AND LEAK PROCEDURES

SOIL SPILL:
DIG A HOLDING AREA SUCH AS PIT, POND OR LAGOON TO CONTAIN SPILLED MATERIAL. USE PROTECTIVE COVER SUCH AS A PLASTIC SHEET TO PREVENT DISSOLVING IN FIREFIGHTING WATER OR RAIN.

WATER SPILL:
IF MATERIAL IS DISSOLVED, USE SODIUM SULFIDE SOLUTION TO PRECIPITATE HEAVY METALS.

NEUTRALIZE WITH AGRICULTURAL LIME, SLAKED LIME, CRUSHED LIMESTONE, OR SODIUM BICARBONATE.

USE MECHANICAL DREDGES OR LIFTS TO EXTRACT IMMOBILIZED MASSES OF POLLUTION AND PRECIPITATES.

OCCUPATIONAL SPILL:
KEEP COMBUSTIBLES (WOOD, PAPER, OIL, ETC.) AWAY FROM SPILLED MATERIAL. DO NOT TOUCH SPILLED MATERIAL. STOP LEAK IF YOU CAN DO IT WITHOUT RISK. USE WATER SPRAY TO REDUCE VAPORS. DO NOT GET WATER INSIDE CONTAINER. FOR SMALL DRY SPILLS, WITH CLEAN SHOVEL PLACE MATERIAL INTO CLEAN, DRY CONTAINER AND COVER. MOVE CONTAINERS FROM SPILL AREA. FOR SMALL LIQUID SPILLS, FLUSH AREA WITH FLOODING AMOUNTS OF WATER. FOR LARGER SPILLS, DIKE FAR AHEAD OF SPILL FOR LATER DISPOSAL. KEEP UNNECESSARY PEOPLE AWAY. ISOLATE HAZARD AREA AND DENY ENTRY.

REPORTABLE QUANTITY (RQ): 1 POUND
THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) SECTION 304 REQUIRES THAT A RELEASE EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY FOR THIS SUBSTANCE BE IMMEDIATELY REPORTED TO THE LOCAL EMERGENCY PLANNING COMMITTEE AND THE STATE EMERGENCY RESPONSE COMMISSION (40 CFR 355.40). IF THE RELEASE OF THIS SUBSTANCE IS REPORTABLE UNDER CERCLA SECTION 103, THE NATIONAL RESPONSE CENTER MUST BE NOTIFIED IMMEDIATELY AT (800) 424-8802 OR (202) 426-2675 IN THE METROPOLITAN WASHINGTON, D.C. AREA (40 CFR 302.6).

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## PROTECTIVE EQUIPMENT

VENTILATION:
PROVIDE LOCAL EXHAUST OR PROCESS ENCLOSURE VENTILATION TO MEET PUBLISHED EXPOSURE LIMITS.

RESPIRATOR:
THE FOLLOWING RESPIRATORS AND MAXIMUM USE CONCENTRATIONS ARE RECOMMENDATIONS BY THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, NIOSH POCKET GUIDE TO CHEMICAL HAZARDS; NIOSH CRITERIA DOCUMENTS OR BY THE U.S. DEPARTMENT OF LABOR, 29 CFR 1910 SUBPART Z.
THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND IN THE WORK PLACE, MUST NOT EXCEED THE WORKING LIMITS OF THE RESPIRATOR AND BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION (NIOSH-MSHA).

SILVER (METAL AND SOLUBLE COMPOUNDS):

0.25 MG/M3- ANY SUPPLIED-AIR RESPIRATOR OPERATED IN CONTINUOUS FLOW MODE.
ANY POWERED AIR-PURIFYING RESPIRATOR WITH A HIGH-EFFICIENCY PARTICULATE FILTER.

0.5 MG/M3- ANY AIR-PURIFYING FULL FACEPIECE RESPIRATOR WITH A HIGH-EFFICIENCY PARTICULATE FILTER.
ANY SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE.
ANY SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE.

20.0 MG/M3- ANY SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE AND OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

ESCAPE- ANY AIR-PURIFYING FULL FACEPIECE RESPIRATOR WITH A HIGH-EFFICIENCY PARTICULATE FILTER.
ANY APPROPRIATE ESCAPE-TYPE SELF-CONTAINED BREATHING APPARATUS.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

ANY SELF-CONTAINED BREATHING APPARATUS THAT HAS A FULL FACEPIECE AND IS OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE.

ANY SUPPLIED-AIR RESPIRATOR THAT HAS A FULL FACEPIECE AND IS OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE IN COMBINATION WITH AN

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MAY RESULT IN IGNITION, VIOLENT COMBUSTION OR EXPLOSION.

FIREFIGHTING MEDIA:
WATER ONLY, NO DRY CHEMICAL, CARBON DIOXIDE OR HALON
(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

FOR LARGER FIRES, FLOOD AREA WITH WATER FROM A DISTANCE
(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

FIREFIGHTING:
MOVE CONTAINER FROM FIRE AREA IF YOU CAN DO IT WITHOUT RISK. APPLY COOLING WATER TO SIDES OF CONTAINERS THAT ARE EXPOSED TO FLAMES UNTIL WELL AFTER FIRE IS OUT. STAY AWAY FROM ENDS OF TANKS. FOR MASSIVE FIRE IN CARGO AREA, USE UNMANNED HOSE HOLDER OR MONITOR NOZZLES; IF THIS IS IMPOSSIBLE, WITHDRAW FROM AREA AND LET FIRE BURN (1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5, GUIDE PAGE 45)

USE FLOODING AMOUNTS OF WATER. COOL CONTAINERS WITH FLOODING QUANTITIES OF WATER, APPLY FROM AS FAR A DISTANCE AS POSSIBLE. EVACUATE TO A RADIUS OF 2500 FEET FOR UNCONTROLLABLE FIRES.

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## TRANSPORTATION DATA

DEPARTMENT OF TRANSPORTATION HAZARD CLASSIFICATION 49 CFR 172.101:
OXIDIZER

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49 CFR 172.101 AND SUBPART E:
OXIDIZER

DEPARTMENT OF TRANSPORTATION PACKAGING REQUIREMENTS: 49 CFR 173.182
EXCEPTIONS: 49 CFR 173.153

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## TOXICITY

SILVER NITRATE:
IRRITATION DATA: 1 MG EYE-RABBIT SEVERE; 10 MG EYE-RABBIT MODERATE.
TOXICITY DATA: 50 MG/KG ORAL-MOUSE LD50; 20 MG/KG ORAL-DOG LDLO; 800 MG/KG ORAL-RABBIT LDLO; 62 MG/KG SUBCUTANEOUS-GUINEA PIG LDLO; 8800 UG/KG INTRAVENOUS-RABBIT LDLO; 216 MG/KG INTRAPERITONEAL-GUINEA PIG LDLO; 23,783 UG/KG INTRAPERITONEAL-MOUSE LD50; 29 MG/KG UNREPORTED-MAN LDLO; MUTAGENIC DATA (RTECS); REPRODUCTIVE EFFECTS DATA (RTECS); TUMORIGENIC DATA (RTECS).
CARCINOGEN STATUS: NONE.
LOCAL EFFECTS: CORROSIVE- INHALATION, SKIN, EYE, INGESTION.
ACUTE TOXICITY LEVEL: HIGHLY TOXIC BY INGESTION.
TARGET EFFECTS: POISONING MAY DISCOLOR THE SKIN AND EYES (ARGYRIA).

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## HEALTH EFFECTS AND FIRST AID

INHALATION:
SILVER NITRATE:
CORROSIVE.
ACUTE EXPOSURE- MAY CAUSE SEVERE IRRITATION TO MUCOUS MEMBRANES WITH SORE THROAT, COUGHING AND SHORTNESS OF BREATH.
CHRONIC EXPOSURE- PROLONGED OR REPEATED EXPOSURE, USUALLY FROM 2-25 YEARS, MAY RESULT IN ARGYRIA. GENERALIZED ARGYRIA MAY FIRST BE RECOGNIZED BY A SLATE-GRAY, BLUE TO BLACK DISCOLORATION IN THE CONJUNCTIVA AND SKIN STARTING WITH THE FACE AND SPREADING TO MOST UNCOVERED PARTS OF THE BODY, INCLUDING THE FINGERNAILS WHICH MAY BECOME A DEEP CHOCOLATE BROWN COLOR. THE PERMANENT DISCOLORATION IS UNIFORM IN DISTRIBUTION AND VARIES IN DEPTH DEPENDING ON THE DEGREE OF EXPOSURE. IN THE SEVEREST CASES THE SKIN BECOMES ALMOST BLACK WITH A METALLIC LUSTER. THE BUCCAL MUCOSA, TOENAILS, AND OTHER COVERED PARTS OF THE BODY MAY BE AFFECTED TO A LESSER DEGREE. INVOLVEMENT OF THE CORNEA HAS BEEN RECORDED IN A NUMBER OF SILVER NITRATE WORKERS WITH NO FAILURE OF VISION, BUT SOME DISTURBANCE IN DARK ADAPTATION. LOCALIZED ARGYRIA OF THE RESPIRATORY TRACT HAS BEEN DESCRIBED IN 2 MEN IN THE MANUFACTURE OF SILVER NITRATE. THE ONLY SYMPTOM WAS MILD BRONCHITIS; THE NASAL MUCOSA SHOWED IMPREGNATION IN THE WALLS OF THE MIDDLE AND UPPER REGION AND THERE WAS TRACHEOBRONCHIAL PIGMENTATION. EMPHYSEMA, KIDNEY LESIONS AND THE POSSIBILITY OF ARTERIOSCLEROSIS HAVE BEEN REPORTED IN EXPOSED SILVER WORKERS.

FIRST AID- REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION. MAINTAIN AIRWAY AND BLOOD PRESSURE AND ADMINISTER OXYGEN IF AVAILABLE. KEEP AFFECTED PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. ADMINISTRATION OF OXYGEN SHOULD BE PERFORMED BY QUALIFIED PERSONNEL. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
SILVER NITRATE:
CORROSIVE.
ACUTE EXPOSURE- DUST AND SOLUTIONS MAY CAUSE SEVERE IRRITATION, REDNESS,

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## MATERIAL SAFETY DATA SHEET

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FISHER SCIENTIFIC
CHEMICAL DIVISION
1 REAGENT LANE
FAIR LAWN NJ 07410
(201) 796-7100

EMERGENCY NUMBER: (201) 796-7100
CHEMTREC ASSISTANCE: (800) 424-9300



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## SUBSTANCE IDENTIFICATION

CAS-NUMBER 7761-88-8

SUBSTANCE: **SILVER NITRATE**

TRADE NAMES/SYNONYMS:
LAPIS INFERNALIS; LUNAR CAUSTIC; NITRIC ACID, SILVER(+1) SALT; STCC 4918742; UN 1493; S-181; S-486; SILVER (1+) NITRATE; SILVER MONONITRATE; ARGENTI NITRAS; ARGEROL; AGNO3; ACC20810

CHEMICAL FAMILY:
INORGANIC SALT

MOLECULAR FORMULA: AG-N-O3

MOLECULAR WEIGHT: 169.89

CERCLA RATINGS (SCALE 0-3): HEALTH=3 FIRE=0 REACTIVITY=0 PERSISTENCE=3
NFPA RATINGS (SCALE 0-4): HEALTH=0 FIRE=0 REACTIVITY=0

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## COMPONENTS AND CONTAMINANTS

COMPONENT: SILVER NITRATE PERCENT: >99
CAS# 7761-88-8

COMPONENT: WATER PERCENT: 0.2

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:
SILVER, SOLUBLE COMPOUNDS (AS AG):
0.01 MG/M3 OSHA TWA
0.01 MG/M3 ACGIH TWA
0.01 MG/M3 NIOSH RECOMMENDED TWA
0.01 MG/M3 DFG MAK TWA

MEASUREMENT METHOD: PARTICULATE FILTER; ACID; INDUCTIVELY COUPLED PLASMA; (NIOSH VOL. III # 7300, ELEMENTS).

SUBJECT TO SARA SECTION 313 ANNUAL TOXIC CHEMICAL RELEASE REPORTING

SILVER NITRATE:
1 POUND CERCLA SECTION 103 REPORTABLE QUANTITY

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## PHYSICAL DATA

DESCRIPTION: ODORLESS, COLORLESS, TRANSPARENT, HYGROSCOPIC CRYSTALS WITH A METALLIC TASTE AND A SLIGHT NITRIC ACID ODOR.

BOILING POINT: 831 F (444 C) DECOMPOSES MELTING POINT: 431 F (222 C)

SPECIFIC GRAVITY: 4.352 @ 19 C VAPOR PRESSURE: NEGLIGIBLE

PH: 6.0 (AQ SOLN) SOLUBILITY IN WATER: 122% @ 0 C

SOLVENT SOLUBILITY: SOLUBLE IN ETHER, GLYCEROL; VERY SLIGHTLY SOLUBLE IN ALCOHOL AND ACETONE.

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## FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:
NEGLIGIBLE FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.

OXIDIZER: OXIDIZERS DECOMPOSE, ESPECIALLY WHEN HEATED, TO YIELD OXYGEN OR OTHER GASES WHICH WILL INCREASE THE BURNING RATE OF COMBUSTIBLE MATTER. CONTACT WITH EASILY OXIDIZABLE, ORGANIC, OR OTHER COMBUSTIBLE MATERIALS