

# SAFETY DATA SHEET

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Silver Nitrate 1.128 ± 0.005 N  
**Catalog Number:** 1439701

Hach Company  
P.O.Box 389  
Loveland, CO USA 80539  
(970) 669-3050

Emergency Telephone Numbers:  
(Medical and Transportation)  
(303) 623-5716 24 Hour Service  
(515)232-2533 8am - 4pm CST

**MSDS Number:** M00364  
**Chemical Name:** Not applicable.  
**CAS Number:** Not applicable.  
**Additional CAS No. (for hydrated forms):** Not applicable  
**Chemical Formula:** Not applicable.  
**Chemical Family:** Mixture  
**Intended Use:** Laboratory Reagent Determination of chloride

## 2. HAZARDS IDENTIFICATION

**GHS Classification:**

**Hazard categories:** Skin Corrosion/Irritation: Skin Corr. 1B Hazardous to the Aquatic Environment: Aquatic Chronic 1 Corrosive to Metals: Met. Corr. 1 Specific Target Organ Toxicity - Repeated Exposure: STOT RE. 2

**GHS Label Elements:**

DANGER



**Hazard statements:** May be corrosive to metals. Causes severe skin burns and eye damage. Causes damage to liver through prolonged or repeated exposure by inhalation. Very toxic to aquatic life with long lasting effects.

**Precautionary statements:** Wash thoroughly after handling. Wear protective gloves / protective clothing / eye protection / face protection. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Keep only in original container. P406 Store in corrosive resistant container with a resistant inner liner. Do no eat, drink or smoke when using this product. Get medical advice/attention if you feel unwell. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage. Collect spillage. Do not breathe dust/fume/gas/mist/vapours/spray. Handle environmental release according to local, state, federal, provincial requirements. Wear eye protection. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. 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 CENTER or doctor/physician. IF INHALED: Remove victim/person to fresh air and keep at rest in a position comfortable for breathing. Dispose of contents/container according to state, local, federal or national regulations.

**HMIS:**

**Health:** 3

**Flammability:** 0

**Reactivity:** 1

**Protective Equipment:** X - See protective equipment, Section 8.

**NFPA:**

**Health:** 3

**Flammability:** 0

**Reactivity:** 1

**Symbol:** oxy

**WHMIS Hazard Classification:** Class C - Oxidizing materials Class D, Division 1, Subdivision B - Toxic material (immediate effects) Class E - Corrosive material  
**WHMIS Symbols:** Acute Poison Corrosive Oxidizing

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### 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Hazardous Components according to GHS:**

**Silver Nitrate**

**CAS Number:** 7761-88-8

**Chemical Formula:** AgNO<sub>3</sub>

**GHS Classification:** Ox. Sol. 1, H271; Skin Corr. 1B, H314; Acute Tox. Orl. 4, H302; STOT Single 3, H335; STOT Rep. 1, H372; Aquatic Ch. 1, H410

**Percent Range (Trade Secret):** 10.0 - 20.0

**Percent Range Units:** weight / weight

**PEL:** 0.01 mg/m<sup>3</sup> as Ag

**TLV:** 0.01 mg/m<sup>3</sup> as Ag

**WHMIS Symbols:** Acute Poison Corrosive Oxidizing

**Hazardous Components according to GHS:** No

**Demineralized Water**

**CAS Number:** 7732-18-5

**Chemical Formula:** H<sub>2</sub>O

**GHS Classification:** Not a dangerous substance according to GHS.

**Percent Range (Trade Secret):** > 80

**Percent Range Units:** weight / weight

**PEL:** Not established

**TLV:** Not established

**WHMIS Symbols:** Not applicable

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### 4. FIRST AID MEASURES

**General Information:** In the event of exposure, show this Material Safety Data Sheet and label (where possible) to a doctor.

**Advice to doctor:** Treat symptomatically.

**Eye Contact:** Immediately flush eyes with water for 15 minutes. Call physician.

**Skin Contact (First Aid):** Wash skin with plenty of water for 15 minutes. Remove contaminated clothing. Call physician immediately.

**Inhalation:** None required.

**Ingestion (First Aid):** Never give anything by mouth to an unconscious person. Rinse mouth with plenty of water. Give large quantities of water. Call physician immediately. At physician's directions induce vomiting immediately.

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### 5. FIRE FIGHTING MEASURES

**Flammable Properties:** Material is not classified as flammable according to GHS criteria. Material will not burn.

**Fire Fighting Instruction:** As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear. Evacuate area and fight fire from a safe distance.

**Extinguishing Media:** Water. Alcohol-resistant foam. Carbon dioxide. Dry chemical.

**Extinguishing Media NOT To Be Used:** Not applicable

**Fire / Explosion Hazards:** This product will not burn or explode.

**Hazardous Combustion Products:** This material will not burn.

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### 6. ACCIDENTAL RELEASE MEASURES

**Spill Response Notice:**

Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

**Containment Technique:** Releases of this material may contaminate the environment. Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment. Dike large spills to keep spilled material from entering sewage and drainage systems or bodies of water. Dike the spill to contain material for later disposal.

**Clean-up Technique:** Cover spilled material with an alkali, such as soda ash or sodium bicarbonate. Scoop up slurry into a large beaker. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Dispose of material in government approved hazardous waste facility. Decontaminate the area of the spill with a soap solution.

**Evacuation Procedure:** Evacuate general area (50 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled.

**DOT Emergency Response Guide Number:** 154

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## 7. HANDLING AND STORAGE

**Handling:** Avoid contact with eyes skin clothing Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

**Storage:** Keep container tightly closed when not in use. Protect from: light Keep away from: oxidizable materials

**Flammability Class:** Not applicable

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Controls:** Maintain general industrial hygiene practices when using this product.

**Personal Protective Equipment:**

**Eye Protection:** chemical splash goggles

**Skin Protection:** nitrile gloves In the EU, the selected gloves must satisfy the specifications of EU Directive 89/686/EEC and standard EN 374 derived from it. lab coat

**Inhalation Protection:** adequate ventilation

**Precautionary Measures:** Avoid contact with: eyes skin clothing Wash thoroughly after handling. Protect from: light Keep away from: oxidizable materials

**TLV:** Not established.

**PEL:** Not established.

**For Occupational Exposure Limits (OEL) for ingredients, see section 3 - Composition/Information on Ingredients.:**

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Clear, colorless liquid

**Physical State:** Liquid

**Molecular Weight:** Not applicable.

**Odor:** Odorless

**Odor Threshold:** Not applicable.

**pH:** 4.3

**Metal Corrosivity:**

**Corrosivity Classification:** Classified as corrosive to metals.

**Steel:** 0.00 in/yr (0.00 mm/yr)

**Aluminum:** 0.55 in/yr (14 mm/yr)

**Specific Gravity/ Relative Density (water = 1; air =1):** 1.154

**Viscosity:** Not determined

**Solubility:**

**Water:** Miscible.

**Acid:** Miscible.

**Other:** Not determined.

**Partition Coefficient (n-octanol / water):** Not applicable.

**Coefficient of Water / Oil:** Not applicable.

**Melting Point:** -4 °C (24 °F)

**Decomposition Temperature:** Not determined  
**Boiling Point:** 101 °C (214 °F)  
**Vapor Pressure:** 23 mm Hg @ 25 °C (77 °F)  
**Vapor Density (air = 1):** 0.62  
**Evaporation Rate (water = 1):** 0.90  
**Volatile Organic Compounds Content:** Not applicable.  
**Flammable Properties:** Material is not classified as flammable according to GHS criteria. Material will not burn.  
**Flash Point:** Not applicable.  
**Method:** Not applicable  
**Flammability Limits:**  
**Lower Explosion Limits:** Not applicable.  
**Upper Explosion Limits:** Not applicable.  
**Autoignition Temperature:** Not applicable.  
**Explosive Properties:**  
Not classified according to GHS criteria.  
**Oxidizing Properties:**  
Not classified according to GHS criteria.  
**Reactivity Properties:**  
Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.  
**Gas under Pressure:**  
Not classified according to GHS criteria.

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## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable when stored under proper conditions.  
**Mechanical Impact:** None reported  
**Static Discharge:** None reported.  
**Reactivity/ Incompatibility:** Incompatible with: oxidizable material  
**Hazardous Decomposition:** Toxic fumes of: nitrogen oxides silver oxides  
**Conditions to Avoid:** Evaporation Exposure to light.

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## 11. TOXICOLOGICAL INFORMATION

**Toxicokinetics, Metabolism and Distribution:** No information available for mixture.  
**Toxicologically Synergistic Products:** None reported  
**Acute Toxicity:** Acute Toxicity Estimate (ATE) - Calculated from Ingredient Toxicity Data Route Data Given Below  
Based on classification principles, the classification criteria are not met.  
Oral Rat LD50 = 7066 mg/kg  
**Specific Target Organ Toxicity - Single Exposure (STOT-SE):** Based on classification principles, the classification criteria are not met.  
**Specific Target Organ Toxicity - Repeat Exposure (STOT-RE):** Target Organs Respiratory Tract Liver Kidneys  
Central nervous system  
**Skin Corrosion/Irritation:** Corrosive to skin.  
**Eye Damage:** Corrosive to eyes.  
**Sensitization:** Based on classification principles, the classification criteria are not met.  
**CMR Effects/Properties (carcinogenic, mutagenic or toxic to reproduction):** Based on classification principles, the classification criteria are not met.  
This product does NOT contain any IARC listed chemicals.  
This product does NOT contain any NTP listed chemicals.  
This product does NOT contain any OSHA listed carcinogens.  
**Symptoms/Effects:**  
**Ingestion:** Causes: abdominal pain gastrointestinal tract irritation nausea vomiting  
**Inhalation:** No effects anticipated  
**Skin Absorption:** Causes a slate-gray to bluish discoloration.  
**Chronic Effects:** Silver compounds may cause gray to black discoloration of the eyes and skin. Chronic overexposure may cause destruction of any tissue contacted  
**Medical Conditions Aggravated:** None reported

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## 12. ECOLOGICAL INFORMATION

**Product Ecological Information:** Aquatic Toxicity Estimation - Additive Method: 96 hr Fish LC50 = 3.07 mg/L; 48 hr Daphnia magna EC50 = 0.0094 mg/L

No ecological data available for this product. No bioaccumulation potential. Mobility in soil: Highly mobile. Do not place in landfill. Recycle appropriately. Do not release into the environment.

Method Used for Estimation of Aquatic Toxicity of Mixture: Additivity Method (Acute Toxicity) and Summation Method (M-factor (Multiplier) for highly toxic ingredients: 100

**Ingredient Ecological Information:** Silver Nitrate: 96 hr Fish LC50 = 0.019 mg/L; 96 hr Leuciscus idus LC50 = 0.029 mg/L; 96 hr Oncorhynchus mykiss LC50 = 0.006 mg/L; 48 hr Daphnia magna LC50 = 0.00156 mg/L; 48 hr Daphnia magna EC50 = 0.0029 mg/L; 96 hr Scenedesmus dimorphus EC50 = 0.0093 m

CEPA categorization for ingredients are as follows:

Silver Nitrate: Persistent and inherently toxic to aquatic organisms (PiT).

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## 13. DISPOSAL CONSIDERATIONS

**EPA Waste ID Number:** D011

**Special Instructions (Disposal):** Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Dispose of material in an E.P.A. approved hazardous waste facility.

**Empty Containers:** Rinse three times with an appropriate solvent. Collect rinsate and dispose of according to local, state or federal regulations.

**NOTICE (Disposal):** These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

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## 14. TRANSPORT INFORMATION

### D.O.T.:

**D.O.T. Proper Shipping Name:** Corrosive Liquid, N.O.S.  
(Silver Nitrate Solution)

**Hazard Class:** 8

**Subsidiary Risk:** NA

**ID Number:** UN1760

**Packing Group:** III

### T.D.G.:

**Proper Shipping Name:** Corrosive Liquid, N.O.S.  
(Silver Nitrate Solution)

**Hazard Class:** 8

**Subsidiary Risk:** NA

**UN Number/PIN:** 1760

**Packing Group:** III

### I.C.A.O.:

**I.C.A.O. Proper Shipping Name:** Corrosive Liquid, N.O.S.  
(Silver Nitrate Solution)

**Hazard Class:** 8

**Subsidiary Risk:** NA

**ID Number:** UN1760

**Packing Group:** II

### I.M.O.:

**Proper Shipping Name:** Corrosive Liquid, N.O.S.  
(Silver Nitrate Solution)

**Hazard Class:** 8

**Subsidiary Risk:** NA

**ID Number:** UN1760

**Packing Group:** II

**Marine Pollutant:**

**Additional Information:** There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is NOT in a set or kit, the classification given above applies. If the item IS part of a set or kit, the classification would change to the following: UN3316 Chemical Kit, Class 9, PG II or III. If the item is not regulated, the Chemical Kit classification does not apply.

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## 15. REGULATORY INFORMATION

### **U.S. Federal Regulations:**

**O.S.H.A.:** This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

**E.P.A.:**

**S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370):** Fire Hazard Immediate (Acute) Health Hazard

**S.A.R.A. Title III Section 313 (40 CFR 372):** This product contains a chemical(s) subject to the reporting requirements of Section 313 of Title III of SARA.

Silver Compounds

**302 (EHS) TPQ (40 CFR 355):** Not applicable

**304 CERCLA RQ (40 CFR 302.4):** Silver nitrate: 1 lb.

**304 EHS RQ (40 CFR 355):** Not applicable

**Clean Water Act (40 CFR 116.4):** Silver Nitrate - RQ = 1 lb. (0.454 kg)

**RCRA:** Contains RCRA regulated substances. See Section 13, EPA Waste ID Number.

### **State Regulations:**

**California Prop. 65:** No Prop. 65 listed chemicals are present in this product.

**Identification of Prop. 65 Ingredient(s):** None

**California Perchlorate Rule CCR Title 22 Chap 33:** Not applicable

**Trade Secret Registry:** Not applicable

### **National Inventories:**

**U.S. Inventory Status:** All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).

**CAS Number:** Not applicable.

**Canadian Inventory Status:** All ingredients of this product are DSL Listed.

**EEC Inventory Status:** All ingredients used to make this product are listed on EINECS / ELINCS.

**Australian Inventory (AICS) Status:** All ingredients are listed.

**New Zealand Inventory (NZIoC) Status:** All components either listed or exempt.

**Korean Inventory (KECI) Status:** All components of this product are either listed, listed as the anhydrous compound or exempt.

**Japan (ENCS) Inventory Status:** All components either listed or exempt.

**China (PRC) Inventory (MEP) Status:** All components either listed or exempt.

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## 16. OTHER INFORMATION

**References:** 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. Lefevre, Marc J. First Aid Manual for Chemical Accidents, 2nd Ed. New York: Van Nostrand Reinhold Company, 1989. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992. IARC Monographs on the Evaluation of the Carcinogenic Risks to Humans. World Health Organization (Volumes 1-42) Supplement 7. France: 1987. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Sixth Annual Report on Carcinogens, 1991. U.S. Department of Health and Human Services. Rockville, MD: Technical Resources, Inc. 1991. Technical Judgment. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992.

**Complete Text of H phrases referred to in Section 3:** H314 Causes severe skin burns and eye damage. H400 Very toxic to aquatic life.

**Revision Summary:** . Substantial revision to comply with EU Reg 1272/2008, Reg 1907/2006 and UN GHS (ST/SG/AC.10/36/Add.3).

**Date of MSDS Preparation:**

**Day:** 18

**Month:** May

**Year:** 2014

**MSDS Prepared:** MSDS prepared by Product Compliance Department extension 3350

**CCOHS Evaluation Note:** It is offered under exemption from WHMIS labeling as specified in the Controlled Products Regulation (CPR) Section 17. It is offered under the interim policy that was established by Health Canada permitting use of GHS-formatted safety data sheets in Canada prior to revision of CPR to GHS. This product has been classified and labeled in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3). This SDS has been prepared in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3).

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**Legend:**

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

**USER RESPONSIBILITY:** Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

**THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE.  
HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA  
OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.**

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