



Infosafe No™	1CHA7	Issue Date : January 2018	RE-ISSUED by CHEMSUPP
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Product Name : **QUININE SULFATE**

Classified as hazardous

**1. Identification**

<b>GHS Product Identifier</b>	QUININE SULFATE	
<b>Company Name</b>	CHEM-SUPPLY PTY LTD (ABN 19 008 264 211)	
<b>Address</b>	38 - 50 Bedford Street GILLMAN SA 5013 Australia	
<b>Telephone/Fax Number</b>	Tel: (08) 8440-2000 Fax: (08) 8440-2001	
<b>Recommended use of the chemical and restrictions on use</b>	Antimalarial medications, analgesic, antipyretic, anticholinergic, antihypertensive, and hypoglycemic agent, also used to treat nocturnal leg cramps, arthritis and patients with myotonia; flavour in carbonated beverages; used in photochemistry as a fluorescence standard; used as the chiral moiety for the ligands used in Sharpless asymmetric dihydroxylation; Potassium channel blocker and laboratory reagent.	
<b>Other Names</b>	<u>Name</u>	<u>Product Code</u>
	QUININE SULFATE LR	QL000
<b>Additional Information</b>	Quinine is listed as a Schedule 4 poison for human therapeutic use except when the maximum recommended daily dose is 50 mg or less of quinine in the 'Standard for the Uniform Scheduling of Drugs and Poisons No. 22', Commonwealth Department of Health and Ageing, Commonwealth of Australia, Canberra 2007.	
<b>Other Information</b>	EMERGENCY CONTACT NUMBER: +61 08 8440 2000 Business hours: 8:30am to 5:00pm, Monday to Friday.	

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**

<b>GHS classification of the substance/mixture</b>	Acute Toxicity - Dermal: Category 2 Eye Damage/Irritation: Category 2A Specific Target Organ Toxicity - Single Exposure Category 3 (respiratory tract irritation)
<b>Signal Word (s)</b>	WARNING
<b>Hazard Statement (s)</b>	H314 Causes severe skin burns and eye damage. H319 Causes serious eye irritation. H335 May cause respiratory irritation.
<b>Pictogram (s)</b>	Exclamation mark



<b>Precautionary statement – Prevention</b>	P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P264 Wash thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/protective clothing/eye protection/face protection.
<b>Precautionary statement – Response</b>	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. P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P312 Call a POISON CENTER or doctor/physician if you feel unwell. 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.



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**Precautionary statement – Storage** P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.

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

**3. Composition/information on ingredients**

**Chemical Characterization** Solid

**Information on Composition** Finely ground cinchona bark mixed with lime is extracted with hot, high-boiling paraffin oil. The solution is filtered, shaken with dilute sulfuric acid and the latter neutralised while still hot with sodium carbonate. On cooling, quinine sulfate crystallises out.

Ingredients	Name	CAS	Proportion	Hazard Symbol	Risk Phrase
	Quinine sulfate dihydrate	6119-70-6	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. Consult a physician.

**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. Seek medical attention if irritation develops or persists.

**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. If persistent irritation occurs, obtain medical attention.

**First Aid Facilities** Maintain eyewash fountain and drench facilities 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** Irritating and highly toxic gases, including carbon monoxide, nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>) and carbon dioxide.

**Specific Methods** Small fire: Use dry chemical, CO<sub>2</sub>, water spray or foam.

**Specific hazards arising from the chemical** May burn but do not ignite readily. Runoff may pollute waterways. Fire may produce irritating, poisonous and/or corrosive fumes.

**Decomposition Temp.** > 235 °C

**6. Accidental release measures**

**Personal Precautions** Avoid substance contact. Avoid generation of dusts: do not inhale dusts. Ensure supply of fresh air in enclosed rooms.

**Personal Protection** Wear protective clothing specified for normal operations (see Section 8)

**Clean-up Methods - Small Spillages** Sweep up (avoid generating dust) and using clean non-sparking tools transfer to a clean, suitable, clearly labelled container for disposal in accordance with local regulations.

**7. Handling and storage**

**Precautions for Safe Handling** Avoid ingestion and inhalation of dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Minimize dust generation and accumulation. Keep container tightly closed. Ensure good ventilation at the workplace. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Wash thoroughly after handling. Wear suitable protective clothing. Wash contaminated clothing before reuse.

**Conditions for safe storage, including any incompatibilities** Store in tightly closed, light-resistant containers, in a cool, dry, well-ventilated area, away from incompatible substances. Quinine sulfate darkens on exposure to light.



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**Storage Temperatures** Store at a temperature less than 40 °C, preferably between 15-30 °C.

**8. Exposure controls/personal protection**

**Other Exposure Information** No exposure standards have been established for this product by Safe Work Australia, however, the TWA exposure standard for dusts not otherwise specified is 10 mg/m<sup>3</sup>.

**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** 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.

**Hand Protection** Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance.

**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. 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** White or almost white fine, needle-like, white crystals which are usually lusterless and make a light and readily compressible mass, or crystalline powder. Becomes brownish on exposure to light.

**Odour** Odourless.

**Decomposition Temperature** > 235 °C

**Melting Point** 205 °C; ~225 °C (decomposes); 233-235 °C.

**Boiling Point** Decomposes

**Solubility in Water** Slightly soluble in water, sparingly soluble in boiling water (1 g/ 810 mL water (20 °C)).

**Solubility in Organic Solvents** Sparingly soluble in ethanol. Soluble in methanol. Solubilities of approximately 8.3 mg/ml in alcohol at 25 °C. Partially soluble in diethyl ether.

**pH** 5.7 - 6.6 (1 % suspension in water)

**Volatile Component** 0 %vol @ 21 °C

**Flammability** Combustible.

**Explosion Properties** Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

**Molecular Weight** 782.95

**Other Information** Taste: A persistent, very bitter taste.  
Specific Rotation: -237° to -245°.

**10. Stability and reactivity**

**Chemical Stability** Stable in sealed containers, under normal temperatures and pressures. Light sensitive - darkens and may decompose when exposed to light. Loses water with heat.

**Conditions to Avoid** Heat, dust generation, exposure to light and incompatible materials.

**Incompatible Materials** Acetates, ammonia, alkalis, benzoates, citrates, iodides, iodines, light, limewater, oxidizing agents, salicylates, tannic acid and tartrates.

**Hazardous Decomposition Products** Irritating and highly toxic gases, including carbon monoxide, nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>) and carbon dioxide.



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**Possibility of hazardous reactions** Reactive with strong oxidizers.**Hazardous Polymerization** Will not occur.**11. Toxicological Information**

<b>Ingestion</b>	May be harmful if swallowed. Cinchonism may occur following ingestion. Adverse signs and symptoms at therapeutic doses may include headaches, abdominal pain, nausea, vomiting, diarrhoea, tinnitus and reversible hearing loss. In higher doses, visual changes (including temporary blindness) may occur and more severe toxicity such as cardiotoxicity may be seen with still higher doses. Skin rashes and haemolytic uremic syndrome may occur in sensitive individuals even at therapeutic doses. Causes gastrointestinal irritation with nausea, vomiting and diarrhoea. Signs and symptoms may include headache, deafness, vomiting, abdominal pain, tachycardia, ataxia, paresthesias, blindness, prolonged PR, QRS and QT intervals, dysrhythmias, hypotension, syncope, respiratory arrest, coma, heart failure and death. Cardiovascular effects typically occur within 8 hours of ingestion. Cardiotoxicity which may be delayed until 25 hours after ingestion has been reported. ECG changes closely reflect relative tissue levels. Decreased visual acuity and visual field constriction may progress to sudden blindness with non-reactive, dilated pupils. Fixed dilated pupils are seen frequently in children following ingestion. Tinnitus (ringing in the ears) and concentration-dependent hearing impairment are frequent. Cardiotoxicity typically appears within 8 hours following ingestion of quinine. Respiratory depression may occur. CNS depression and seizures may occur. Central nervous system toxicity seems to be more marked in children than adults; children frequently present with seizures following an overdose. May cause systemic toxic effects on the heart, liver, and kidneys. Exposure may cause anaemia and other blood abnormalities. Immune-mediated pancytopenia and coagulopathy may occur at therapeutic doses of quinine. This may be associated with renal failure and the haemolytic uremic syndrome. Thrombocytopenia may result. Haemolytic anaemia may occur in patients with G6PD deficiency. Acute interstitial nephritis has been reported. May cause acute hepatitis. Dermatologic effects may include photosensitivity reactions and dermatitis. Hypoglycemia has been reported. Produces lethargy, drowsiness, irritability and dizziness. May cause acute pulmonary oedema, cardiomyopathy including infarction, flaccid paralysis without anesthesia and arnulocytosis. Hypersensitivity reactions may include skin rashes, drug fever, angioedema and acute renal failure. Death has occurred following doses greater than 4 g.
<b>Inhalation</b>	Harmful if inhaled. May cause irritation to the respiratory tract. Symptoms may include coughing and shortness of breath. Can be route for absorption in the body. May cause effects similar to those described for ingestion.
<b>Skin</b>	May cause skin irritation. May have some absorption. May be harmful if absorbed through the skin. May cause an allergic reaction in certain individuals.
<b>Eye</b>	May cause eye irritation, redness and pain.
<b>Carcinogenicity</b>	Not listed in the IARC Monographs.
<b>Reproductive Toxicity</b>	Adverse reproductive effects have been reported in animals. Anhydrous quinine sulfate shows reproductive effects in rats and mutagenic effects in bacteria. (RTECS) Quinine passes through the placenta. Use of quinine as an abortifacient can produce poisoning in the foetus with frequent infant deafness (Dannenberget al., 1983). Numerous malformations and foetal anomalies have been reported. Other suspected teratogenic effects of quinine include blindness and physical malformation. It passes into breast milk (Ellenhorn, M.J. and D.G. Barceloux. Medical Toxicology - Diagnosis and Treatment of Human Poisoning. New York, NY: Elsevier Science Publishing Co., Inc. 1988., p. 392). It has been reported to decrease male reproductive capacity.
<b>Chronic Effects</b>	Repeated or prolonged exposure to the substance can produce damage to the eyes, and liver, blood effects, stomach pains, vomiting, and diarrhoea. May produce central nervous system depression which may lead to cardiac and respiratory dysfunction. Prolonged or repeated skin contact may cause sensitization dermatitis and possible destruction and/or ulceration.
<b>Mutagenicity</b>	Quinine: DNA damage system-mammal (species unspecified); lym 100 mmol/L ('Dangerous Properties of Industrial Materials', 7th Ed., by N. Irving Sax and Richard J. Lewis).

**12. Ecological information****Environmental Fate** Quinine is chief alkaloid of cinchona, the bark of cinchona tree indigenous to certain regions of South America.**Environmental Protection** Do not allow to enter waters, waste water, or soil!**13. Disposal considerations**



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<b>Disposal Considerations</b>	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**

<b>Transport Information</b>	Not classified as a Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.
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**15. Regulatory information**

<b>Regulatory Information</b>	Not listed under WHS Regulation 2011, Schedule 10 - Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
<b>Poisons Schedule</b>	Not Scheduled

**16. Other Information**

<b>Literature References</b>	<p>'Standard for the Uniform Scheduling of Medicines and Poisons .', Commonwealth of Australia.</p> <p>Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997.</p> <p>National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007.</p> <p>Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', 2011.</p> <p>Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 2010.</p> <p>Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'.</p> <p>Safe Work Australia, 'Hazardous Substances Information System, 2005'.</p> <p>Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'.</p>
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**Contact****Person/Point**

Paul McCarthy Ph. (08) 8440 2000 **DISCLAIMER STATEMENT:**  
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**Empirical Formula & Structural Formula** (C<sub>20</sub>H<sub>24</sub>N<sub>2</sub>O<sub>2</sub>)•H<sub>2</sub>SO<sub>4</sub>•2H<sub>2</sub>O

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