

Infosafe No™ 1CHIU Issue Date : September 2021 RE-ISSUED by ACR

Product Name **SILVER NITRATE 1-5% Solution**

Classified as hazardous

1. Identification

GHS Product Identifier SILVER NITRATE 1-5% Solution

Company Name AUSTRALIAN CHEMICAL REAGENTS (ACR) (ABN 19 008 264 211)

Address 38 - 50 Bedford Street Gillman
S.A. 5013 Australia

Telephone/Fax Number Tel: (08) 8440 2000
Fax: (08) 8440 2001

Emergency phone number CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

Recommended use of the chemical and restrictions on use Laboratory reagent.

Other Names	Name	Product Code
	(Silver Nitrate Solution)	
	Silver Nitrate 0.1000N	0047
	Silver Nitrate 0.171N	0048
	Silver Nitrate 0.282N	1118
	Silver Nitrate 0.2N	3411
	Silver Nitrate 1% w/v	0546
	Silver Nitrate 1N	0049
	Silver Nitrate 5% w/v	0547

Other Information EMERGENCY CONTACT NUMBER: +61 08 8440 2000
Business hours: 8:30am to 5:00pm, Monday to Friday.

Australian Chemical Reagents (ACR) 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 Australian Chemical Reagents (ACR) 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 Australian Chemical Reagents (ACR) 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 Hazardous to the Aquatic Environment - Acute Hazard: Category 1
Hazardous to the Aquatic Environment - Long-Term Hazard: Category 1
Eye Damage/Irritation: Category 2A
Skin Corrosion/Irritation: Category 2

Signal Word (s) WARNING

Hazard Statement (s) H315 Causes skin irritation.
H319 Causes serious eye irritation.
H410 Very toxic to aquatic life with long lasting effects.

Pictogram (s) Exclamation mark, Environment



Precautionary statement – Prevention P264 Wash thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P273 Avoid release to the environment.

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Precautionary statement – Response P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.

Precautionary statement – Disposal P501 Dispose of contents/container to an approved waste disposal plant.

3. Composition/information on ingredients

Ingredients	Name	CAS	Proportion
	Water	7732-18-5	95-99 %
	Silver nitrate	7761-88-8	1-5 %

4. First-aid measures

Inhalation Remove to fresh air.

Ingestion Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek medical advice if effects persist.

Skin Wash affected areas with copious quantities of water. Remove contaminated clothing and wash before re-use. If rapid recovery does not occur, obtain medical attention

Eye contact Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. In all cases of eye contamination it is a sensible precaution to seek medical advice.

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 Oxygen, toxic fumes, toxic oxides of nitrogen, nitrous gases, metallic silver, silver oxides.

Specific Methods No limitations to the type of extinguishing media. Use extinguishing media most appropriate for the surrounding fire.

Specific hazards arising from the chemical Does not burn.

Hazchem Code 2X

Precautions in connection with Fire Wear SCBA and structural firefighter's uniform.

6. Accidental release measures

Personal Precautions Avoid substance contact.

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 Prevent from entering into drains, ditches, rivers or the sea.

Other Information Most organisations using silver compounds collect all silver residues for subsequent recovery. Solutions could be treated with a salt solution and the resulting silver chloride collected for subsequent recovery.

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7. Handling and storage

Precautions for Safe Handling	Avoid contact with eyes, skin, and clothing. Avoid ingestion. Avoid prolonged or repeated exposure. Wear suitable protective clothing. Wash thoroughly after handling.
Conditions for safe storage, including any incompatibilities	Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep well closed and protected from direct sunlight and moisture. Light sensitive. Aqueous solutions are incompatible with alkali and alkaline earth metals and many reactive organic and inorganic chemicals.
Storage Temperatures	Store at room temperature (15 to 25 °C recommended).
Unsuitable Materials	Organic materials.

8. Exposure controls/personal protection

Occupational exposure limit values	Name	STEL		TWA		Footnote
		mg/m3	ppm	mg/m3	ppm	
	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	<p>Usually is not required.</p> <p>Where protection is required from nuisance levels of dust or mists select respiratory protection that complies with AS 1716 - Respiratory Protective Devices and select in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels.</p> <p>Normally not required.</p>					
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.					
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.					
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	Clean impervious clothing should be worn. 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.					

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9. Physical and chemical properties

Form	Liquid
Appearance	Clear, colourless liquid.
Odour	Odourless.
Melting Point	>2 °C
Boiling Point	~ 100 °C
Solubility in Water	Miscible.
Specific Gravity	~ 1.04
pH	3.0 - 6.0 (25 °C)
Vapour Pressure	14 mm Hg @ 20 °C
Vapour Density (Air=1)	0.7
Evaporation Rate	>1 (ether=1)
Volatile Component	ca. 98 %vol @ 21 °C
Flammability	Non flammable.
Molecular Weight	169.87 + aq
Oxidising Properties	Dried product residue is a strong oxidizer.

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	Light, air, heat, high temperatures, evaporating to near dryness and incompatible materials.
Incompatible Materials	Due to low concentration of silver nitrate - none, exception being with substances reactive to water.
Hazardous Decomposition Products	Toxic fumes, toxic oxides of nitrogen, nitrous gases, metallic silver, oxygen, silver oxides.
Hazardous Polymerization	Will not occur.

11. Toxicological Information

Ingestion	May cause gastrointestinal irritation with nausea, vomiting and diarrhoea. Effects should be less severe than through exposure to higher concentrations of silver nitrate which may include symptoms of pain and burning in mouth, blackening of the skin and mucous membranes, throat and abdomen, diarrhoea and shock.
Inhalation	May cause respiratory tract irritation. May be absorbed into the body following inhalation with symptoms paralleling those from ingestion exposure.
Skin	Causes skin irritation. May cause skin discolouration. Effects are expected to be less severe than for exposure to higher concentrations where symptoms include redness, pain and severe burns.
Eye	Causes severe eye irritation, redness and pain. Contact may cause eye damage, corneal scarring, permanent corneal opacification.
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.

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Reproductive Toxicity	Not classified based on available information.
STOT-single exposure	Not classified based on available information.
STOT-repeated exposure	Not classified based on available information.
Chronic Effects	Nitrites/nitrates may cause methaemoglobinaemia, which is characterized by chocolate-brown coloured blood, headache, weakness, dizziness, breath shortness, cyanosis (bluish skin due to deficient oxygenation of blood), rapid heart rate, unconsciousness and possible death. 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.

12. Ecological information

Ecotoxicity	Harmful effect on aquatic organisms. May cause long-term adverse effects in the aquatic environment. Silver ions toxic for aquatic organisms.
Environmental Protection	Do not allow to enter waters, waste water, or soil!
Acute Toxicity - Fish	Silver nitrate Leuciscus idus: LC50: 0.029 mg/L/96h
Acute Toxicity - Daphnia	Silver nitrate Semi static test LC50 (D. daphnia): 0.0069 - 0.0082 mg/L/48h.
Acute Toxicity - Bacteria	Silver nitrate Ps. putida toxic from 0.006 mg/L/16h.

13. Disposal considerations

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

Transport Information	Dangerous Goods of Class 8 Corrosives are incompatible in a placard load with any of the following: - Class 1, Class 4.3, Class 5, Class 6, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are alkalis and Class 7.
U.N. Number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Transport hazard class(es)	9
Hazchem Code	2X
Packing Group	III
EPG Number	9C1
IERG Number	47

15. Regulatory information

Regulatory Information	All the constituents of this product are listed on the Australian Inventory of Chemical Substances (AICS), or exempted. 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.
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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'.
 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'.

Contact Person/Point

Paul McCarthy Ph. (08) 8440 2000 **DISCLAIMER STATEMENT:**
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Empirical Formula & Structural Formula

AgNO₃ + aq

...End Of MSDS...

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