

### 1. IDENTIFICATION

<b>Product Name</b>	<b>Calcium Chloride Anhydrous</b>
<b>Other Names</b>	Calcium chloride (CaCl <sub>2</sub> ); Calcium Chloride dehydrated; Calcium Chloride Solid; Calcium Chloride technical grade
<b>Uses</b>	No Data Available
<b>Chemical Family</b>	No Data Available
<b>Chemical Formula</b>	CaCl <sub>2</sub> .xH <sub>2</sub> O; where x equals 1 to 2
<b>Chemical Name</b>	Calcium Chloride Anhydrous
<b>Product Description</b>	No Data Available

#### Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

#### Emergency Contact Details

*For emergencies only; DO NOT contact these companies for general product advice.*

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

### 2. HAZARD IDENTIFICATION

**Poisons Schedule (Aust)** No Data Available

#### Globally Harmonised System

**Hazard Classification** Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

**Hazard Categories** Serious Eye Damage/Irritation - Category 2A



**Signal Word** Warning

**Hazard Statements** **H319** Causes serious eye irritation.

**Precautionary Statements** Prevention **P264** Wash exposed skin thoroughly after handling.

**P280** Wear eye protection/face protection.

Response **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.

### National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

**Dangerous Goods Classification** NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

### Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

<b>HSNO Classifications</b>	Health Hazards	<b>6.1D</b>	Substances that are acutely toxic - Harmful
		<b>6.1E</b>	Substances that are acutely toxic –May be harmful, Aspiration hazard
		<b>6.3A</b>	Substances that are irritating to the skin
		<b>6.4A</b>	Substances that are irritating to the eye
	Environmental Hazards	<b>9.3C</b>	Substances that are harmful to terrestrial vertebrates

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Calcium Chloride	CaCl <sub>2</sub>	10043-52-4	94 - 97 %
Iron Compounds (as Fe)	No Data Available		0.005% MAX %
Other Chlorides (as NaCl)	No Data Available		5.50% MAX %
Water	No Data Available	7732-18-5	0.10% MAX %

## 4. FIRST AID MEASURES

### Description of necessary measures according to routes of exposure

**Swallowed** Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If large quantities of this material

	are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
<b>Eye</b>	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.
<b>Skin</b>	In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention. Serious Skin Contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
<b>Inhaled</b>	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
<b>Advice to Doctor</b>	Treat symptomatically based on judgement of doctor and individual reactions of patient.
<b>Medical Conditions Aggravated by Exposure</b>	No information available on medical conditions aggravated by exposure to this product.

## 5. FIRE FIGHTING MEASURES

<b>General Measures</b>	Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk.
<b>Flammability Conditions</b>	Product is a non-flammable solid.
<b>Extinguishing Media</b>	In case of fire, use appropriate extinguishing media most suitable for surrounding fire conditions.
<b>Fire and Explosion Hazard</b>	Furan-2-peroxycarboxylic acid + calcium chloride causes explosion at room temperature.
<b>Hazardous Products of Combustion</b>	Hygroscopic. Reacts violently (violent boiling) with water, generating heat. Forms flammable gases and evolves hydrogen when reacted with zinc. Solutions attack some metals. Generates heat and violent polymerization occurs when mixed with methyl vinyl ether. Bromine trifluoride reacts violently with and attacks calcium chloride.
<b>Special Fire Fighting Instructions</b>	Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
<b>Personal Protective Equipment</b>	Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves).
<b>Flash Point</b>	No Data Available
<b>Lower Explosion Limit</b>	No Data Available
<b>Upper Explosion Limit</b>	No Data Available
<b>Auto Ignition Temperature</b>	No Data Available
<b>Hazchem Code</b>	No Data Available

## 6. ACCIDENTAL RELEASE MEASURES

<b>General Response Procedure</b>	Avoid accidents, clean up immediately. Slippery when spilled. Eliminate all sources of ignition. Increase ventilation. Avoid generating dust. Stop leak if safe to do so. Isolate the danger area. Use clean, non-sparking tools and equipment.
<b>Clean Up Procedures</b>	Contain and sweep/shovel up spills with dust binding material or use an industrial vacuum cleaner. Transfer to a suitable, labelled container and dispose of promptly as hazardous waste.
<b>Containment</b>	Stop leak if safe to do so. Isolate the danger area.
<b>Environmental Precautionary Measures</b>	Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management.
<b>Evacuation Criteria</b>	Evacuate all unnecessary personnel.
<b>Personal Precautionary Measures</b>	Personnel involved in the clean up should wear full protective clothing as listed in section 8.

## 7. HANDLING AND STORAGE

<b>Handling</b>	Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do not inhale product dust/fumes.
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Hygroscopic. Reacts violently (violent boiling) with water, generating heat. Forms flammable gases and evolves hydrogen when reacted with zinc. Solutions attack some metals. Generates heat and violent polymerization occurs when mixed with methyl vinyl ether. Bromine trifluoride reacts violently with and attacks calcium chloride.

**Storage** Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Hygroscopic compound. Protect against moisture. Do not store above 30 Deg C. This product is not classified dangerous for transport according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.

**Container** Store in original packaging as approved by manufacturer.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>General</b>	No exposure standard has been established for this product by The Safe Work Australia (SWA). However, the exposure standard for dust not otherwise specified is 10mg/m <sup>3</sup> (for inspirable dust) and 3mg/m <sup>3</sup> (for respirable dust). NOTE: 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. These 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 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.
<b>Exposure Limits</b>	No Data Available
<b>Biological Limits</b>	No information available on biological limit values for this product.
<b>Engineering Measures</b>	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Adequate ventilation should be provided so that exposure limits are not exceeded.
<b>Personal Protection Equipment</b>	RESPIRATOR: Wear an effective dust mask where dusts are generated and engineering controls are inadequate (AS1715/1716). EYES: Safety glasses, splash goggles (AS1336/1337). HANDS: Protective gloves (AS2161). CLOTHING: Long-sleeved protective clothing and safety footwear (AS3765/2210).
<b>Work Hygienic Practices</b>	No Data Available

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State</b>	Solid
<b>Appearance</b>	Flakes, powder, or a solid mass
<b>Odour</b>	Odourless
<b>Colour</b>	Colourless, White, offwhite.
<b>pH</b>	9 1% solution in water
<b>Vapour Pressure</b>	Practically 0 @ 20 deg C (@ No Data Available)
<b>Relative Vapour Density</b>	No Data Available
<b>Boiling Point</b>	1670 °C
<b>Melting Point</b>	772 °C
<b>Freezing Point</b>	No Data Available
<b>Solubility</b>	Soluble
<b>Specific Gravity</b>	2.15 water = 1
<b>Flash Point</b>	No Data Available
<b>Auto Ignition Temp</b>	No Data Available
<b>Evaporation Rate</b>	No Data Available
<b>Bulk Density</b>	No Data Available
<b>Corrosion Rate</b>	No Data Available
<b>Decomposition Temperature</b>	No Data Available

<b>Density</b>	No Data Available
<b>Specific Heat</b>	No Data Available
<b>Molecular Weight</b>	110.99 g/mole
<b>Net Propellant Weight</b>	No Data Available
<b>Octanol Water Coefficient</b>	No Data Available
<b>Particle Size</b>	No Data Available
<b>Partition Coefficient</b>	No Data Available
<b>Saturated Vapour Concentration</b>	No Data Available
<b>Vapour Temperature</b>	No Data Available
<b>Viscosity</b>	No Data Available
<b>Volatile Percent</b>	No Data Available
<b>VOC Volume</b>	No Data Available
<b>Additional Characteristics</b>	Easily soluble in cold water, hot water, acetone. Freely soluble in alcohol. Soluble in Acetic Acid. Taste: Saline. Non-corrosive in presence of glass.
<b>Potential for Dust Explosion</b>	No Data Available
<b>Fast or Intensely Burning Characteristics</b>	No Data Available
<b>Flame Propagation or Burning Rate of Solid Materials</b>	No Data Available
<b>Non-Flammables That Could Contribute Unusual Hazards to a Fire</b>	No Data Available
<b>Properties That May Initiate or Contribute to Fire Intensity</b>	No Data Available
<b>Reactions That Release Gases or Vapours</b>	No Data Available
<b>Release of Invisible Flammable Vapours and Gases</b>	No Data Available

## 10. STABILITY AND REACTIVITY

<b>General Information</b>	Hygroscopic.
<b>Chemical Stability</b>	Product is stable under normal conditions of use, storage and temperature.
<b>Conditions to Avoid</b>	Incompatible materials, moisture.
<b>Materials to Avoid</b>	Reactive with moisture.
<b>Hazardous Decomposition Products</b>	Hygroscopic. Reacts violently (violent boiling) with water, generating heat. Forms flammable gases and evolves hydrogen when reacted with zinc. Solutions attack some metals. Generates heat and violent polymerization occurs when mixed with methyl vinyl ether. Bromine trifluoride reacts violently with and attacks calcium chloride.
<b>Hazardous Polymerisation</b>	Will not occur.

## 11. TOXICOLOGICAL INFORMATION

<b>General Information</b>	ORAL (LD50): Acute: 1000 mg/kg [Rat] 1940 mg/kg[Mouse] Lowest Published Lethal Dose: LDL [Rabbit] - Route: Oral; Dose: 1384 mg/kg The substance may be toxic to heart, cardiovascular system. Repeated or prolonged exposure to the substance can produce target organs damage. Chronic Effects on Humans: MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. May cause damage to the following organs: heart, cardiovascular system. May affect genetic material based on animal data. May cause cancer (tumorigenic) based on animal data.
<b>Eyelirritant</b>	May cause severe irritation, possible transient corneal injury, and possible eye burns. Inhalation: May cause severe irritation of the upper respiratory tract with pain, inflammation and possible burns.

<b>Ingestion</b>	May cause severe gastrointestinal (digestive) tract irritation with nausea, vomiting and possible burns. May affect cardiovascular system (cardiac disturbances, slow heart beat), behavior (seizures), metabolism, blood, and brain, respiration (rapid respiration).
<b>Inhalation</b>	Irritation of nasal mucosa and mouth.
<b>Skin Irritant</b>	May cause severe irritation and possible burns, especially if skin is wet. Contact with dry skin causes mild irritation. Contact of solid with moist/wet skin or skin contact with strong solutions may cause marked irritation or possible burns.
<b>Carcinogen Category</b>	No Data Available

## 12. ECOLOGICAL INFORMATION

<b>Ecotoxicity</b>	Ecotoxicity in water (LC50): 100 mg/l 96 hours [Fish].
<b>Persistence/Degradability</b>	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise. The products of degradation are less toxic than the product itself.
<b>Mobility</b>	No information available on mobility for this product.
<b>Environmental Fate</b>	Avoid contaminating waterways, drains and sewers.
<b>Bioaccumulation Potential</b>	No information available on bioaccumulation for this product.
<b>Environmental Impact</b>	No Data Available

## 13. DISPOSAL CONSIDERATIONS

<b>General Information</b>	Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility.
<b>Special Precautions for Land Fill</b>	Contact a specialist disposal company or the local waste regulator for advice.

## 14. TRANSPORT INFORMATION

### Land Transport (Australia)

ADG Code

<b>Proper Shipping Name</b>	Calcium Chloride Anhydrous
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available

### Land Transport (New Zealand)

NZS5433

<b>Proper Shipping Name</b>	Calcium Chloride Anhydrous
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available

<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available

### Land Transport (United States of America)

US DOT

<b>Proper Shipping Name</b>	Calcium Chloride Anhydrous
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available

### Sea Transport

IMDG Code

<b>Proper Shipping Name</b>	Calcium Chloride Anhydrous
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>EMS</b>	No Data Available
<b>Marine Pollutant</b>	No

### Air Transport

IATA DGR

<b>Proper Shipping Name</b>	Calcium Chloride Anhydrous
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available

### National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

<b>Dangerous Goods Classification</b>	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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## 15. REGULATORY INFORMATION

<b>General Information</b>	No Data Available
<b>Poisons Schedule (Aust)</b>	No Data Available

## Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

**Approval Code** HSR003389

### National/Regional Inventories

<b>Australia (AICS)</b>	Listed
<b>Canada (DSL)</b>	Not Determined
<b>Canada (NDSL)</b>	Not Determined
<b>China (IECSC)</b>	Not Determined
<b>Europe (EINECS)</b>	Not Determined
<b>Europe (REACH)</b>	Not Determined
<b>Japan (ENCS/METI)</b>	Not Determined
<b>Korea (KECI)</b>	Not Determined
<b>Malaysia (EHS Register)</b>	Not Determined
<b>New Zealand (NZIoC)</b>	Not Determined
<b>Philippines (PICCS)</b>	Not Determined
<b>Switzerland (Giftliste 1)</b>	Not Determined
<b>Switzerland (Inventory of Notified Substances)</b>	Not Determined
<b>Taiwan (NCSR)</b>	Not Determined
<b>USA (TSCA)</b>	Not Determined

## 16. OTHER INFORMATION

**Related Product Codes** CACHLO0400, CACHLO0700, CACHLO0800, CACHLO0900, CACHLO1000, CACHLO1001, CACHLO1002, CACHLO1003, CACHLO1004, CACHLO1005, CACHLO1006, CACHLO1007, CACHLO1008, CACHLO1009, CACHLO1010, CACHLO1011, CACHLO1012, CACHLO1013, CACHLO1014, CACHLO1015, CACHLO1016, CACHLO1017, CACHLO1018, CACHLO1019, CACHLO1020, CACHLO1021, CACHLO1022, CACHLO1023, CACHLO1024, CACHLO1025, CACHLO1026, CACHLO1027, CACHLO1200, CACHLO1900, CACHLO2000, CACHLO2040, CACHLO2100, CACHLO2230, CACHLO2240, CACHLO2710, CACHLO2810, CACHLO2900, CACHLO2901, CACHLO2902, CACHLO3040, CACHLO3041, CACHLO3045, CACHLO3420, CACHLO3430, CACHLO3440, CACHLO4200, CACHLO4201, CACHLO4300, CACHLO4400, CACHLO4450, CACHLO4451, CACHLO4500, CACHLO4501, CACHLO4600, CACHLO4700, CACHLO4710, CACHLO4711, CACHLO4800, CACHLO4801, CACHLO4850, CACHLO4851, CACHLO4852, CACHLO5321, CACHLO5800, CACHLO5900, CACHLO6000, CACHLO6001, CACHLO6002, CACHLO6400, CACHLO6410, CACHLO6500, CACHLO6501, CACHLO6600, CACHLO6700, CACHLO6800, CACHLO7710, CACHLO7720, CACHLO7810, CACHLO8400, CACHLO8500, CACHLO8501, CACHLO8700, CACHLO8800, CACHLO8900, CACHLO9500, CACHLO9600, CACHLO9800, CACHLO9900, CACHLO9991

**Revision** 3

**Revision Date** 16 Feb 2015

**Key/Legend**  
< Less Than  
> Greater Than  
**AICS** Australian Inventory of Chemical Substances  
**atm** Atmosphere  
**CAS** Chemical Abstracts Service (Registry Number)



**cm<sup>2</sup>** Square Centimetres  
**CO<sub>2</sub>** Carbon Dioxide  
**COD** Chemical Oxygen Demand  
**deg C (°C)** Degrees Celcius  
**EPA (New Zealand)** Environmental Protection Authority of New Zealand  
**deg F (°F)** Degrees Farenheit  
**g** Grams  
**g/cm<sup>3</sup>** Grams per Cubic Centimetre  
**g/l** Grams per Litre  
**HSNO** Hazardous Substance and New Organism  
**IDLH** Immediately Dangerous to Life and Health  
**immiscible** Liquids are insoluable in each other.  
**inHg** Inch of Mercury  
**inH<sub>2</sub>O** Inch of Water  
**K** Kelvin  
**kg** Kilogram  
**kg/m<sup>3</sup>** Kilograms per Cubic Metre  
**lb** Pound  
**LC<sub>50</sub>** LC stands for lethal concentration. LC<sub>50</sub> is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.  
**LD<sub>50</sub>** LD stands for Lethal Dose. LD<sub>50</sub> is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.  
**ltr** or **L** Litre  
**m<sup>3</sup>** Cubic Metre  
**mbar** Millibar  
**mg** Milligram  
**mg/24H** Milligrams per 24 Hours  
**mg/kg** Milligrams per Kilogram  
**mg/m<sup>3</sup>** Milligrams per Cubic Metre  
**Misc** or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.  
**mm** Millimetre  
**mmH<sub>2</sub>O** Millimetres of Water  
**mPa.s** Millipascals per Second  
**N/A** Not Applicable  
**NIOSH** National Institute for Occupational Safety and Health  
**NOHSC** National Occupational Heath and Safety Commission  
**OECD** Organisation for Economic Co-operation and Development  
**Oz** Ounce  
**PEL** Permissible Exposure Limit  
**Pa** Pascal  
**ppb** Parts per Billion  
**ppm** Parts per Million  
**ppm/2h** Parts per Million per 2 Hours  
**ppm/6h** Parts per Million per 6 Hours  
**psi** Pounds per Square Inch  
**R** Rankine  
**RCP** Reciprocal Calculation Procedure  
**STEL** Short Term Exposure Limit  
**TLV** Threshold Limit Value  
**tne** Tonne  
**TWA** Time Weighted Average  
**ug/24H** Micrograms per 24 Hours  
**UN** United Nations  
**wt** Weight