

1. IDENTIFICATION

Product Name	Calcium Chloride Anhydrous			
Other Names	Calcium Chloride dehydrated; Calcium Chloride Solid; Calcium Chloride technical grade			
Uses	No Data Available			
Chemical Family	No Data Available			
Chemical Formula	$\text{CaCl}_2 \cdot x\text{H}_2\text{O}$; where x equals 1 to 2			
Chemical Name	Calcium Chloride Anhydrous			
Product Description	No Data Available			
Contact Information	Organisation	Location	Telephone	Ask For
	Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia 11 Mayo Road Wiri Auckland 2104 New Zealand	+61-2-97333000 +64-9-2506222	MSDS Officer
	Poisons Information Centre	Westmead NSW	1800-251525 131126	
	Chemcall	Australia New Zealand	1800-127406 0800-243622 +64-3-3530199	
	National Poisons Centre	New Zealand	0800-764766	

2. HAZARD IDENTIFICATION

ADG Code	Non-Dangerous Goods according to the criteria of the Australian Dangerous Goods Code (ADG Code).		
ASCC Hazard Classification	Hazardous according to the criteria of ASCC [NOHSC:1008(2004)]		
Categories	Xi	Irritant	
Risk Phrases	R36	Irritating to eyes.	
Safety Phrases	S22	Do not breathe dust.	
	S24	Avoid contact with skin.	
HSNO Hazard Classification	6.1D; 6.3A; 6.4A; 9.3C		
Poisons Schedule (Aust)	No Data Available		

This Material Safety Data Sheet may not provide exhaustive guidance for all HSNO Controls assigned to this substance. The [EPA \(New Zealand\) web site](#) should be consulted for a full list of triggered controls and cited regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Other Chlorides (as NaCl)	No Data Available		5.50% MAX %
Water	No Data Available	7732-18-5	0.10% MAX %
CaCl_2 Flakes	No Data Available	10043-52-4	74.00 % MIN %

Iron Compounds (as Fe)	No Data Available	0.005% MAX %
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4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	Rinse mouth with water. Give water to drink. Seek medical advice immediately.
Eye	Immediately flush eyes with plenty of water for 15 minutes, holding eyelids open. Seek medical attention preferably from an ophthalmologist.
Skin	Wash the contaminated area with warm water, apply protective cream, in case of strong irritation-consult a physician.
Inhaled	Remove victim from exposure to fresh air - avoid becoming a casualty. Seek medical advice if effects persist.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of patient.
Medical Conditions Aggravated by Exposure	No information available on medical conditions aggravated by exposure to this product. Effects of acute overexposure: possible conjunctivitis, ingestion of significant amount of calcium chloride may result may result in cardiac arrhythmia.

5. FIRE FIGHTING MEASURES

General Measures	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.
Flammability Conditions	Product is a non-flammable solid.
Extinguishing Media	In case of fire, use appropriate extinguishing media most suitable for surrounding fire conditions.
Hazardous Products of Combustion	No Data Available
Special Fire Fighting Instructions	Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
Personal Protective Equipment	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).
Flash Point	Non flammable
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	Does not ignite
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	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.
Clean Up Procedures	Contain and sweep/shovel up spills with dust binding material. Transfer to a suitable, labelled container and dispose of promptly as hazardous waste.
Containment	Stop leak if safe to do so. Isolate the danger area.
Environmental Precautionary Measures	Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management.
Evacuation Criteria	Evacuate all unnecessary personnel.
Personal Precautionary Measures	Personnel involved in the clean up should wear full protective clothing as listed in section 8.

7. HANDLING AND STORAGE

Handling	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
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discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do not inhale product dust/fumes.

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. Very Hygroscopic compound. Protect against moisture. 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. For calcium chloride in form of flakes: Polyethylene bags or polyethylene big-bags with polyethylene lining or polyethylene-coated. For cast calcium chloride-metal drums. For calcium chloride in form of powder: polypropylene bags in polyethylene lining.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No exposure standard has been established for this product by the Australian Safety and Compensation Council (ASCC). However, the exposure standard for dust not otherwise specified is 10mg/m ³ (for inspirable dust) and 3mg/m ³ (for respirable dust). Highest Permitted Concentration (HPC); Highest Permitted Concentration of a Chemical Substance (HPCCS); Highest Permitted Concentration of Dust (HPCD): HPC limit for non-toxic dusts containing up to 2% of free crystalline silica- 10mg/m ³ ; (calcium chloride dust in working places contains not more than 1% of crystalline silica).
Exposure Limits	No Data Available
Biological Limits	No information available on biological limit values for this product.
Engineering Measures	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.
Personal Protection Equipment	RESPIRATOR: Wear an effective dust mask where dusts are generated and engineering controls are inadequate (AS1715/1716). EYES: Protective goggles or face shield (AS1336/1337). HANDS: Protective gloves (AS2161). CLOTHING: Long-sleeved protective clothing and safety footwear (AS3765/2210).
Work Hygienic Practices	No Data Available

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Flakes, powder, or a solid mass
Odour	Odourless
Colour	White, slightly grey or cream, depending on content of iron compounds or other impurities.
pH	10.6 10% aqueous solution @ 20 deg C
Vapour Pressure	Practically 0 @ 20 deg C (@ No Data Available)
Relative Vapour Density	No Data Available
Boiling/Melting Point	1600 °C
Solubility	Well soluble in water - 745 g/L @ 20 deg C 1590 g/L @ 100 deg C
Freezing Point	No Data Available
Specific Gravity	No Data Available
Flash Point	Non flammable
Auto Ignition Temp	Does not ignite
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	260 deg C = complete dehydration °C
Density	2.512 g/cm ³
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available

Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	Soluble in acids, alcohols and in acetone. Molecular mass: Anhydrous CaCl_2 -111. Dihydrate ($\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$)-147 Thermal decomposition temperature: At 448K (175 deg C) product releases one molecule of water; at 533 K(260 deg C) - a complete dehydration takes place. Bulk density: Flakes 750-990kg/m ³ , Powder 600-750 kg/m ³ Molal heat capacity, Cp: 72.8J/mol K at 298K(25 deg C) Specific heat capacity, co: 0.66J/g K at 298K(25 deg C)
Potential for Dust Explosion	No Data Available
Fast or Intensely Burning Characteristics	No Data Available
Flame Propagation or Burning Rate of Solid Materials	No Data Available
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No Data Available
Properties That May Initiate or Contribute to Fire Intensity	No Data Available
Reactions That Release Gases or Vapours	No Data Available
Release of Invisible Flammable Vapours and Gases	No Data Available

10. STABILITY AND REACTIVITY

General Information	Calcium chloride is an alkaline. In powdered form - dusty.[] Highly Hygroscopic compound. Due to strong hygroscopic properties aqueous solutions of calcium chloride are corrosive. At high humidity level, solid calcium chloride is also corrosive (the property is not observed in dry condition and at limited humidity levels). Does not decompose below 1873K(1600 deg C).
Chemical Stability	Product is stable under normal conditions of use, storage and temperature.
Conditions to Avoid	No Data Available
Materials to Avoid	No Data Available
Hazardous Decomposition Products	No Data Available
Hazardous Polymerisation	No Data Available

11. TOXICOLOGICAL INFORMATION

General Information	DL50(per os), rat 1,000mg/kg b. w. DL50(per os),mouse: 1,940mg/kg b. w.
Eyelrritant	Irritating to eyes. Burning sensation and redness of eyes
Ingestion	Ingestion of large amounts of calcium chloride may cause cardiac rhythm disorders. Irritation of nasal mucosa and mouth.
Inhalation	Irritation of nasal mucosa and mouth.
SkinIrritant	Skin dryness.
Carcinogen Category	0

12. ECOLOGICAL INFORMATION

Ecotoxicity	<p>Threshold concentration of calcium chloride in water: 1,322ppm Threshold concentration of calcium chloride for live stock 1,000ppm</p> <p>Permitted waste load in water courses running into surface water reservoirs: PH=6.5 to 9.0 Chlorides: 1.000mg/l Solubalised substances: 2,000mg/l</p> <p>Dissolution limited of calcium chloride wastes in midland water: dissolution of calcium chloride in midland water should not result in chloride concentration and pH value exceeding acceptable limits of: class purity: chlorides 250mg/l pH 6.5 to 8.0 class purity: chlorides 300mg/l pH 6.5 to 9.0 class purity: chlorides 400mg/l pH 6.0 to 9.0</p>
Persistence/Degradability	No Data Available
Mobility	<p>Hazards for water and soil:</p> <ul style="list-style-type: none"> -penetration of large amount of calcium chloride into water reservoirs may cause harm to plants and aquatic organisms; -penetration of large amount of calcium chloride to the soil may increase its salinity.
Environmental Fate	Avoid contaminating waterways, drains and sewers.
Bioaccumulation Potential	No Data Available
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	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.
Special Precautions for Land Fill	Contact a specialist disposal company or the local waste regulator for advice.

14. TRANSPORT INFORMATION

ADG Code	Non-Dangerous Goods according to the criteria of the Australian Dangerous Goods Code (ADG Code).
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Air

IATA

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

Land

Australia: ADG

Proper Shipping Name	Calcium Chloride Anhydrous
Class	No Data Available
Subsidiary Risk(s)	No Data Available
EPG	No Data Available

UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

New Zealand: NZS5433

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

Sea

IMDG

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

15. REGULATORY INFORMATION

General Information	No Data Available
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EPA (New Zealand)

Hazardous Substances and New Organisms Act (HSNO)

Approval Code: HSR003389

Poisons Schedule (Aust)	No Data Available
AICS Name	Calcium chloride (CaCl ₂)

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, CACHLO2100, CACHLO2900, CACHLO2901, CACHLO2902, CACHLO4200, CACHLO4201, CACHLO4300, CACHLO4400, CACHLO4500, CACHLO4501, CACHLO4600, CACHLO4700, CACHLO4800, CACHLO4801, CACHLO5800, CACHLO5900, CACHLO6000, CACHLO6001, CACHLO6002, CACHLO6400, CACHLO6500, CACHLO6501, CACHLO6600, CACHLO6700, CACHLO6800, CACHLO8400, CACHLO8500, CACHLO8501, CACHLO8700, CACHLO8800, CACHLO8900, CACHLO9500, CACHLO9600, CACHLO9800, CACHLO9900,
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CACHLO3420, CACHLO3430, CACHLO3440, CACHLO4450, CACHLO4850

Revision

2

Revision Date

03-Jul-2013

Key/Legend

< Less Than
 > Greater Than
AICS Australian Inventory of Chemical Substances
atm Atmosphere
CAS Chemical Abstracts Service (Registry Number)
cm² Square Centimetres
CO₂ 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/cm³ 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
inH₂O Inch of Water
K Kelvin
kg Kilogram
kg/m³ Kilograms per Cubic Metre
lb Pound
LC₅₀ LC stands for lethal concentration. LC₅₀ 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.
LD₅₀ LD stands for Lethal Dose. LD₅₀ 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
m³ Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m³ Milligrams per Cubic Metre
Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.
mm Millimetre
mmH₂O 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
torr Millimetre of Mercury
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight