

Safety Data Sheet

Ammoniacal Silver

Section 1 - Chemical Product and Company Identification

SDS Name: Ammoniacal Silver

Catalog Numbers: SO-134

Company Identification: Transene Company, Inc., DBA ROWLEY BIOCHEMICAL, Inc.
10 ELECTRONICS AVENUE
DANVERS, MA 01923

For information, call: 978-739-4883

Emergency Number: 800-424-9300

For CHEMTREC assistance, call: 800-424-9300

Section 2 - Hazards Identification

GHS Classifications

H272-Oxidizing liquids: 3

H290-Corrosive to metals: 1

H302-Acute toxicity, oral: 4

H314-Skin corrosion/irritation: 1B

H318-Serious eye damage/eye irritation: 1

H373-Specific target organ toxicity, repeated exposure: 2

H401-Hazardous to the aquatic environment, acute hazard: 2

H412-Hazardous to the aquatic environment, long-term hazard: 3

Approximately 3% of the mixture consists of ingredients of unknown acute dermal toxicity.
Approximately 3% of the mixture consists of ingredients of unknown acute inhalation toxicity.

Pictograms or Hazard symbols and Hazard statement(s):



Signal Word: Danger

Hazard Statements:

H272-May intensify fire; oxidizer
H290-May be corrosive to metals
H302-Harmful if swallowed
H314-Causes severe skin burns and eye damage
H318-Causes serious eye damage
H373-May cause damage to organs thorough prolonged or repeated exposure (target organs: liver and kidney)
H401-Toxic to aquatic life
H412-Harmful to aquatic life with long lasting effects

Precautionary Statements:

P210-Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.
P220-Keep away from clothing and other combustible materials.
P234-Keep only in original packaging.
P260-Do not breathe dust/fume/gas/mist/vapours/spray.
P264-Wash thoroughly after handling.
P270-Do not eat, drink, or smoke when using this product.
P273-Avoid release to the environment.
P280-Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312-If swallowed: Call a Poison Center/doctor if you feel unwell.
P301+P330+P331-If swallowed: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353-If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340-If inhaled: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338-If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310-Immediately call a Poison Center/doctor.
P314-Get medical advice/attention if you feel unwell.
P330-Rinse mouth.
P363-Wash contaminated clothing before reuse.
P370+P378-In case of fire: Use dry chemical, carbon dioxide, dry sand, water spray, or alcohol-resistant foam to extinguish.
P390-Absorb spillage to prevent material damage.
P405-Store locked up.
P406-Store in a corrosion resistant container with a resistant inner liner.
P501-Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent
7761-88-8	Silver Nitrate	1 w/v
1336-21-6	Ammonium Hydroxide 28-30%	<3 v/v
1310-73-2	Sodium Hydroxide	0.3 w/v
7732-18-5	Water	balance

Section 4 - First Aid Measures

Eye Exposure: IMMEDIATE ACTION IS ESSENTIAL FOR EYE EXPOSURE. In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Get immediate medical attention.

Dermal Exposure: In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention.

Oral Exposure: If swallowed, get immediate medical advice. Do not induce vomiting.

Inhalation Exposure: If inhaled, remove to fresh air. If breathing becomes difficult, get immediate medical attention.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating gases may be generated by thermal decomposition or combustion.

Extinguishing Media: Use dry chemical, carbon dioxide, dry sand, water spray, or alcohol-resistant foam.

Hazardous Combustion Products: Nitrogen oxides, silver oxides, ammonia, sodium oxides, hydrogen, irritating and toxic fumes and gases.

Flash Point: Not available

Autoignition Temperature: Not available

Explosion Limits, Lower: Not available

Upper: Not available

NFPA Rating: (estimated) Health: 2; Flammability: 0; Instability: 1

Section 6 - Accidental Release Measures

Procedure(s) of Personal Precaution(s):

Wear personal protective equipment. Do not ingest or inhale. Do not get on skin or clothing. Do not get in eyes. Ensure adequate ventilation.

Methods for Cleaning up: Absorb with sand, earth, or vermiculite. Do NOT use combustible materials such as saw dust. Carefully sweep up and containerize for proper disposal. Do not release the environment. Do not release to drains.

Section 7 - Handling and Storage

Use care when handling. Wear personal protective equipment. Wash thoroughly after handling. Ensure adequate ventilation. Do not ingest or inhale. Do not get on skin or clothing. Do not get in eyes. Keep in a tightly closed and non-metal container. **Store in the refrigerator.** Light sensitive. Avoid contact with combustibles, organics, or any other oxidizable materials. Keep away from incompatible materials.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

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 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

Exposure Limits:

Chemical Name	ACGIH - TLV	NIOSH - IDLH	OSHA - PEL
Silver Nitrate CAS#7761-88-8	0.01 mg/m ³ TWA	0.01 mg/m ³ TWA 10 mg/m ³ IDLH	0.01 mg/m ³ TWA (vacated)
Ammonium Hydroxide CAS#1336-21-6	25 ppm TWA 35 ppm STEL	18 mg/m ³ TWA 25 ppm TWA 27 mg/m ³ STEL 35 ppm STEL	Not listed
Sodium Hydroxide CAS#1310-73-2	2 mg/m ³ Ceiling	2 mg/m ³ Ceiling 10 mg/m ³ IDLH	2 mg/m ³ Ceiling 2 mg/m ³ TWA

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: Clear, colorless

Odor: Ammonia-like

Vapor Pressure: Not available

Odor Threshold: Not available

Vapor Density: Not available

pH: Approx. 12.7

Relative Density: Not available

Melting point/freezing point: Not available
Solubility: Soluble in water
Boiling Point: Not available
Flash Point: Not available
Evaporation Rate: Not available
Partition coefficient: n-octanol/water: Not available
Flammability (solid, gas): Not available
Autoignition Temperature: Not available
Decomposition Temperature: Not available
Viscosity: Not available
Specific Gravity/Density: Not available

Section 10 - Stability and Reactivity

Chemical Stability: Stable under ordinary conditions of use and storage. Oxidizer: Contact with combustible/organic material may cause fire. Heat and sunlight can contribute to instability. **Keep refrigerated.**

Conditions to Avoid: Incompatible materials, ignition sources, and excess heat. Exposure to light. Avoid combustible materials.

Incompatibilities with Other Materials: Strong oxidizing agents, strong reducing agents, combustible materials, metals, metal salts, amines, aluminum, mild steel, metals, lead, nickel, silver, zinc, copper, metal alloys, acids, fluorine, halogens, acrolein, dimethyl sulfate, propylene oxide, nitromethane, silver permanganate, oleum, alkalis, halogenated compounds, acrolein, silver oxide, metal alloys, brass, tin, and beta-propiolactone.

Hazardous Decomposition Products: Nitrogen oxides, silver oxides, ammonia, sodium oxides, hydrogen, irritating and toxic fumes.

Section 11 - Toxicological Information

CAS#7761-88-8 Silver Nitrate: RTECS#: VW4725000

LD50, Oral: 3804 mg/kg (rat)

LD50 Dermal: > 2000 mg/kg (rat)

LC50 Inhalation: >0.075 mg/L 4h aerosol (rat)

Carcinogenicity: Silver Nitrate CAS#7761-88-8 is not listed by IARC, NTP, ACGIH, or California Prop. 65.

CAS#1336-21-6 Ammonium Hydroxide:

LD50 Oral: >350 mg/kg (rat)

LDLo Oral: 43 mg/kg (human) (29% solution)

LD50 Dermal: Not available

LC50 Inhalation: Not available

Investigated as a mutagen.

Carcinogenicity: Ammonium Hydroxide CAS#1336-21-6 is not listed by IARC, NTP, ACGIH, OSHA, or California Prop.65.

CAS#1310-73-2 Sodium Hydroxide: RTECS#: WB4900000

LD50 Oral: 140-340 mg/kg (rat)

LD50 Dermal: 1350 mg/kg (rabbit)
LC50 Inhalation: Not available

Carcinogenicity: Sodium Hydroxide CAS#1310-73-2 is not listed by IARC, NTP, ACGIH, OSHA, or California Prop. 65.

Information on the likely routes of exposure: Routes of entry anticipated: oral, dermal, inhalation, and eye.

Epidemiology: Not available.

Teratogenicity: Not available.

Reproductive Effects: Not available.

Developmental Effects: Not available.

Neurotoxicity: Not available.

Mutagenicity: Not available.

Specific Target Organ Toxicity, Single Exposure: Not available.

Specific Target Organ Toxicity, Repeated Exposure: Liver and kidney.

Symptoms associated with exposure: Causes severe skin burns and eye damage. Ingestion may cause swelling and damage to the tissue with risk of perforation. May cause pain, coughing, vomiting. Skin contact may result in burns, redness, pain, and irritation. Eye contact may result in burns, pain, redness, and risk of blindness. Inhalation may result in mucosal irritations, cough, shortness of breath, bronchitis.

The toxicological properties of this material have not been thoroughly investigated.

Section 12 - Ecological Information

Ecotoxicity: Do not release to the environment. Do not release to drains. Toxic to aquatic life. May cause long-term adverse effects in the aquatic environment.

CAS#7761-88-8 Silver Nitrate:

LC50, freshwater fish: 0.0012 mg/L 96h semi-static (pimephales promelas)(fathead minnow)

LC50, freshwater fish: 0.029 mg/L 96h (leuciscus idus)(golden orfe)

EC50, water flea: 0.00022 mg/L 48h semi-static (daphnia magna)

EC50, microtox: 0.038 mg/L 24h (photobacterium phosphoreum)

EC50, microtox: 0.395 mg/L 15min (photobacterium phosphoreum)

CAS#1336-21-6 Ammonium Hydroxide:

LC50, freshwater fish: 0.008 24h (oncorhynchua mykiss)(rainbow trout)

LC50, freshwater fish: 0.024 mg/L 48h lepomis macrochirus)(bluegill)

LC50, freshwater fish: 8.2 mg/L 96h (pimephales promelas)(fathead minnow)

EC50, water flea: 0.66 mg/l 48h (daphnia magna)

CAS#1310-73-2 Sodium Hydroxide:

LC50, freshwater fish: 45.4 mg/L 96h static (oncorhynchus mykiss)(rainbow trout)

LC50, freshwater fish: 125 mg/L 96h (gambusia affinis)(mosquito fish)
EC50, water flea: 40.4 mg/L 48h (ceriodaphnia)

Persistence and degradability: Not available.

Bio-accumulative potential: Not available.

Mobility: Will likely be mobile in the environment due to its water solubility.

Section 13 - Disposal Considerations

DISPOSAL: Dispose of in accordance with all federal, state, and local regulations.

Section 14 – Transport Information

DOT

Proper shipping name: Corrosive liquid, basic, inorganic, n.o.s. (Sodium hydroxide, Ammonium hydroxide)

UN3266

PG II

Hazard class 8

Section 15 - Regulatory Information

Canada Regulatory Information

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the SDS contains all the information required by the CPR.

Section 16 - Additional Information

SDS Creation Date: 10/15/12 RC

Revision #1: YM 2/10/2014

Revision #2: 6-29-15

Revision #3: 8-27-20

Revision #4: 6-19-23

Revision #5: 1-5-26

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