

Infosafe No™ 3CHO6 Issue Date : November 2020 RE-ISSUED by CHEMSUPP

Product Name **SILVER NITRATE**

Classified as hazardous

1. Identification

GHS Product Identifier	SILVER NITRATE						
Company Name	CHEM-SUPPLY PTY LTD (ABN 19 008 264 211)						
Address	38 - 50 Bedford Street GILLMAN SA 5013 Australia						
Telephone/Fax Number	Tel: (08) 8440-2000						
Emergency phone number	CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)						
E-mail Address	www.chemsupply.com.au						
Recommended use of the chemical and restrictions on use	Photographic film, catalyst for ethylene oxide, indelible inks, silver plating, silvering mirrors, silver salts, germicide (as a wall spray), hair dyeing, analytical chemistry, antiseptic, purification of drinking water, fused form to cauterize wounds and laboratory reagent.						
Other Names	<table border="0"> <tr> <th><u>Name</u></th><th><u>Product Code</u></th></tr> <tr> <td>SILVER NITRATE</td><td>SL087</td></tr> <tr> <td>SILVER NITRATE</td><td>SA087</td></tr> </table>	<u>Name</u>	<u>Product Code</u>	SILVER NITRATE	SL087	SILVER NITRATE	SA087
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Other Information

Chem-Supply Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon Chem-Supply Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of Chem-Supply Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

2. Hazard Identification

GHS classification of the substance/mixture	Oxidizing Solids: Category 2 Hazardous to the Aquatic Environment - Acute Hazard: Category 1 Hazardous to the Aquatic Environment - Long-Term Hazard: Category 1 Eye Damage/Irritation: Category 1 Skin Corrosion/Irritation: Category 1A Hazardous to the Aquatic Environment - Acute Hazard: Category 1
Signal Word (s)	DANGER
Hazard Statement (s)	H272 May intensify fire; oxidiser. H314 Causes severe skin burns and eye damage. H410 Very toxic to aquatic life with long lasting effects.
Pictogram (s)	Flame over circle, Corrosion, Environment



Precautionary statement – Prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 P220 Keep/Store away from clothing/.../combustible materials.
 P221 Take any precaution to avoid mixing with combustibles.
 P260 Do not breathe dust/fume/gas/mist/vapours/spray.
 P264 Wash thoroughly after handling.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.

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Precautionary statement – Response	<p>P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.</p> <p>P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.</p> <p>P363 Wash contaminated clothing before reuse.</p> <p>P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.</p> <p>P310 Immediately call a POISON CENTER or doctor/physician.</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P370+P378 In case of fire: Use dry sand or flooding quantities of water for extinction.</p>
Precautionary statement – Storage	P405 Store locked up.
Precautionary statement – Disposal	P501 Dispose of contents/container to an approved waste disposal plant.
Other Information	<p>Persons exhibiting the condition of generalised argyria, and who subsequently died from unrelated disease, showed, on autopsy, a deposition of silver in the blood vessel walls, kidneys, testes, pituitary, choroid plexus, and mucous membranes of the nose, maxillary antra, trachea, and bronchi. Once deposited, there is no known method by which the silver can be eliminated; the pigmentation is permanent and usually noticeable in the conjunctiva of the eye first.</p>

3. Composition/information on ingredients

Ingredients	Name	CAS	Proportion
	Silver nitrate	7761-88-8	100 %

4. First-aid measures

Inhalation	If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Immediately obtain medical aid if cough or other symptoms appear.
Ingestion	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek immediate medical advice.
Skin	Wash affected area thoroughly with copious amounts of running water. Remove contaminated clothing and wash before reuse. If symptoms develop seek medical attention.
Eye contact	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek medical attention.
First Aid Facilities	Maintain eyewash fountain and safety shower in work area.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of the patient.
Other Information	For advice, contact a Poisons Information Centre (Phone eg Australia 13 1126; New Zealand 0800 764 766) or a doctor.

5. Fire-fighting measures

Hazards from Combustion Products	May liberate toxic fumes in fire such as oxygen, toxic fumes, nitrous gases, toxic oxides of nitrogen, silver/silver oxides.
Specific Methods	This product contains a substantial proportion of water therefore there are no restrictions on the type of extinguishing media which may be used.
Specific hazards arising from the chemical	Fire may produce irritating, poisonous, and/or corrosive gases.
Hazchem Code	1Y
Decomposition Temp.	440 °C

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Precautions in connection with Fire Wear SCBA and chemical splash suit with full breathing apparatus. Structural firefighter's uniform will provide limited protection.

6. Accidental release measures

Personal Precautions	Avoid inhalation, contact with skin, eyes and clothing.
Personal Protection	Wear protective clothing specified for normal operations (see Section 8)
Clean-up Methods - Small Spillages	Absorb or contain liquid with sand, earth or spill control material. Shovel up using non sparking tools and place in a labelled, sealable container for subsequent safe disposal. Put leaking containers in a labelled drum or overdrum.
Environmental Precautions	Do not discharge into drains, surface water or ground water. Do not discharge to subsoil/soil.
Other Information	Most organisations using silver compounds collect all silver residues for subsequent recovery. Solutions could be washed to drain with a large volume of water, or alternatively treated with a salt solution and the resulting silver chloride collected for subsequent recovery.

7. Handling and storage

Precautions for Safe Handling	Use with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Discard contaminated shoes.
Conditions for safe storage, including any incompatibilities	Keep container tightly closed when not in use, in a cool, dry, well-ventilated area away from incompatible substances. Keep well closed and protected from light and moisture. Sensitive to light.
Storage Temperatures	Store at room temperature (15 to 25 °C recommended).

8. Exposure controls/personal protection

Occupational exposure limit values	<u>Name</u>	STEL		TWA		<u>Footnote</u>
		<u>mg/m³</u>	<u>ppm</u>	<u>mg/m³</u>	<u>ppm</u>	
	Silver nitrate			0.01		Silver, soluble compounds (as Ag)
Other Exposure Information	<p>These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.</p> <p>A time weighted average (TWA) has been established for Silver, soluble compounds (as Ag) (Safe Work Australia) of 0.01 mg/m³ and for Silver, metal (Safe Work Australia) of 0.1 mg/m³. The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.</p>					
Appropriate engineering controls	Maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods.					
Respiratory Protection	Where ventilation is not adequate, respiratory protection may be required. Avoid breathing dust, vapours or mists. Respiratory protection should comply with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.					
Eye Protection	The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.					

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Hand Protection	Wear gloves of impervious material conforming to AS/NZS 2161: Occupational protective gloves - Selection, use and maintenance. Final choice of appropriate glove type will vary according to individual circumstances. This can include methods of handling, and engineering controls as determined by appropriate risk assessments. Avoid skin contact when removing gloves from hands, do not touch the gloves outer surface. Dispose of gloves as hazardous waste.
Personal Protective Equipment	Personal protective equipment should not solely be relied upon to control risk and should only be used when all other reasonably practicable control measures do not eliminate or sufficiently minimise risk. Guidance in selecting personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.
Body Protection	Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.
Hygiene Measures	Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

9. Physical and chemical properties

Form	Solid
Appearance	Colourless, transparent, tabular, rhombic crystals or white crystalline powder, becoming gray or grayish-black on exposure to light in the presence of organic matter.
Odour	Odourless.
Decomposition Temperature	440 °C
Melting Point	212 °C
Freezing Point	433 °C
Solubility in Water	Very soluble, 1220 g/l at 0 °C.
Solubility in Organic Solvents	Readily soluble in ammonia water. Soluble in glycerol, diethyl ether and hot alcohol. Very slightly soluble in acetone.
Specific Gravity	4.352
pH	Aqueous and alcoholic soln are neutral to litmus; pH 5.4 - 6.4 (100 g/l H ₂ O).
Vapour Pressure	Not volatile
Vapour Density (Air=1)	5.8
Volatile Component	0 %vol @ 21 °C.
Flammability	Not combustible but assists combustion of other substances.
Explosion Properties	Many reactions may cause explosion. Reacts with ammonia to form compounds that are sensitive to mechanical shock. Silver nitrate mixed with dry powdered magnesium may ignite explosively on contact with a drop of water. An explosive fulminate may be formed if silver nitrate is mixed with alcohols.
Molecular Weight	169.87
Oxidising Properties	Strong oxidizer. Contact with other material may cause fire.

10. Stability and reactivity

Chemical Stability	Stable at room temperature in closed containers under normal storage and handling conditions. Light sensitive. Darkens on exposure to light.
Conditions to Avoid	Heat, flame, sources of ignition, light, contamination and incompatible materials.
Incompatible Materials	Reducing agents, combustible materials, organic materials, easily oxidized materials, acetylene + ammonia, acetylidene, alcohols, aldehydes, alkalis, alkali hydroxides, ammonia, ammonium compounds, antimony salts, arsenites, benzalkonium chloride, bromides,

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**Hazardous
Decomposition
Products**

carbonates, carbides, charcoal, chlorides, chlorosulfonic acid, creosote, ferrous salts, halogenated acids and their salts, hydrazine and derivatives, hydrogen peroxide, hydrogen sulfide, hypophosphites, iodides, magnesium in powder form (with water), morphine salts, nitriles, non-metals, oils, organic nitro compounds, phosphates, sodium hydroxide, sugars, tannic acid, tannins, tartrates, thimerosal, thiocyanates, vegetable decoctions, and extracts, volatile oils. Oxygen, toxic fumes, nitrous gases, toxic oxides of nitrogen, silver/silver oxides.

**Possibility of
hazardous reactions**

Reacts with acetylene in presence of ammonia to form silver acetylide, a sensitive powerful detonator when dry. In the absence of ammonia, or when calcium acetylide is added to a silver nitrate soln, explosive double salts of silver acetylide and silver nitrate are produced. Mercurous acetylide precipitates silver acetylide from aqueous nitrate. Reaction with chlorosulfonic acid is violent with nitrosulfonic acid being formed. Reduced by hydrogen sulfide in the dark. Easily reduced to metallic silver by ferrous salts, arsenites, hypophosphites, tartrates, sugars, tannins, volatile oils. Dry powdered magnesium and silver nitrate may ignite explosively on contact with a drop of water. Reaction with ammonium hydroxide, sodium hydroxide and stirring may be explosive. Reaction with phosphorus, or sulfur, and shock may be violently explosive. Reaction with charcoal and shock may result in ignition. Highly sensitive explosive is formed when calcium carbide is added to silver nitrate solution. Reaction with alcohols may form an explosive fulminate. When purified phosphine was passed rapidly into a concentrated solution of silver nitrate an explosion occurred.

**Hazardous
Polymerization**

Will not occur.

11. Toxicological Information

Ingestion

Corrosive. Swallowing can cause severe burns of the mouth, throat, stomach and gastrointestinal tract. Can cause sore throat, vomiting, diarrhoea. Poison. Symptoms include pain and burning in the mouth, blackening of the skin and mucous membranes, throat, and abdomen, salivation, vomiting of black material, diarrhoea, collapse, shock, coma and death. Ingestion of soluble silver salts may cause argyria, characterized by permanent blue-gray pigmentation of the skin, mucous membranes, and eyes.

Inhalation

Destructive to tissues of the mucous membranes and upper respiratory tract. Symptoms may include severe irritation, burning sensation, coughing, wheezing, laryngitis, shortness of breath, breathing difficulty, headache, nausea, vomiting and possible coma. May be absorbed into the body following inhalation with symptoms paralleling those from ingestion exposure. Inhalation of silver metal dust and fume or of soluble silver compounds may eventually cause argyria, an unsightly blue-gray discoloration of the skin and mucous membranes, including gum tissue and conjunctiva of the eyes.

Skin

Corrosive. Symptoms of redness, pain, and severe burn can occur.

Eye

Corrosive. Can cause blurred vision, redness, pain, severe tissue burns and eye damage.

**Respiratory
sensitisation**

Not classified based on available information.

Skin Sensitisation

Not classified based on available information.

**Germ cell
mutagenicity**

Not classified based on available information.

Carcinogenicity

Not classified based on available information.
Nitrate or nitrite (ingested) under conditions that result in endogenous nitrosation are evaluated in the IARC Monographs (Vol. 94; in preparation) as Group 2A: Probably carcinogenic to humans.

**Reproductive
Toxicity**

Not classified based on available information.

**STOT-single
exposure**

Not classified based on available information.

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STOT-repeated exposure	Not classified based on available information.
Chronic Effects	May cause methemoglobinemia, which is characterized by chocolate-brown colored blood, headache, weakness, dizziness, breath shortness, cyanosis (bluish skin due to deficient oxygenation of blood), rapid heart rate, unconsciousness and possible death. Repeated inhalation may cause lung disease. Chronic inhalation or ingestion of silver salts may cause argyria characterized by a permanent blue-gray discolouration of the eyes, skin, mucous membranes, and internal organs. This malady results from the accumulation of silver in the body.
Mutagenicity	Not classified based on available information.

12. Ecological information

Ecotoxicity	Highly toxic for aquatic organisms. May cause long-term adverse effects in the aquatic environment. Forms corrosive mixtures with water even if diluted.
Persistence and degradability	Methods for the determination of biodegradability are not applicable to inorganic substances.
Bioaccumulative Potential	BCF: 200; Highly bioaccumulative (Biological Concentration Factor 100-1000).
Environmental Protection	Do not allow to enter waters, waste water, or soil!

13. Disposal considerations

Disposal Considerations	Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and disposed of according to relevant local, state and federal government regulations.
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14. Transport information

Transport Information	Class 9 Miscellaneous dangerous goods shall not be loaded in a vehicle with: - Class 1 Explosives - Class 5. 1 Oxidizing agents (when Class 9 substance capable of igniting and burning - Class 5. 2 Organic peroxides (when Cl. 9 capable of igniting/burning)
U.N. Number	1493
UN proper shipping name	SILVER NITRATE
Transport hazard class(es)	5.1
Hazchem Code	1Y
Packing Group	II
EPG Number	5B1
IERG Number	31

15. Regulatory information

Regulatory Information	Listed in the Australian Inventory of Chemical Substances (AICS). Not listed under WHS Regulation 2011, Schedule 10 - Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
Poisons Schedule	S6

16. Other Information

Literature References	'Standard for the Uniform Scheduling of Medicines and Poisons .', Commonwealth of Australia. National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.'. Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals'. Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand. Safe Work Australia, 'Hazardous Chemical Information System'.
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Contact Person/Point

Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances'.
Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment'.
Paul McCarthy Ph. (08) 8440 2000
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