

# Material Safety Data Sheet

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Infosafe No. 1CHDL Issue Date : October 2006 RE-ISSUED by CHEMSUPP

Product Name : **SODIUM PERCHLORATE Monohydrate**

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

**Product Name** SODIUM PERCHLORATE Monohydrate  
**Company Name** CHEM-SUPPLY PTY LTD (ABN 19 008 264 211)  
**Address** 50 Bedford Street GILLMAN  
SA 5013 Australia  
**Telephone/Fax Number** Tel: (08) 8440-2000 Fax: (08) 8440-2001  
**Recommended Use** Explosives; jet fuel; medication (radiation protection of thyroid); chemical intermediate for production of all other perchlorates; analytical reagent and laboratory reagent.  
**Other Names**

Name	Product Code
SODIUM PERCHLORATE Monohydrate LR	SL230
SODIUM PERCHLORATE Monohydrate AR	SA230

  
**Other Information** 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. HAZARDS IDENTIFICATION

**Hazard Classification** Classified as hazardous  
HAZARDOUS SUBSTANCE.  
DANGEROUS GOODS.  
Hazard classification according to the criteria of NOHSC.  
Dangerous goods classification according to the Australia Dangerous Goods Code.

**Risk Phrase(s)** Classified as hazardous  
R22 Harmful if swallowed.  
R9 Explosive when mixed with combustible material.

**Safety Phrase(s)** S13 Keep away from food, drink and animal feeding stuffs.  
S22 Do not breathe dust.  
S27 Take off immediately all contaminated clothing.

**Irritancy of Product** The substance irritates the eyes, the skin and the respiratory tract.

**Medical Conditions Generally Aggravated by Exposure** Persons with pre-existing eye, skin, blood or thyroid disorders, impaired respiratory or pulmonary function, or with a history of asthma may be at an increased risk upon exposure to this substance.

**Environmental Hazards** Adverse ecological effects cannot be excluded in the event of improper handling or disposal.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Chemical Characterization** Solid

Ingredients	Name	CAS	Proportion	Hazard Symbol	Risk Phrase
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Sodium Perchlorate monohydrate	7791-07-3	100 %	Xn, O	R22, R9
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## 4. FIRST AID MEASURES

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<b>Inhalation</b>	Remove from exposure, rest and keep warm. In severe cases seek medical attention.
<b>Ingestion</b>	Rinse mouth thoroughly with water immediately. Give water to drink. DO NOT induce vomiting. If vomiting occurs give further water to achieve effective dilution. Seek immediate medical assistance.
<b>Skin</b>	Wash affected areas with copious quantities of water immediately. Remove contaminated clothing and wash before re-use. Seek medical attention in severe cases.
<b>Eye</b>	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek immediate medical assistance.
<b>First Aid Facilities</b>	Maintain eyewash fountain and safety shower in work area.
<b>Advice to Doctor</b>	Treat symptomatically and supportively.
<b>Other Information</b>	If poisoning occurs, contact a Doctor or Poisons Information Centre. Phone 13 1126 from anywhere in Australia.

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## 5. FIRE FIGHTING MEASURES

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<b>Hazards from Combustion Products</b>	Irritating and highly toxic gases, hydrogen chloride (hydrochloric acid), chlorine, chloroxides, chlorine dioxide, which may be spontaneously explosive, oxygen, sodium oxide and halogenated compounds.
<b>Specific Methods</b>	Small fire: USE FLOODING QUANTITIES OF WATER. Do not use dry chemicals, CO2 or foam. If safe to do so, move undamaged containers from fire area. Do not move cargo if cargo has been exposed to heat. Large fire: Flood fire area with water from a protected position. Cool containers with flooding quantities of water until well after fire is out - If impossible, withdraw from area and let fire burn. Avoid getting water inside containers: a violent reaction may occur. Dam fire control water for later disposal.
<b>Sensitivity to Impact (Shock Sensitivity)</b>	Will turn shock-sensitive if contaminated with organic substances.
<b>Specific Hazards</b>	Will accelerate burning when involved in a fire. May explode from heating, shock, friction or contamination. Some will react explosively with hydrocarbons (fuels). May ignite combustibles (wood, paper, clothing, etc). Fire may produce irritating, poisonous, and/or corrosive gases. Containers may explode when heated. Runoff may create fire or explosion hazard.
<b>Hazchem Code</b>	2W
<b>Decomposition Temp.</b>	130 °C; >482 °C
<b>Precautions in connection with Fire</b>	Wear SCBA and chemical splash suit. Structural firefighter's uniform will provide limited protection.

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## 6. ACCIDENTAL RELEASE MEASURES

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<b>Spills &amp; Disposal</b>	Do not contaminate. Keep combustibles (wood, paper, clothing, oil, etc.) away from spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use water spray to knock down vapours or divert vapour clouds. Prevent entry into waterways, drains or confined areas. Prevent exposure to heat. <b>Dry Spill</b> Use clean non-sparking tools to transfer material to a clean, dry plastic container and cover loosely. Move container from spill area. <b>Small Liquid Spill</b> Use a non-combustible material like vermiculite, sand or earth to soak up the product and place in a loosely-covered container for later disposal. <b>Large Liquid Spill</b> SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.
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## 7. HANDLING AND STORAGE

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**Precautions for Safe Handling** Avoid contact with eyes, skin and clothing. Avoid ingestion and inhalation of vapour or dust. Avoid prolonged or repeated exposure. Minimize dust generation and accumulation. Use with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as reducing agents, combustible materials, organic materials, acids, moisture. Keep away from heat and all sources of ignition. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Rinse contaminated clothes (fire hazard) with plenty of water. Destroy contaminated leather clothing. Inform laundry personnel of contaminant's hazards. Do not take working clothes home. Carry out a full risk assessment before starting work; include a consideration of disposal of waste material, and the measures which will be taken to ensure this material does not come into contact with combustible or reactive substances.

**Conditions for Safe Storage** Store in tightly sealed containers in a cool, dry, well-ventilated area away from incompatible substances. Protect against physical damage. Keep well closed and protected from direct sunlight and moisture. Product is very hygroscopic. Take precautions to avoid contact with atmospheric moisture. Unsuitable: Do not store near, nor allow contact with, clothing and other combustible material. Separated from acids, alkalies, organic, readily oxidizable materials, sulfur, carbonaceous materials, cotton, combustible and reducing substances. Store in an area constructed of noncombustible materials. Avoid storage on wood floors. Keep away from heat and flame. Immediately remove and carefully dispose of any spilled perchlorate.

**Storage Regulations** Refer Australian Standard AS 4326-1995 'The storage and handling of oxidizing agents'.

**Storage Temperatures** Do not store above 23 °C. Store at room temperature (15 to 23 °C recommended).

**Unsuitable Materials** Organic material.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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**Other Exposure Information** A time weighted average (TWA) concentration for an 8 hour day, and 5 day week has not been established by NOHSC Australia for this product. There is a blanket limit of 10 mg/m<sup>3</sup> for dusts when limits have not otherwise been established.

**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. Recommendation: Good: Butyl rubber; chloropropylene; natural rubber; neoprene; nitrile rubber; nitrile/polyvinyl chloride; polyurethane; polyvinyl chloride.

**Body Protection** Flame retardant protective clothing. 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.

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**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

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**Form** Solid

**Appearance** White deliquescent crystals or powder.

**Odour** Odourless.

**Decomposition Temperature** 130 °C; >482 °C

**Melting Point** 130 °C (decomposition)

**Solubility in Water** Very soluble (209 g/100 cm<sup>3</sup> @ 15 °C, 284 g/100 cm<sup>3</sup> @ 50 °C).

**Solubility in Organic Solvents** Soluble in alcohol.

**Specific Gravity** 2.02

**pH Value** 6-8 (5% solution)

**Flammability** Not combustible but assists combustion of other substances.

**Explosion Properties** Forms explosive mixtures with combustible, organic or other easily oxidizable materials or finely powdered metal. These mixtures are easily ignited by friction or heat.  
Highly explosive in presence of reducing materials, of combustible materials, of organic materials.  
Explosive in presence of open flames and sparks.  
Explosive decomposition may occur under fire conditions.  
Forms explosive mixtures with alcohols.  
Mixture of calcium hydride or strontium hydride and perchlorates explodes violently when rubbed in a mortar.  
Perchlorates explode when mixed with reducing agents or when projected into red-hot charcoal.

**Molecular Weight** 140.46

**Oxidising Properties** Strong oxidiser. Contact with other material may cause fire.

**Burning Characteristics** Mixtures with perchlorates and organic materials, or combustible materials, or oxidizable materials are easily ignited by friction or heat.

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## 10. STABILITY AND REACTIVITY

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**Chemical Stability** Stable under normal temperatures and pressures. Deliquescent (tending to absorb atmospheric water vapor and become liquid).

**Conditions to Avoid** Dust generation, incompatible materials, combustible materials, moisture, heat, contamination, shock.

**Incompatible Materials** Organic materials, combustible materials, oxidizable substances, reducing agents; finely powdered metals, powdered magnesium + friction, acids, moisture, hydrazine and derivatives, calcium hydride or strontium hydride + friction; red-hot charcoal; amines; ammonia; sulfur; hydrocarbons.

**Hazardous Decomposition Products** Irritating and highly toxic gases, hydrogen chloride (hydrochloric acid), chlorine, chloroxides, chlorine dioxide, which may be spontaneously explosive, oxygen, sodium oxide and halogenated compounds.

**Hazardous Reactions** May form explosive mixtures with combustible material or finely powdered metals.  
Extremely reactive or incompatible with reducing agents, combustible materials, organic materials, forming explosive mixtures and causing fire and explosion hazard.  
Reactive with acids, moisture.

**Hazardous Polymerization** Has not been reported.

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## 11. TOXICOLOGICAL INFORMATION

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**Inhalation** May cause respiratory tract irritation.

**Ingestion** May cause irritation of the digestive tract. Some references indicate that perchlorates can cause reversible methaemoglobinaemia (conversion of oxygen-carrying components of the blood to an inactive form). The earliest symptoms of poisoning are headache and a bluish colouration of the lips and skin (cyanosis). No reports of this effect were located.

**Skin** May cause skin irritation. Not expected to cause an allergic skin reaction.

**Eye** Causes severe eye irritation. Reversible corneal opacity and severe irritation was observed in rabbits following a single application of 0.1 gram of technical sodium perchlorate. The irritation persisted in 5/6 animals at 7 days post-exposure.

**Chronic Effects** May interfere with iodine uptake of the thyroid gland and enlarge it. May have effects on the blood, resulting in formation of methaemoglobin.

**Carcinogenicity** Not listed in the IARC Monographs.

**Acute Toxicity - Oral** LD50 (rat): 2100 mg/kg (anhydrous substance).

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## 12. ECOLOGICAL INFORMATION

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**Ecological Information** Adverse ecological effects cannot be excluded in the event of improper handling or disposal.

**Persistence / Degradability** The products of degradation are as toxic as the product itself.

**Environ. Protection** Do not allow to enter waters, waste water, or soil!

**Acute Toxicity - Fish** *Leuciscus idus* LC50: 1850 mg/l /48 h (relating to anion).

**Acute Toxicity - Daphnia** *Daphnia magna* EC50: 1077 mg/l /24 h (relating to anion).

**Acute Toxicity - Algae** *Scenedesmus quadricauda* IC5: 360 mg/l /7 d (relating to anion).

**Acute Toxicity - Bacteria** *Microcystis aeruginosa* EC5: 79 mg/l /8 d (relating to anion).

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## 13. DISPOSAL CONSIDERATIONS

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**Disposal Considerations** Dispose of according to relevant local, state and federal government regulations.

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## 14. TRANSPORT INFORMATION

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**Transport Information** Dangerous Goods of Class 5.1 Oxidising Agents are incompatible in a placard load with any of the following: - Class 1, Class 2.1, Class 2.3, Class 3, Class 4, Class 5.2, Class 7, Class 8, Fire risk substances and combustible liquids.

**U.N. Number** 1502

**Proper Shipping Name** SODIUM PERCHLORATE

**DG Class** 5.1

**Hazchem Code** 2W

**Packaging Method** 3.8.5.1

**Packing Group** II

**EPG Number** 5A1

**IERG Number** 31

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## 15. REGULATORY INFORMATION

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**Poisons Schedule** Not Scheduled

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**Hazard Category** Harmful, Oxidising

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## 16. OTHER INFORMATION

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**Contact Person/Point** Paul McCarthy Ph. (08) 8440 2000      **DISCLAIMER STATEMENT:**  
All information provided in this data sheet or by our technical representatives is compiled from the best knowledge available to us. However, since data, safety standards and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, we make no warranty either expressed or implied, with respect to the completeness or accuracy to the information contained herein. Chem-Supply accepts no responsibility whatsoever for its accuracy or for any results that may be obtained by customers from using the data and disclaims all liability for reliance on information provided in this data sheet or by our technical representatives.

**Empirical Formula & Structural Formula** NaClO<sub>4</sub>.H<sub>2</sub>O

**Literature References**

Commonwealth Department of Health and Aged Care, 'Standard for the Uniform Scheduling of Drugs and Poisons No. 21', Commonwealth of Australia, Canberra 2006.

Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley & Sons, Inc., NY, 1997.

National Road Transport Commission, 'Australian Dangerous Goods Code 6th. Ed.', AGPS, Canberra, 1998.

South Australia Government, 'Approved Code of Practice for the Labelling of Workplace Substances', 1995.

Standards Australia 'AS 1940-2004 The Storage and Handling of Flammable and Combustible Liquids.

Standards Australia, 'SAA/SNZ HB 76:2004 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, August 2004.

Worksafe Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004)]', AusInfo, Canberra 2004.

Worksafe Australia, 'Hazardous Substances Information System, 2005'.

Worksafe Australia, 'National Code of Practice for the Labelling of Workplace Substances [NOHSC:2012(1994)]', AGPS, Canberra 1994.

Worksafe Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)]', AusInfo, Canberra 1995.

<b>User Codes</b>	<b>User Field Title</b>	<b>User Code</b>
	Risk Phrases	9-22
	Safety phrases	13-22-27
	CAS No.	7791-07-3
	...End Of MSDS...	