

Infosafe No™ 1CHIU Issue Date : September 2016 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
Recommended use of the chemical and restrictions on use Laboratory reagent.

Other Names	Name	Product Code
	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.
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.

Infosafe No™	1CHIU	Issue Date : September 2016	RE-ISSUED by ACR
--------------	-------	-----------------------------	------------------

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

3. Composition/information on ingredients

Chemical Characterization	Liquid				
Ingredients	<u>Name</u>	<u>CAS</u>	<u>Proportion</u>	<u>Hazard Symbol</u>	<u>Risk Phrase</u>
	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	If contact with the eye(s) occurs, wash with copious amounts of water for approximately 15 minutes holding eyelid(s) open. Take care not to rinse contaminated water into the non-affected eye. 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	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.

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 Regulations	Refer Australian Standard AS 3780-1994 'The storage and handling of corrosive substances'.

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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	A time weighted average (TWA) has been established for Silver, soluble compounds (as Ag) (Safe Work Australia) of 0.01 mg/m ³ and for Silver, metal (Safe Work Australia) of 0.1 mg/m ³ . 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.					
Appropriate engineering controls	In industrial situations 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	Normally not required.					
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	Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance. Recommendation: Excellent: NR latex. Good: Nitrile rubber gloves					
Personal Protective Equipment	Final choice of personal protective equipment will depend on individual circumstances and/or according to risk assessments undertaken.					
Body Protection	Clean clothing or protective clothing should be worn, preferably with an apron. 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	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.

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--------------	-------	-----------------------------	------------------

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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

Acute Toxicity - Oral	LD50 (rat): >2000 mg/kg (calculated on the pure substance).
Ingestion	Causes 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. A poison in higher concentrations.
Inhalation	Causes 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.
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.
Mutagenicity	Silver nitrate solution: no evidence of mutagenic properties. Silver nitrate: Laboratory experiments have shown mutagenic effects.

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. - (Silver Nitrate Solution)
Transport hazard class(es)	9
Hazchem Code	2X
Packaging Method	3.8.9
Packing Group	III

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EPG Number 9C1
IERG Number 47

15. Regulatory information

Regulatory Information Listed in the Australian Inventory of Chemical Substances (AICS).
Poisons Schedule S6
Other Information SL143: (S6)
 SL618: Not scheduled

16. Other Information

Literature References 'Standard for the Uniform Scheduling of Medicines and Poisons No. 15', Commonwealth of Australia, November 2016.
 Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997.
 National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007.
 Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', 2011.
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 Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'.
 Safe Work Australia, 'Hazardous Substances Information System, 2005'.
 Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'.
 Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995) 3rd Edition]'.
Contact Person/Point Paul McCarthy Ph. (08) 8440 2000 **DISCLAIMER STATEMENT:**
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