

# Material Safety Data Sheet

Silver Nitrate 0.1000N



## 1. Product and company identification

**Product name** : Silver Nitrate 0.1000N  
**Product code** : 1.09081  
**Supplier** : EMD Chemicals Inc.  
480 S. Democrat Rd.  
Gibbstown, NJ 08027  
856-423-6300 Technical Service  
Monday-Friday: 8:00 -5:00 PM  
**Synonym** : None.  
**Material uses** : Other non-specified industry: Analytical reagent.  
**Validation date** : 6/24/2011.  
**In case of emergency** : 800-424-9300 CHEMTREC (USA)  
613-996-6666 CANUTEC (Canada)  
24 Hours/Day: 7 Days/Week

## 2. Hazards identification

**Emergency overview** : WARNING!  
CAUSES SEVERE EYE IRRITATION.  
MAY CAUSE EYE INJURY.  
CAUSES RESPIRATORY TRACT AND SKIN IRRITATION.  
CAUSES DAMAGE TO THE FOLLOWING ORGANS: MUCOUS MEMBRANES, SKIN, EYE, LENS OR CORNEA, NOSE, SINUSES.  
MAY BE HARMFUL IF SWALLOWED.  
Do not ingest. Do not get in eyes or on skin or clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

**Physical state** : Liquid.  
**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard ( 29 CFR 1910.1200).

**Routes of entry** : Inhalation. Ingestion.

### Potential acute health effects

**Inhalation** : Irritating to respiratory system.  
**Ingestion** : May be harmful if swallowed.  
**Skin** : Irritating to skin.  
**Eyes** : Severely irritating to eyes. Risk of serious damage to eyes.

### Potential chronic health effects

**Carcinogenicity** : No known significant effects or critical hazards.  
**Mutagenicity** : No known significant effects or critical hazards.  
**Teratogenicity** : No known significant effects or critical hazards.  
**Developmental effects** : No known significant effects or critical hazards.  
**Fertility effects** : No known significant effects or critical hazards.  
**Target organs** : Causes damage to the following organs: mucous membranes, skin, eye, lens or cornea, nose/sinuses.

**Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

### 3 . Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>% by weight</u>
Water	7732-18-5	98 - 99
Silver Nitrate	7761-88-8	1 - 2

### 4 . First aid measures

<b>Eye contact</b>	: Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
<b>Skin contact</b>	: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
<b>Inhalation</b>	: Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
<b>Ingestion</b>	: Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

### 5 . Fire-fighting measures

<b>Flammability of the product</b>	: In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Extinguishing media</b>	: Use an extinguishing agent suitable for the surrounding fire.
<b>Not suitable</b>	: None known.
<b>Special exposure hazards</b>	: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
<b>Hazardous thermal decomposition products</b>	: Decomposition products may include the following materials: nitrogen oxides metal oxide/oxides
<b>Special protective equipment for fire-fighters</b>	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

### 6 . Accidental release measures

<b>Personal precautions</b>	: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate . Put on appropriate personal protective equipment (see Section 8).
<b>Environmental precautions</b>	: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
<b>Methods for cleaning up</b>	
<b>Spill</b>	: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal . Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container.

## 7 . Handling and storage

- Handling** : Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store in accordance with local regulations. Store in original container, protected from direct sunlight. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

## 8 . Exposure controls/personal protection

Ingredient	Exposure limits
Silver Nitrate	<p><b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 0.01 mg/m<sup>3</sup>, (as Ag) 8 hour(s).</p> <p><b>NIOSH REL (United States, 6/2009).</b> TWA: 0.01 mg/m<sup>3</sup>, (as Ag) 10 hour(s). Form: METAL DUST AND SOLUBLE</p> <p><b>OSHA PEL (United States, 11/2006).</b> TWA: 0.01 mg/m<sup>3</sup>, (as Ag) 8 hour(s).</p> <p><b>ACGIH TLV (United States, 2/2010).</b> TWA: 0.01 mg/m<sup>3</sup>, (as Ag) 8 hour(s). Form: Soluble</p>

**Consult local authorities for acceptable exposure limits.**

- Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended: nitrile rubber
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Recommended: safety glasses with side-shields
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.  
Recommended: lab coat
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## 9 . Physical and chemical properties

Physical state	: Liquid.
Flash point	: [Product does not sustain combustion.]
Color	: Clear. Colorless.
Odor	: Odorless.
pH	: Not available.
Boiling/condensation point	: Not available.
Melting/freezing point	: Not available.
Relative density	: Not available.
Vapor pressure	: Not available.
Vapor density	: Not available.
Odor threshold	: Not available.
Evaporation rate	: 0.36 (Water) compared with(n-Butyl Acetate =1)
VOC	: 0 % (w/w)
Solubility	: Easily soluble in the following materials: water

## 10 . Stability and reactivity

Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	: No specific data.
Materials to avoid	: Reactive or incompatible with the following materials: reducing materials, combustible materials, organic materials and alkalis.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Conditions of reactivity	: Explosive in the presence of the following materials or conditions: oxidizing materials, combustible materials and organic materials.

## 11 . Toxicological information

### Acute toxicity

Product/ingredient name	Test Route	Species	Result
Silver Nitrate	LD50 Intraperitoneal	Rat	83 mg/kg
	LD50 Oral	Rat	1173 mg/kg

### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Observation
Silver Nitrate	Eyes - Moderate irritant	Rabbit	-	-
	Eyes - Severe irritant	Rabbit	-	-

### Carcinogenicity

No known significant effects or critical hazards.

### Mutagenicity

No known significant effects or critical hazards.

### Teratogenicity

No known significant effects or critical hazards.

## 12 . Ecological information

### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Silver Nitrate	Acute EC50 5 ng/L Marine water	Crustaceans - Calanoid copepod - Acartia tonsa - Adult - 0.8 mm	48 hours
	Acute EC50 4.9 ng/L Marine water	Crustaceans - Calanoid copepod - Acartia tonsa - Adult - 0.8 mm	48 hours
	Acute EC50 3.8 ng/L Marine water	Crustaceans - Calanoid copepod - Acartia tonsa - Adult - 0.8 mm	48 hours
	Acute EC50 3.5 ng/L Marine water	Crustaceans - Calanoid copepod - Acartia tonsa - Adult - 0.8 mm	48 hours
	Acute EC50 3.4 ng/L Marine water	Crustaceans - Calanoid copepod - Acartia tonsa - Adult - 0.8 mm	48 hours
	Acute EC50 3.2 ng/L Marine water	Crustaceans - Calanoid copepod - Acartia tonsa - Adult - 0.8 mm	48 hours
	Acute EC50 2.9 ng/L Marine water	Crustaceans - Calanoid copepod - Acartia tonsa - Adult - 0.8 mm	48 hours
	Acute EC50 2.5 ng/L Marine water	Crustaceans - Calanoid copepod - Acartia tonsa - Adult - 0.8 mm	48 hours
	Acute EC50 2.3 ng/L Marine water	Crustaceans - Calanoid copepod - Acartia tonsa - Adult - 0.8 mm	48 hours
	Acute EC50 2 ng/L Marine water	Crustaceans - Calanoid copepod - Acartia tonsa - Adult - 0.8 mm	48 hours
	Acute EC50 0.4 ug/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia - Neonate - <24 hours	48 hours
	Acute LC50 2.06 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - FRY - <24 hours	96 hours
	Acute LC50 2 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - FRY - 4 days	96 hours
	Acute LC50 1.97 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - FRY - <24 hours	96 hours
	Acute LC50 1.48 ug/L Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss - 20 days	96 hours
	Acute LC50 1.4 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - FRY - 4 days	96 hours
	Acute LC50 0.578 ug/L Fresh water	Daphnia - Water flea - Daphnia magna - Neonate - <24 hours	48 hours
	Acute LC50 0.55 ug/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia - Neonate - <24 hours	48 hours
	Acute LC50 0.5 ug/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia - Neonate - <24 hours	48 hours

## 12 . Ecological information

Acute LC50 0.47 ug/L Fresh water	Daphnia - Water flea - 48 hours Daphnia magna - Neonate - <24 hours
Acute LC50 0.39 ug/L Fresh water	Daphnia - Water flea - 48 hours Daphnia magna - New born
Acute LC50 0.31 ug/L Fresh water	Daphnia - Water flea - 48 hours Daphnia pulex - Neonate - < 24 hours
Acute LC50 0.26 ug/L Fresh water	Daphnia - Water flea - 48 hours Daphnia magna - Neonate - 6 to 24 hours
Acute LC50 0.18 ug/L Fresh water	Daphnia - Water flea - 48 hours Daphnia magna - Neonate - 6 to 24 hours
Chronic NOEC <2 ug/L Fresh water	Fish - Fathead minnow - 96 hours Pimephales promelas - FRY - 4 days
Chronic NOEC 1.9 ug/L Fresh water	Fish - Fathead minnow - 96 hours Pimephales promelas - FRY - 4 days
Chronic NOEC 1.8 ug/L Fresh water	Fish - Fathead minnow - 96 hours Pimephales promelas - FRY - 4 days
Chronic NOEC 1.7 ug/L Fresh water	Fish - Fathead minnow - 96 hours Pimephales promelas - FRY - 4 days
Chronic NOEC <1.7 ug/L Fresh water	Fish - Fathead minnow - 96 hours Pimephales promelas - FRY - 4 days


**Environmental effects** : No known significant effects or critical hazards.

**Other adverse effects** : No known significant effects or critical hazards.

## 13 . Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

## 14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN1760	CORROSIVE LIQUID, N.O.S. (SILVER NITRATE SOLUTION)	8	III		No additional remark.

PG\* : Packing group

## 15 . Regulatory information

### United States

**HCS Classification** : Irritating material  
Target organ effects

**U.S. Federal regulations** : **TSCA 8(a) IUR**: Partial exemption  
**United States inventory (TSCA 8b)**:

TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.

## 15 . Regulatory information

**SARA 302/304/311/312 extremely hazardous substances:** No products were found.  
**SARA 302/304 emergency planning and notification:** No products were found.  
**SARA 302/304/311/312 hazardous chemicals:** Silver Nitrate  
**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:** Silver Nitrate: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

**Clean Water Act (CWA) 307:** Silver Nitrate

Clean Water Act (CWA) 311: No products were found.

**Clean Air Act (CAA) 112 accidental release prevention:** No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

**DEA List I Chemicals ( Precursor Chemicals)** : Not listed

**DEA List II Chemicals ( Essential Chemicals)** : Not listed

### SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
<b>Form R - Reporting requirements</b>	: Silver Nitrate	7761-88-8	1 - 2
<b>Supplier notification</b>	: Silver Nitrate	7761-88-8	1 - 2

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

**Connecticut Carcinogen Reporting** : None of the components are listed.

**Connecticut Hazardous Material Survey** : None of the components are listed.

**Florida substances** : None of the components are listed.

**Illinois Chemical Safety Act** : None of the components are listed.

**Illinois Toxic Substances Disclosure to Employee Act** : None of the components are listed.

**Louisiana Spill** : None of the components are listed.

**Louisiana Reporting** : None of the components are listed.

**Massachusetts Spill** : None of the components are listed.

**Massachusetts Substances** : The following components are listed: SILVER NITRATE

**Minnesota Hazardous Substances** : None of the components are listed.

**Michigan Critical Material** : None of the components are listed.

**New Jersey Toxic Catastrophe Prevention Act** : None of the components are listed.

**New Jersey Spill** : None of the components are listed.

**New Jersey Hazardous Substances** : The following components are listed: Silver Nitrate 0.1000N

**New York Toxic Chemical Release Reporting** : None of the components are listed.

**New York Acutely Hazardous Substances** : The following components are listed: Silver nitrate

**Pennsylvania RTK Hazardous Substances** : The following components are listed: NITRIC ACID SILVER(1+) SALT

## 15 . Regulatory information

**Rhode Island Hazardous Substances** : None of the components are listed.

### Canada

**WHMIS (Canada)** : Class D-2B: Material causing other toxic effects (Toxic).  
**Canadian lists** : **CEPA Toxic substances**: None of the components are listed.  
**Canadian ARET**: None of the components are listed.  
**Canadian NPRI**: The following components are listed: Nitrate ion  
**Alberta Designated Substances**: None of the components are listed.  
**Ontario Designated Substances**: None of the components are listed.  
**Quebec Designated Substances**: None of the components are listed.

**CEPA DSL / CEPA NDSL** : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

### EU regulations

**Hazard symbol or symbols** :



**Risk phrases** : R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

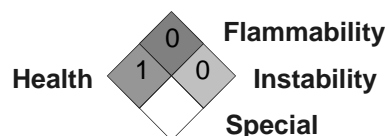
**Safety phrases** : S29- Do not empty into drains.  
S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

### International regulations

**International lists** : **Australia inventory (AICS)**: All components are listed or exempted.  
**China inventory (IECSC)**: Not determined.  
**Japan inventory**: All components are listed or exempted.  
**Korea inventory**: All components are listed or exempted.  
**New Zealand Inventory of Chemicals (NZIoC)**: Not determined.  
**Philippines inventory (PICCS)**: All components are listed or exempted.

## 16 . Other information

**National Fire Protection Association (U.S.A.)** :



### Notice to reader

The statements contained herein are based upon technical data that EMD Chemicals Inc. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD CHEMICALS INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.