



an **imdex** limited company

AMC Defoamer

Chemwatch Material Safety Data Sheet

Issue Date: 1-Sep-2009

XC9317TC

Hazard Alert Code: NIL

CHEMWATCH 7176-51

Version No:3

CD 2011/2 Page 1 of 6

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

AMC Defoamer

PRODUCT USE

For use in drilling applications, for the prevention of foaming.

SUPPLIER

Company: AMC

Address:

5 Pitino Court

Osborne Park

WA, 6017

Australia

Telephone: +61 8 9445 4000

Emergency Tel: **+61 400 966 951**

Fax: +61 8 9445 4040

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to NOHSC Criteria, and ADG Code.

CHEMWATCH HAZARD RATINGS

Flammability
Toxicity
Body Contact
Reactivity
Chronic



SCALE: Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4

RISK

•None under normal operating conditions.

SAFETY

•None under normal operating conditions.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
poly glycol		40-100
water	7732-18-5	balance

continued...

AMC Defoamer

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Section 4 - FIRST AID MEASURES

SWALLOWED

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.

EYE

- If this product comes in contact with the eyes:
- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Seek medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- If skin or hair contact occurs:
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If fumes, aerosols or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

NOTES TO PHYSICIAN

- Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.

FIRE/EXPLOSION HAZARD

- Non combustible.
- Not considered a significant fire risk, however containers may burn.

FIRE INCOMPATIBILITY

- None known.

HAZCHEM

None

PERSONAL PROTECTION

Glasses:

Chemical goggles.

Gloves:

When handling larger quantities:

continued...

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Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.

MAJOR SPILLS

- Minor hazard.
- Clear area of personnel.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment as required.
- Prevent spillage from entering drains or water ways.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.

SUITABLE CONTAINER

- Polyethylene or polypropylene container.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

- None known.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- water:

CAS:7732- 18- 5

PERSONAL PROTECTION



EYE

- Safety glasses with side shields
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a

continued...

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent].

HANDS/FEET

■ Wear general protective gloves, eg. light weight rubber gloves.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity.

OTHER

■ No special equipment needed when handling small quantities.

OTHERWISE:

- Overalls.
- Barrier cream.
- Eyewash unit.

ENGINEERING CONTROLS

■ Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Clear straw liquid with a slight odour; mixes with water.

PHYSICAL PROPERTIES

Liquid.

Mixes with water.

State	Liquid	Molecular Weight	Not Applicable
Melting Range (°C)	Not Available	Viscosity	Not Available
Boiling Range (°C)	130	Solubility in water (g/L)	Miscible
Flash Point (°C)	Not Applicable	pH (1% solution)	Not Available
Decomposition Temp (°C)	Not Available	pH (as supplied)	6.0- 8.0
Autoignition Temp (°C)	Not Available	Vapour Pressure (kPa)	Not Available
Upper Explosive Limit (%)	Not Applicable	Specific Gravity (water=1)	1.05
Lower Explosive Limit (%)	Not Applicable	Relative Vapour Density (air=1)	Not Available
Volatile Component (%vol)	Not Available	Evaporation Rate	Not Available

Section 10 - STABILITY AND REACTIVITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

For incompatible materials - refer to Section 7 - Handling and Storage.

continued...

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Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

- Generally not applicable.

CHRONIC HEALTH EFFECTS

- Generally not applicable.

TOXICITY AND IRRITATION

AMC DEFOAMER:

- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY

Oral (Rat) LD50: >100 mg/kg

IRRITATION

WATER:

- No significant acute toxicological data identified in literature search.

Section 12 - ECOLOGICAL INFORMATION

No data

May be harmful to fauna if not disposed of according to Section 13 and legislative requirements. [AMC]

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
AMC Defoamer	No Data Available	No Data Available		

Section 13 - DISPOSAL CONSIDERATIONS

■ Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction.
- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or incineration in a licenced apparatus (after admixture with suitable combustible material).
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM:

None (ADG7)

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: UN, IATA, IMDG

continued...

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Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE None

REGULATIONS

Regulations for ingredients

water (CAS: 7732-18-5) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)", "IMO IBC Code Chapter 18: List of products to which the Code does not apply",
"International Fragrance Association (IFRA) Survey: Transparency List"

No data for AMC Defoamer (CW: 7176-51)

Section 16 - OTHER INFORMATION

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

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Issue Date: 1-Sep-2009

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This is the end of the MSDS.



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AMC Superfoam

Chemwatch Material Safety Data Sheet

Issue Date: 15-Apr-2011

XC9317TC

Hazard Alert Code: NIL

CHEMWATCH 6503-82

Version No:6

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

AMC Superfoam

PRODUCT USE

Drilling foaming agent.

SUPPLIER

Company: AMC

Address:

5 Pitino Court

Osborne Park

WA, 6017

Australia

Telephone: +61 8 9445 4000

Emergency Tel: **+61 400 966 951**

Fax: +61 8 9445 4040

Company: AMC

Address:

PO Box 1141

Osborne Park

WA, 6916

Australia

Telephone: +61 8 9445 4000

Emergency Tel: **+61 400 966 951**

Fax: +61 8 9445 4040

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to NOHSC Criteria, and ADG Code.

CHEMWATCH HAZARD RATINGS

Flammability
Toxicity
Body Contact
Reactivity
Chronic



SCALE: Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4

RISK

•None under normal operating conditions.

SAFETY

•None under normal operating conditions.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
anionic surfactants		>60
ethylene glycol monobutyl ether	111-76-2	10-30
other nonhazardous ingredients		balance

continued...

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Section 4 - FIRST AID MEASURES

SWALLOWED

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.

EYE

- If this product comes in contact with the eyes:
- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Seek medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- If skin or hair contact occurs:
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If fumes, aerosols or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

NOTES TO PHYSICIAN

- Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

FIRE FIGHTING

- Use water delivered as a fine spray to control fire and cool adjacent area.
- Do not approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.

FIRE/EXPLOSION HAZARD

- Non combustible.
- Not considered a significant fire risk, however containers may burn.

FIRE INCOMPATIBILITY

- None known.

HAZCHEM

None

PERSONAL PROTECTION

Glasses:
Chemical goggles.

Gloves:
1.SARANEX- 2.PE/EVAL/PE

Respirator:
Type A Filter of sufficient capacity

continued...

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Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment.
- Prevent spillage from entering drains, sewers or water courses.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.

SUITABLE CONTAINER

- Polyethylene or polypropylene container.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY

- Avoid contamination of water, foodstuffs, feed or seed.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
Australia Exposure Standards	ethylene glycol monobutyl ether (2-Butoxyethanol)	20	96.9	50	242				Sk

PERSONAL PROTECTION



continued...

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Hazard Alert Code: NIL

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

RESPIRATOR

• Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

EYE

- Safety glasses with side shields
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent].

HANDS/FEET

- Wear general protective gloves, eg. light weight rubber gloves.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity.

OTHER

- No special equipment needed when handling small quantities.

OTHERWISE:

- Overalls.
- Barrier cream.
- Eyewash unit.

ENGINEERING CONTROLS

■ Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Clear fluorescent yellow viscous liquid with a mild detergent odour; mixes with water.

PHYSICAL PROPERTIES

Liquid.

Mixes with water.

State	Liquid	Molecular Weight	Not Applicable
Melting Range (°C)	Not Available	Viscosity	Not Available
Boiling Range (°C)	~100	Solubility in water (g/L)	Miscible
Flash Point (°C)	Not Applicable	pH (1% solution)	Not Available
Decomposition Temp (°C)	Not Available	pH (as supplied)	7.5
Autoignition Temp (°C)	Not Applicable	Vapour Pressure (kPa)	Not Available
Upper Explosive Limit (%)	Not Applicable	Specific Gravity (water=1)	1.01
Lower Explosive Limit (%)	Not Applicable	Relative Vapour Density (air=1)	Not Available
Volatile Component (%vol)	Not Available	Evaporation Rate	Not Available

ethylene glycol monobutyl ether

log Kow (Prager 1995):

0.83

log Kow (Sangster 1997):

0.8

continued...

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Section 10 - STABILITY AND REACTIVITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

- Generally not applicable.

CHRONIC HEALTH EFFECTS

- Generally not applicable.

TOXICITY AND IRRITATION

AMC SUPERFOAM:

- Not available. Refer to individual constituents.

ETHYLENE GLYCOL MONOBUTYL ETHER:

- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY

Oral (rat) LD50: 470 mg/kg

Dermal (rabbit) LD50: 220 mg/kg

Inhalation (human) TCLo: 100 ppm

Inhalation (human) TCLo: 195 ppm/8h * [Union Carbide]

Inhalation (Rat) LC50: 450 ppm *

- The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis.

For ethylene glycol:

Ethylene glycol is quickly and extensively absorbed through the gastrointestinal tract. Limited information suggests that it is also absorbed through the respiratory tract; dermal absorption is apparently slow.

For ethylene glycol monoalkyl ethers and their acetates (EGMAEs):

Typical members of this category are ethylene glycol propylene ether (EGPE), ethylene glycol butyl ether (EGBE) and ethylene glycol hexyl ether (EGHE) and their acetates.

EGMAEs are substrates for alcohol dehydrogenase isozyme ADH-3, which catalyzes the conversion of their terminal alcohols to aldehydes (which are transient metabolites).

Acute Toxicity: Oral LD50 values in rats for all category members range from 739 (EGHE) to 3089 mg/kg bw (EGPE), with values increasing with decreasing molecular weight.

Exposure of pregnant rats to ethylene glycol monobutyl ether (2-butoxyethanol) at 100 ppm or rabbits at 200 ppm during organogenesis resulted in maternal toxicity and embryotoxicity including a decreased number of viable implantations per litter. Slight foetotoxicity in the form of poorly ossified or unossified skeletal elements was also apparent in rats.

At least one researcher has stated that the reproductive effects were less than that of other monoalkyl ethers of ethylene glycol.

NOTE: Changes in kidney, liver, spleen and lungs are observed in animals exposed to high concentrations of this substance by all routes.

IRRITATION

Skin (rabbit): 500 mg, open; Mild

Eye (rabbit): 100 mg/24h- Moderate

Eye (rabbit): 100 mg SEVERE

CARCINOGEN

2- Butoxyethanol

International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs

Group

3

SKIN

ethylene glycol monobutyl ether

Australia Exposure Standards - Skin

Notes

Sk

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Section 12 - ECOLOGICAL INFORMATION

No data
May be harmful to fauna if not disposed of according to Section 13 and legislative requirements. [AMC]

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
AMC Superfoam	No Data Available	No Data Available		
ethylene glycol monobutyl ether	LOW	LOW	LOW	HIGH

Section 13 - DISPOSAL CONSIDERATIONS

- Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area.
- A Hierarchy of Controls seems to be common - the user should investigate:
 - Reduction.
 - DO NOT allow wash water from cleaning or process equipment to enter drains.
 - It may be necessary to collect all wash water for treatment before disposal.
 - In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
 - Where in doubt contact the responsible authority.
 - Recycle wherever possible.
 - Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
 - Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or incineration in a licenced apparatus (after admixture with suitable combustible material).
 - Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM:

None (ADG7)

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: UN, IATA, IMDG

Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE None

REGULATIONS

Regulations for ingredients

ethylene glycol monobutyl ether (CAS: 111-76-2) is found on the following regulatory lists;
"Australia Exposure Standards", "Australia Hazardous Substances", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "IMO MARPOL 73/78 (Annex II) - List of Other Liquid Substances", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Fragrance Association (IFRA) Survey: Transparency List"

No data for AMC Superfoam (CW: 6503-82)

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AMC Superfoam

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Section 16 - OTHER INFORMATION

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

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Issue Date: 15-Apr-2011

Print Date: 28-Jul-2011

This is the end of the MSDS.



Material Safety Data Sheet

NFPA	HMIS	PPE	Symbol(s)						
	<table border="1"> <tr> <td>Health Hazard</td> <td>1</td> </tr> <tr> <td>Fire Hazard</td> <td>1</td> </tr> <tr> <td>Reactivity</td> <td>0</td> </tr> </table>	Health Hazard	1	Fire Hazard	1	Reactivity	0		
Health Hazard	1								
Fire Hazard	1								
Reactivity	0								

Preparation Date 3-Dec-2009

Revision Date 9-November-2011

Revision Number 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Description: 3000
MSDS #: 0070 325G
Recommended Use For industrial use only
Manufacturer
 Bestolife Corporation
 2777 Stemmons Freeway, Suite 1800
 Dallas, Texas 75207
 USA
 Internet: www.bestolife.com

Telephone Number
 (214) 631-6070

Emergency Telephone Number CHEMTREC: 800-424-9300 or 703-527-3887 (Transportation Emergencies; 24-hours/day)

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance Black	Physical State Solid.	Odor Petroleum odor.
-------------------------	------------------------------	-----------------------------

Potential Health Effects

Principle Routes of Exposure

The two major means of exposure are skin absorption and ingestion.

Acute Effects

Eyes

Contact with eyes may cause irritation.

Skin

Skin contact may cause irritation.

Inhalation

Not an expected route of entry.

Ingestion

This product may be absorbed by the digestive system. Ingestion can result in both acute and chronic overexposure.

Chronic Effects

Prolonged and repeated contact with the product may cause a defatting of the skin, dermatitis, folliculitis and/or oil acne.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions

Preexisting eye or skin disorders may be aggravated by prolonged contact with this product.

Potential Environmental Effects

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Weight %
-----------	--------	----------

Lubricating greases	74869-21-9	30-60
---------------------	------------	-------

Other Non-Hazardous Ingredients

Contains: 3% DMSO-extractable components

4. FIRST AID MEASURES

Eye Contact	Flush with copious amounts of water. Get immediate medical attention.
Skin Contact	Wash thoroughly with soap and water. If irritation occurs, get medical attention.
Inhalation	Remove from exposure. Get medical attention if experiencing cough, irritation or difficult breathing.
Ingestion	Get immediate medical attention. DO NOT INDUCE VOMITING Possible aspiration hazard.
Notes to Physician	The hydrocarbons contained in this product may be mild irritants of the eyes and mucous membranes. Prolonged or repeated skin contact, especially with poor personal hygiene, may cause skin disorders. For combustion product effects see Hazardous Combustion Products in Section 5. Fire-Fighting Measures.
Protection of First-aiders	Avoid contact with skin, eyes and clothing. Use personal protective equipment.

5. FIRE-FIGHTING MEASURES

Flammable Properties	No information available			
Suitable Extinguishing Media	Dry chemical, water fog, foam, or carbon dioxide may be suitable for extinguishing fires involving this product.			
Unsuitable extinguishing media.	Observe caution when using water or foam as frothing may occur.			
Explosion Limits				
Hazardous Combustion Products	Combustion products are highly dependent on the combustion conditions. CO, CO2, CaO, oxygenates, and unidentified organic compounds may be formed during combustion, High temperatures may produce vapor and/or dust, Combustion products may cause effects of overexposure as noted in Section 2. Hazards Identification, They may also cause headache; dizziness; coma; convulsion; weakness; drowsiness; tachypnea; nausea; paresthesias; dyspnea; asphyxiation; mild to severe eye, skin or respiratory tract irritation; cough; pneumoconiosis; and/or lung damage, Other unidentified health effects may occur.			
Impact Sensitivity	Not applicable.			
Sensitivity to static discharge	Not applicable.			
Specific Hazards Arising from the Chemical	Product fume and/or vapor may be irritating or toxic if inhaled.			
Protective Equipment and Precautions for Firefighters	Use full-body protection and full-face, self-contained breathing apparatus operated in a positive-pressure mode. Use water spray (fog) to cool containers and disperse vapors.			
NFPA	<table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">Health 1</td> <td style="width: 33%;">Flammability 1</td> <td style="width: 33%;">Instability 0</td> </tr> </table>	Health 1	Flammability 1	Instability 0
Health 1	Flammability 1	Instability 0		

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Avoid contact with the skin and the eyes.
Environmental Precautions	Keep petroleum products out of streams and waterways. Assure conformity with applicable government regulations.
Methods for cleaning up	Clean area with an appropriate cleanser.
Other Information	Not applicable

7. HANDLING AND STORAGE

Handling	Avoid skin contact and use personal protection when handling product, waste product, or contaminated equipment. Wash with soap and water after use. Prolonged and repeated contact can cause defatting action of the skin and may cause disorders such as dermatitis, folliculitis, and oil acne. Work clothes and equipment should remain in designated areas. Before reuse, launder contaminated clothing separate from personal clothing. This product is intended for industrial use only. Isolate from children and their environment. This product may separate. Stir well before use. The flash point of this product depends on the degree of separation.
Storage	Store in a cool, dry area where accidental contact with acids is not possible. Keep storage containers closed when not in use. Do not store or handle near high temperature or open flame.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

NIOSH IDLH: Not applicable.

Engineering Measures	No special ventilation requirements under conditions of normal use (air concentrations below PEL/TLV levels).
Personal Protective Equipment	
Eye/Face Protection	Vented goggles or safety glasses with side shields should be worn when using this product.
Skin Protection	Clothing appropriate for an industrial environment should be worn. Oil-resistant gloves should be worn when handling this product.
Respiratory Protection	No respiratory equipment is required for normal use.
General Hygiene Considerations	When using, do not eat, drink or smoke. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Black	Odor	Petroleum odor
Odor Threshold	No information available	Physical State	Solid
pH	No information available	Flash Point	196 °C / 385 °F
Flash Point Method	ASTM D 92, C.O.C.	Autoignition Temperature	No information available
Boiling Point/Range	288 °C / 550 °F	Melting Point	No information available
Dropping Point	260 °C / 500 °F	Flammability Limits in Air	No information available
Vapour Density	>1	Vapour Pressure	No information available
Specific Gravity	1.3	Solubility	Negligible
Partition Coefficient (n-octanol/water)	809.1	Viscosity	No information available
Evaporation Rate	No information available	Freezing Point	No information available

10. STABILITY AND REACTIVITY

Chemical Stability	Not Applicable.
Conditions to Avoid	Not applicable.
Incompatible Products	Strong oxidizers or acids.
Hazardous Decomposition Products	Under normal temperatures this product will not decompose.
Possibility of Hazardous Reactions	Not applicable

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Lubricating greases	2280 mg/kg (Rat)		

Irritation Product may cause irritation to the eyes and/or skin. Ingestion of the product may cause gastrointestinal irritation and upset.

Chronic Toxicity

Carcinogenicity Passes IP 346 Method 3% DMSO-extractable components

12. ECOLOGICAL INFORMATION

Ecotoxicity

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Lubricating greases		LC50 > 2000 mg/L Salmo gairdneri 96 h		

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Discard in accordance with local, state, and federal regulations. Empty containers are exempt from RCRA Subtitle C if they contain no more than 2.5 cm of their original contents in the bottom of the container or less than 3% of the original net weight (less than 0.3% by weight for containers over 110 gallons), or if the residue is analyzed and demonstrated to be nonhazardous.

Contaminated Packaging

"Empty" containers retain residue and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY AND/OR DEATH. "Empty" containers should be completely drained and properly sealed. Recycle or discard plastic liner, pail or drum in accordance with local, state, and federal regulations. "Empty" drums may be sent to a drum reconditioner.

14. TRANSPORT INFORMATION

DOT	Not Regulated
TDG	Not Regulated
IATA	Not Regulated
IMDG/IMO	Not Regulated

15. REGULATORY INFORMATION

International Inventories

Component	TSCA	DSL	NDSL	EINECS/EL INCS	ENCS	CHINA	KECL	PICCS	AICS
Lubricating greases				278-011-7		X		X	

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

Chronic Health Hazard	Yes
Acute Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

CERCLA

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

State Right-to-Know

Other International Regulations

Mexico - Grade No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

Non-controlled

16. OTHER INFORMATION

Preparation Date 3-Dec-2009
Revision Date 9-November-2011
Revision Number 1
Revision Summary

Update of WHMIS classification; Update in Section 9. Physical and Chemical Properties

Disclaimer

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and **WE MAKE NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, CONCERNING THE ACCURACY OR COMPLETENESS OF THE INFORMATION HEREIN.** Accordingly, we will not be responsible for damages resulting from use or reliance upon information contained herein regardless of whether it is claimed that the information is inaccurate, incomplete, or otherwise misleading. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS

Material Safety Data Sheet (MSDS)



MSDS No. CA 002

Blended Cement

Section 1: Identification of the Material and Supplier

Company Details:

Cement Australia Pty Limited

ABN 75 104 053 474

12 Station Avenue

Darra

Queensland 4075

Tel: 1300 CEMENT (1300 236 368)

Fax: 1800 CEMENT (1800 236 368)

Website: www.cementaustralia.com.au

Manufacturing Plants

Newcastle:	Highgate Street, Auburn NSW 2144
Gladstone:	Landing Rd, Fisherman's Landing, Gladstone QLD 4680
Brisbane:	77 Pamela St, Pinkenba QLD 4008
Kandos:	Jamieson St, Kandos NSW 2848
Railton:	Cement Works Rd, Railton, TAS 7305

Terminals

Glebe:	Sommerville Rd, Glebe Island, NSW 2037
Clyde:	Highgate St. Auburn, NSW 2144
Melbourne:	Currajong St. West Footscray, VIC 3012
Townsville	Benwell Rd, Townsville Port Townsville QLD 4810

Product: Blended Cement

Other Names:	General Purpose Blended Cement	Q Cement
	Low Heat Cement	Sulphate Resisting Cement
	Shrinkage Limited (SL)	Sulphate Resisting Cement – Fly Ash
	Sulphate Resisting Cement – Slag	

Use: Blended Cement is used as a binder in concrete, concrete masonry, mortar and grouts. It is also used in the manufacture of fibre cement products, in soil stabilisation in building construction and civil engineering projects.

Section 2: Hazards Identification

Hazardous Substance. Non-dangerous Goods

Risk Phrases

R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.

R36/37/38: Irritating to eyes, respiratory system and skin.

R43: May cause sensitisation by skin contact.

R66: Repeated exposure may cause skin dryness or cracking. eye/face protection.

R48/20: Danger of serious damage to health by prolonged exposure through inhalation.

Safety Phrases

S22: Do not breathe dust.

S24/25: Avoid contact with skin and eyes.

S29: Do not empty into drains.

S36/37/39: Wear suitable protective clothing, gloves and

S38: In case of insufficient ventilation, wear suitable respiratory equipment.

Section 3: Composition/Information on Ingredients

Blended Cement consists of a crystalline mass manufactured from substances mined from the earth's crust. It contains trace amounts of naturally occurring, but potentially hazardous chemical entities including metals such as chromium and nickel and crystalline silica. It also contains added supplementary cementitious material (fly ash or ground granulated slag). All significant constituents are listed below:

Chemical Entity	Proportion	CAS Number
Portland Cement Clinker	20-95%	65997-15-1
Gypsum	0-5%	10101-41-4
Calcium Oxide	0-3%	1305-78-8
Fly ash (Where applicable)	8 - 50%	69131-74-8
Ground Granulated Blast Furnace slag (where applicable)	8 - 80%	65999-69-2
Limestone (CaCO ₃)	0 - 5%	1317-65-3
Hexavalent Chrome Cr (VI) (Cement)	<20 ppm	1333-82-0
Crystalline Silica (Quartz)	<1-10%	14808-60-7

Section 4: First Aid Measures

Swallowed:	Rinse mouth and lips with water. Do not induce vomiting. Give water to drink to dilute stomach contents. If symptoms persist, seek medical attention.
Eyes:	Flush thoroughly with flowing water for 15 minutes to remove all traces. If symptoms such as irritation or redness persist, seek medical attention. If wet cement is splashed in the eye, always treat as above, and seek urgent medical attention.
Skin:	Remove heavily contaminated clothing immediately. Wash off skin thoroughly with water. Use a mild soap if available. Shower if necessary. Seek medical attention for persistent irritation or burning of the skin.
Inhaled:	Remove to fresh air, away from dusty area. If symptoms persist, seek medical attention.
First Aid Facilities:	Eye wash station. Washing facilities with running water.
Advice to Doctor:	Treat symptomatically. Wet cement burns to skin or eye may result in corrosive caustic burns. Ingestion of significant amounts of cement dry or wet is unlikely. Do not induce emesis or perform gastric lavage. Neutralisation with acidic agents is not advised because of increased risks of exothermic burns. Water-mineral oil soaks may aid in removing hardened cement from the skin. Ophthalmological opinion should be sought for ocular burns.

Section 5: Fire Fighting Measures

Fire/Explosion Hazard:	Blended Cements are stable substances, compatible with most other building materials, will not decompose into hazardous by-products and do not polymerise.
Hazchem Code:	None allocated
Flammability:	Not flammable
Extinguishing Media:	None required
Hazards from Combustion Products:	None
Special Protective Precautions and equipment for fire fighters:	None required

Blended Cement

Section 6: Accidental Release Measures

Spills: Spills are best cleaned up by vacuum device to avoid generating airborne dust. Recommendations on Exposure Control and Personal Protection should be followed during spill clean-up.
Keep product out of storm water and sewer drains.
Wetting during clean-up will cause formation of setting cement.

Section 7: Handling and Storage

Handling: When supplied in bags these need to be handled in accordance with manual handling Regulations and Code of Practice.

Storage: Protect from moisture to prevent hardening. Storage of cement may be in concrete silos, steel bins, or plastic lined multi-ply paper bags.

Section 8: Exposure Controls/Personal Protection

Exposure Limits: National Occupational Health & Safety Commission (NOHSC) Australia Occupational Exposure Standard:

Exposure to dust should be kept as low as practicable, and below the following OES.
Portland Cement: 10mg/m³ TWA (time-weighted average) as inspirable dust.
Crystalline silica (quartz): 0.1 mg/m³ TWA as respirable dust (≤7 microns particle equivalent aerodynamic diameter).
Chromium VI (hexavalent): 0.05 mg/m³ sensitiser.

Engineering Controls: All work with dry cement should be carried out in such a way as to minimise dust generation, exposure to dust and repeated or extended skin contact. When handling dry cement, use local mechanical ventilation or extraction in areas where dust could escape into the work environment. For bulk deliveries, closed pumping systems are recommended. For handling of individual bags, follow instructions below if no local exhaust ventilation is available. Local dust extraction and collection may be used, if necessary, to control airborne dust levels. Work methods and engineering should aim to minimise contact with wet cement onto exposed skin. Work areas should be cleaned regularly.

Personal Protection:

Skin: Minimise contact with Portland Cement materials. When handling dry or wet cement, wet concrete, mortar or grout, personnel should wear protective clothing and impervious footwear, and gloves such as PVC (see Australian and New Zealand Standards AS/NZS 4501 and AS 2161). Never kneel in wet cement, or allow extended contact of skin with wet cement.
Remove clothing that has become contaminated with wet or dry cement to avoid prolonged contact with the skin. If cement gets into boots, remove socks and boots immediately and wash skin thoroughly. Wash work clothes regularly. To avoid contamination of face and lips and ingestion, wash hands before eating or smoking.

Eyes Splash resistant Safety Glasses with side shields or safety goggles (AS/NZ 1336) or a face shield should be worn to ensure all contact with eyes is avoided.

Section 8: Exposure Controls/Personal Protection (Cont'd)

Personal Protection: Respiratory

Where engineering and handling controls are not adequate to minimise exposure to total dust and to respirable crystalline silica wear a suitable P1 or P2 particulate respirator (AS/NZS 1715 and AS/NZS 1716). Use only respirators that bear the Australian Standards mark and are fitted and maintained correctly. For dust levels approaching or exceeding the NES (see above) a more effective particulate respirator as described in AS/NZS 1715 should be worn. Procedures for effective use of respirators should be applied and supervised.

Section 9: Physical and Chemical Properties

Appearance (dry):	A fine powder ranging in colour from grey to off-white
Odour:	No distinctive odour
Boiling/Melting Point:	Melting point >1200°C
Vapour Pressure:	Not applicable
Specific Gravity:	2.7 – 3.2
Flash Point:	Non applicable
Flammability Limits:	Not applicable
Solubility In Water:	Slight, reacts on mixing with water forming an alkaline (caustic) solution (pH >11)
Particle Size:	Up to 40% of the fresh dry material may be respirable (below 10 microns)

Section 10: Stability and Reactivity

Blended Cements are stable substances, compatible with most other building materials, will not decompose into hazardous by-products and do not polymerise.

Chemical Stability:	Chemically stable
Conditions to Avoid:	Keep free of moisture during storage
Incompatible Materials:	None
Hazardous Decomposition Products:	None
Hazardous Reactions:	None

Section 11: Toxicological Information

There is no direct toxicological data on Portland Cements. Health effects information is based on reported effects in use from overseas and Australian reports.

Short Term (Acute) Exposure

Swallowed:	Unlikely under normal industrial use. Mildly abrasive and corrosive to mouth and throat if swallowed. May cause nausea, stomach cramps and constipation.
Eyes:	Irritating and corrosive to the eyes and may cause alkaline burns. Cement dust is irritating to the eyes. Exposure to dust may aggravate existing eye irritations.
Skin:	Dust is irritating and drying to the skin. Direct contact with wet cement may cause serious skin burns. Within 12 to 48 hours (after one- to six-hour exposures) possible first, second or third degree burns may occur. There may be no obvious pain at the time of the exposure. Chronic skin disorders may be aggravated by exposure to dust or contact with wet cement.

Section 11: Toxicological Information (Cont'd)

Short Term (Acute) Exposure

Inhaled: Cement dust is irritating to the nose, throat and respiratory tract causing coughing and sneezing. Pre-existing upper respiratory and lung diseases including asthma and bronchitis may be aggravated.

Long Term (Chronic) Exposure

Eyes: Dust may cause irritation and inflammation of the cornea.

Skin: Repeated contact causes irritation and drying of the skin and can result in skin reddening and skin rash (dermatitis). Over time this may become chronic and can also become infected. Persons who are allergic to chromium may develop an allergic dermatitis which aggravates the irritant effects and this combination can lead to chronic cement dermatitis and serious disability particularly affecting the hands.

Inhaled: Repeated exposure to the dust may result in increased nasal and respiratory secretions and coughing. Inflammation of lining tissue of the respiratory system may follow repeated exposure to high levels of dust, with increased risk of bronchitis and pneumonia. Repeated and prolonged exposure to dust levels which exceed the OES for crystalline silica (see above) may occur. This can cause bronchitis, and silicosis (scarring of the lung). Long term overexposure to respirable crystalline silica dust may increase the risk of other irreversible and serious disorders including scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels and internal organs).

Cement (Portland Cement) is not classified as a carcinogen by NOHSC. Of the ingredients Hexavalent Chromium (Cr VI) is classified as a carcinogen by NOHSC. There is debate in the medical literature concerning whether there is any risk of lung cancer arising from long term high overexposure to respirable crystalline silica. Risk of lung cancer has not been identified from using Portland Cements containing silica. The International Agency for Research on Cancer (IARC) has classified crystalline silica, inhaled in the form of quartz or cristobalite from occupational sources, as carcinogenic to humans (Group 1). NOHSC has not classified crystalline silica as a carcinogen.

Section 12: Ecological Information

Ecotoxicity: Product forms an alkaline slurry when mixed with water.

Persistence and Degradability: Product is persistent and would have a low degradability.

Mobility: A low mobility would be expected in a landfill situation.

Section 13: Disposal Considerations

Blended Cement can be treated as a common waste for disposal or dumped into a landfill site in accordance with local authority guidelines.

Keep material out of storm water and sewer drains.

Measures should be taken to prevent dust generation during disposal, and exposure and personal precautions should be observed (see above).

Section 14: Transport Information

Transportation is done in bulk or bag form by Ship, Rail and Road.

UN Number:	None allocated
Proper Shipping Name:	None allocated
Class and Subsidiary Risk:	None allocated
Packing Group:	None allocated
Special precautions for user:	Avoid generating and breathing dust
Hazchem Code:	None allocated

Section 15: Regulatory Information

Blended Cement is not classified as Dangerous Goods.

Classified as Hazardous according to the criteria of the National Occupational Health and Safety Commission (NOHSC) Approved Criteria For Classifying Hazardous Substances [NOHSC: 1008] 3rd Edition

Exposures by inhalation to high levels of dust may be regulated under the Hazardous Substances Regulations (State) as they are applicable to Respirable Crystalline Silica, requiring exposure assessment, controls and health surveillance (NOHSC).

Section 16: Other Information

For further information on this product contact: Telephone: (07) 3375 0501 (Business Hours)

Facsimile: (07) 3375 0473

Emergency Contact Number:

Contact Person: Technical Manager

Telephone: (07) 3375 0501 (Business Hours)
or Poisons Information Centre 13 11 26

Next Review Date for this MSDS: 31 December 2016.

Australian and New Zealand Standards:

AS 2161: Industrial Safety Gloves and Mittens (excluding electrical and medical gloves).

AS/NZ 1336: Recommended Practices for Occupational Eye Protection.

AS/NZS 1715: Selection, use and maintenance of respiratory protective devices.

AS/NZS 1716: Respiratory protective devices.

AS/NZS 4501: Occupational protective clothing.

Advice Note:

Cement Australia believes the information in this document to be accurate as at the date of preparation noted below, but, to the maximum extent permitted by law, Cement Australia accepts no responsibility for any loss or damage caused by any person acting or refraining from action because of this information.

The provision of this information should not be construed by anyone as a recommendation to use this product. In particular, no one should use any product in violation of any patent or other intellectual proprietary rights or in breach of any statute or regulation.

Users should rely on their own knowledge and inquiries and make their own determination as to the applicability of this information in relation to their particular purposes and specific circumstances. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace and in conjunction with other substances or products.

This MSDS must be reviewed before 31 December 2016.

MATERIAL SAFETY DATA



SHEET - CACHLO98

1. IDENTIFICATION

Revision Date	SEPTEMBER 2008			
Product Name	CALCIUM CHLORIDE ANHYDROUS			
Other Names	CALCIUM CHLORIDE SOLID; CALCIUM CHLORIDE ANHYDROUS; OR CALCIUM CHLORIDE DIHYDRATE.			
Uses	De-icing and dust control of roads, drilling muds, dustproofing, freeze proofing and thawing coal, coke, stone, sand, ore, concrete conditioning, paper and pulp industry, fungicides, refrigeration brines, drying and desiccating agent, sequestrant in foods, firming agent in tomato canning, tire weighting, pharmaceuticals, electrolytic cells.			
Contact Information	Organisation	Location	Telephone	Ask For
	Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61 2 97333000	Technical Officer
		11 Mayo Road Wiri Auckland 2104 New Zealand	+64 9 2506222	
	Poison Information Centre	Westmead NSW Australia	131126	
	Chemcall 24 Hour Emergency Number	Australia New Zealand	1800-127406 0800-243622	
	National Poisons Centre	New Zealand	0800-764766	

2. HAZARD IDENTIFICATION

Hazardous according to criteria of NOHSC/ASCC.

IRRITANT

Risk Phrases R36 Irritating to eyes.

Safety Phrases S22 Do not breathe dust.

S24 Avoid contact with skin.

**ERMA New Zealand
Approval Code** HSR003389

**HSNO Hazard
Classification** 6.1D 6.3A 6.4A 9.3C

This Material Safety Data Sheet may not provide exhaustive guidance for all HSNO Controls assigned to this substance. The ERMA Web Site should be consulted for a full list of triggered controls and cited regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Chemical Entity	CAS Number	Proportions (%)
	CALCIUM CHLORIDE	[10043-52-4]	74.0-100.0
	WATER	[7732-18-5]	BALANCE

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure.

Swallowed	Rinse mouth with water. Give water to drink. Do NOT induce vomiting. If vomiting occurs, give further water. Seek medical advice immediately.
Eye	If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
Skin	If skin contact occurs, remove any contaminated clothing and wash skin with running water. If irritation occurs, seek medical advice.
Inhaled	Remove victim from exposure to fresh air - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm and at rest until fully recovered. Seek medical advice if effects persist.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of patient.
Aggravated medical conditions caused by exposure	No information available on medical conditions aggravated by exposure to this product. To the best of our knowledge, the acute and chronic toxicity of this substance is not fully known. The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this product. No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA, or ACGIH. Prolonged or repeated skin contact may lead to allergic contact dermatitis in some individuals. The skin may react by producing redness, irritation, weals or pustules.

5. FIRE FIGHTING MEASURES

Extinguishing Media In case of fire, use appropriate extinguishing media most suitable for surrounding fire conditions. Suitable media may include fine water spray, normal foam, or dry agent such as carbon dioxide or dry chemical powder.

	Keep containers cool with water spray. Do NOT use water directly on material.
Hazards from Combustion Products	Non-combustible solid. Negligible fire hazard when exposed to heat or flame. This product does not burn. Incompatible with methyl vinyl ether, bromine trifluoride, mixture of boron oxide and calcium oxide, water, alkali metals, various metals, zinc and sources of ignition. When involved in a fire, this product may generate toxic fumes, including chlorine, oxides of calcium, and hydrogen chloride.
Special Protective Precautions and Equipment for Fire Fighters	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). 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. Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment. Avoid breathing corrosive vapours; keep upwind. Dike area to prevent runoff and contamination of water sources.
Flammability Conditions	Product is a non-flammable solid.
Additional Information	
Hazchem Code	N/A

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures	Avoid accidents, clean up immediately. spillage of product creates slippery surfaces. Personnel involved in the clean up should wear full protective clothing. Evacuate all unnecessary personnel. Eliminate all sources of ignition. Increase ventilation. Avoid generating dust. Stop leak if safe to do so. Isolate the danger area. Do NOT let product reach drains or waterways. If the product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management.
Methods and Materials for Containment and Clean Up	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. Wash area down with excess water.

7. HANDLING AND STORAGE

Precautions for Safe 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 discharges by bonding and grounding equipment. Avoid handling which leads to dust formation. Avoid contact with eyes, skin and clothing. Do not inhale product dust/fumes. This product is hygroscopic and emits heat when dissolved in water. Instantly remove any soiled and impregnated garments. Launder contaminated clothing before re-use. Keep away from moisture and incompatible materials.
Conditions for Safe Storage (Including Any Incompatibles)	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. Protect from direct sunlight and moisture.

Prevent formation of dust. The product is hygroscopic and emits heat when dissolved in water. Keep away from foodstuffs, beverages and food. This product is not classified dangerous for transport according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.

Container Type Packaging must comply with requirements of Hazardous Substances (Packaging) Regulations 2001. Store in original packaging as approved by manufacturer.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards 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/m³ (for inspirable dust) and 3mg/m³ (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.

Biological Limit Values No information available on biological limits for this product.

Engineering Controls 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. ADDITIONAL INFORMATION ABOUT DESIGN OF TECHNICAL SYSTEMS: Properly operating chemical fume hood designed for hazardous chemicals and having a face velocity of at least 100 feet per minute.

Personal Protection RESPIRATOR: Wear an effective dust mask (P2 filter) where dusts are generated and engineering controls are inadequate (AS1715/1716). EYES: Safety glasses with side shields (AS1336/1337). HANDS: PVC or neoprene gloves (AS2161). Do NOT use leather or cotton. CLOTHING: Chemical-resistant coveralls and safety footwear (AS3765/2210). Do NOT use leather boots/products as they will dehydrate resulting in shrinkage and possible destruction.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance White to Off White Solid; Granular; Fine Crystals; Flakes; or Powder.

Formula CaCl₂ (or) CaCl₂.2H₂O

Odour Odourless

Vapour Pressure Insignificant mm Hg (1 atmosphere)

Vapour Density Not applicable.

Boiling Point >1600°C deg C

Melting Point 772-782°C deg C

Solubility in Water 745g/L (20°C)

Specific Gravity 2.15g/cm³ (Water = 1)

Flash Point

	Not applicable.
pH	8-12 (10% H2O solution)
Lower Explosion Limit	Not applicable.
Upper Explosion Limit	Not applicable.
Ignition Temperature	Not applicable.
Specific Heat Value	Not applicable.
Particle Size	Not applicable.
Volatile Organic Compounds (VOC) Content	Not applicable.
Evaporation Rate	Not applicable.
Viscosity	Not applicable.
Percent Volatile	Not applicable.
Octanol/Water partition coefficient	Not applicable.
Saturated Vapour Concentration	Not applicable.
Additional Characteristics	Not applicable.
Flame Propagation/Burning Rate of Solid Materials	Not applicable.
Properties of Materials That May Initiate or Contribute to Fire Intensity	Not applicable.
Potential for Dust Explosion	Product is not explosive.
Reactions that Release Flammable Gases	Not applicable.
Fast or Intensely Burning Characteristics	Not applicable.
Non-flammables That Could Contribute Unusual Hazards to a Fire	Not applicable.
Release of Invisible Flammable Vapours and Gases	Not applicable.

Decomposition Temperature	Not applicable.
Additional Information	Molecular Weight: 111.0g/mol Bulk Density: 0.75-1.0g/cm ³ Solubility: Soluble in water, alcohol, acetic acid and acetone.

10. STABILITY AND REACTIVITY

Chemical Stability	Product is stable under normal conditions of use, storage and temperature. Hygroscopic. Absorbs moisture from the surrounding air.
Conditions to Avoid	Avoid excessive heat, generating dust, direct sunlight, moisture, static charges and high temperatures.
Incompatible Materials	Incompatible with methyl vinyl ether, bromine trifluoride, mixture of boron oxide and calcium oxide, water, alkali metals, various metals, zinc and sources of ignition.
Hazardous Decomposition Products	When involved in a fire, this product may generate toxic fumes, including chlorine, oxides of calcium, and hydrogen chloride.
Hazardous Reactions	A violent polymerisation occurs if calcium chloride is mixed with methyl vinyl ether. Reacts exothermically on dilution with water. Mildly corrosive to most metals. Metals will slowly corrode in aqueous solutions of calcium chloride. Aluminium (and alloys) and yellow brass will be attacked by calcium chloride. Calcium chloride reacts violently with a mixture of boron oxide and calcium oxide. Calcium chloride reacts violently with bromine trifluoride.

11. TOXICOLOGICAL INFORMATION

Toxicity Data	Oral LD50 Rat: 1000mg/Kg Skin LD50 Rat: 2630mg/Kg Acute oral toxicity is determined in accordance with OECD Guideline 401. Skin Irritation Rabbit: Not irritating according to OECD Guideline 404. Eye Irritation Rabbit: Irritating according to OECD Guideline 405. The above information on oral acute toxicity and irritation refers to dry product. Oral LD50 Mus: 1940mg/Kg Primary Irritant Effect: On Skin: Irritant for skin and mucous membranes On eye : Irritant effect Sensitisation: No sensitising effect known. This product was not considered mutagenic. Ames test on Salmonella typhimurium was negative. To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
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Health Effects - Acute

Swallowed	Moderately toxic by ingestion. Large amounts may cause nausea and vomiting.
Eye	Irritating to eyes.
Skin	Slightly toxic by dermal absorption. Contact with skin may result in irritation.
Inhaled	Inhalation of product dust may cause irritation to the respiratory system. Material may be irritant to the mucous membranes of the respiratory tract.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Fathead Minnow LC50 96hr: 4630mg/L Daphnia LC50 48hr: 2770mg/L Nitzschia LC50 120hr: 3130mg/L The product is not acutely toxic to water organisms. Information about ecotoxicity refers to dry product. Other information: The product increases the hardness of water.
Persistence and Degradability	This product will not biodegrade (inorganic product).
Mobility	Soluble in water and mobile.
Environmental Fate (Exposure)	Avoid contaminating waterways, drains and sewers.
Bioaccumulative Potential	This product does not bioaccumulate in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

Disposal	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 or Incineration	Contact a specialist disposal company or the local waste regulator for advice. This should be done in accordance with 'The Hazardous Waste Act'. This material may be suitable for approved landfill.

14. TRANSPORT INFORMATION

Land Transport (Australia)

Regulation Name	ADG
UN Number	Not applicable.
Shipping Name	CALCIUM CHLORIDE ANHYDROUS
Dangerous Goods Class	Not applicable.
Subsidiary Risk	Not applicable.
Pack Group	Not applicable.
Precaution for User	IRRITANT
Hazchem Code	N/A
EPG	Not applicable.
Special Provision	Not applicable.

Sea Transport

Regulation Name	IMDG
UN Number	Not applicable.
Shipping Name	CALCIUM CHLORIDE ANHYDROUS
Dangerous Goods Class	Not applicable.
Subsidiary Risk	

Class	Not applicable.
Pack Group	Not applicable.
Precaution for User	IRRITANT
Hazchem Code	No data available.
EPG	No data available.
Special Provision	Not applicable.

Air Transport

Regulation Name	IATA
UN Number	Not applicable.
Shipping Name	CALCIUM CHLORIDE ANHYDROUS
Dangerous Goods Class	Not applicable.
Subsidiary Risk	Not applicable.
Pack Group	Not applicable.
Precaution for User	IRRITANT
Hazchem Code	No data available.
EPG	No data available.
Special Provision	Not applicable.

Land Transport (New Zealand)

Regulation Name	NZS5433
UN Number	Not applicable.
Shipping Name	CALCIUM CHLORIDE ANHYDROUS
Dangerous Goods Class	Not applicable.
Subsidiary Risk	Not applicable.
Pack Group	Not applicable.
Precaution for User	IRRITANT
Hazchem Code	N/A
EPG	Not applicable.
Special Provision	Not applicable.

15. REGULATORY INFORMATION

Poisons Schedule	N/A
EPG	N/A
AICS Name	CALCIUM CHLORIDE (CaCl ₂)
NZ Toxic Substance	N
HSNO Hazard Classification	

6.1D 6.3A 6.4A 9.3C

ERMA Approval Code HSR003389

16. OTHER INFORMATION

Literature References No data available.

Sources for Data No data available.

Legend to Abbreviations and Acronyms

<	less than
>	greater than
ADG	Australian Dangerous Goods Code
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstracts Service (Registry Number)
cm²	square centimetres
CO₂	Carbon Dioxide
COD	Chemical Oxygen Demand
deg C (°C)	degrees Celsius
ERMA	Environmental Risk Management Authority
g	gram
g/cm³	grams per cubic centimetre
g/l	grams per litre
HSNO	Hazardous Substance and New Organism
IATA	International Air Transport Association Dangerous Goods Regulations
IDLH	Immediately Dangerous to Life and Health
IMDG	International Maritime Dangerous Goods Code
immiscible	liquids are insoluble in each other
kg	kilogram
kg/m³	kilograms per cubic metre
LC₅₀	LC stands for lethal concentration. LC ₅₀ 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. LD ₅₀ 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	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	miscible
miscible	liquids form one homogeneous liquid phase regardless of the amount of either component present
mm	millimetre
mPa.s	milli Pascal per second
N/A	Not Applicable
NOHSC	National Occupational Health and Safety Commission
OECD	Organization for Economic Co-operation and Development
PEL	Permissible Exposure Limit
ppb	parts per billion
ppm	parts per million
ppm/2h	parts per million per 2 hours
ppm/6h	parts per million per 6 hours
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 (number)
wt	weight



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This MSDS summarises Redox Pty Ltd best knowledge of the health and safety hazard information of the selected substance and how to safely handle the selected substance in the workplace however Redox Pty Ltd expressly disclaims that the MSDS is a representation or guarantee of the chemical specifications for the substance.

Each user should read the MSDS and consider the information in the context of how the selected substance will be handled and used in the workplace including its use in conjunction with other substances.

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SAFETY DATA SHEET

(Australia)
According to the criteria of NOHSC:2011(2003)

Version: 1

Revision date: 05 April 2011

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

Product Name: Low-Temperature Liquid Dispersant D145A

Product Code: D145A

Company Identification: Schlumberger Oilfield Australia Pty Ltd
ABN: 74 002 459 225
ACN: 002 459 225
256 St. Georges Terrace, Perth WA 6000

Emergency Telephone Number: 1-800-039-008 (24hr)

Use of the Substance/Preparation: Used as a cementing additive in oilfield applications.

2. HAZARDS IDENTIFICATION

Most important hazards**Risk Combination Phrases**

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Health hazards:

This product may contain formaldehyde as an impurity. Formaldehyde is listed by IARC in Group 1 as carcinogenic to humans.

Environmental hazard:

According to the results of tests of biodegradability this product is not readily biodegradable.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	EC-No.	Weight %- Range	Classification
Amine polymer derivative		Listed	15 - 40	R52/53

For the full text of the R phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

Inhalation: Move to fresh air.

Skin contact: Rinse immediately with plenty of water for at least 5 minutes.

Eye contact: Immediately flush eyes with water for 5 minutes while holding eyelids open. Seek medical attention if irritation occurs.

Ingestion: Rinse mouth. Drink 1 or 2 glasses of water. Seek medical attention if irritation occurs.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media:	The product itself does not burn. Compatible with all types.
Extinguishing media which must not be used for safety reasons:	None known.
Special protective equipment for firefighters:	Wear protective fire fighting clothing and avoid breathing vapors. Use self-contained breathing apparatus in closed areas.
Special exposure hazards arising from the substance or preparation itself, its combustion products, or released gases:	When heated strongly or burned, oxides of carbon, sulfur oxides and harmful organic chemical fumes are released. formaldehyde.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Use personal protective equipment. See also section 8.
Environmental precautions:	Prevent further leakage or spillage. Keep out of waterways.
Methods for cleaning up:	Dam up. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.

7. HANDLING AND STORAGE

Handling:

Technical measures/Precautions: Safe handling advice:	No special precautions required. none.
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Storage:

Technical measures/Storage conditions:	Freezing will affect the physical condition but will not damage the material. Thaw and mix before using. Keep containers tightly closed in a dry, cool and well-ventilated place.
Packaging requirements:	High density polyethylene (HDPE) drum.
Incompatible products:	Oxidizing agents

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures to reduce exposure:	No special technical protective measures required
Respiratory protection:	No personal respiratory protective equipment normally required.
Hand protection:	PVC disposable gloves

Eye protection: Safety glasses.

Skin and body protection: Clean, body-covering clothing. Remove and wash contaminated clothing before re-use.

Environmental exposure controls

Exposure limit(s)

Component	Australia - Occupational Exposure Standards - TWAs	Australia - Occupational Exposure Standards - STELs
Amine polymer derivative	None	None

9. PHYSICAL AND CHEMICAL PROPERTIES

General Information

Form: Liquid
Odour: Faint / formaldehyde
Colour: Clear to hazy yellow

Important Health, Safety and Environmental Information

pH: 9-12
Boiling point/range: 100 °C
Flash point: Does not flash.
Explosive properties:
Explosion data - sensitivity to mechanical impact: Not applicable None
Explosion data - sensitivity to static discharge: None known
Flammability Limits in Air:
lower: Not applicable
upper: Not applicable
Oxidizing properties: None
Relative density: 1.24 (20°C)
Solubility:
Water solubility: Soluble
Fat solubility: No information available.
Partition coefficient (n-octanol/water): See also section 12
Viscosity: 50 mPa.s (20 °C)
Vapour density: similar to water.
Vapour pressure: similar to water.
Evaporation rate: No data available.

Other information

Melting point/range: 100 °C

10. STABILITY AND REACTIVITY

Stability: Stable under recommended storage conditions.

Conditions to avoid: None reasonably foreseeable.

Materials to avoid: Oxidizing agents

Hazardous decomposition products:	When heated strongly or burned, oxides of carbon, sulfur oxides, nitrogen oxides, ammonia and harmful organic fumes are released. formaldehyde.
Hazardous polymerization:	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Local effects

Skin:	No effect expected.
Eyes:	No effect expected.
Inhalation:	No effect expected.
Ingestion:	No effect expected.
Sensitization - skin:	May cause sensitization by skin contact.
Sensitization - lung:	Not known to cause allergic reaction

Chronic Health Hazard

Carcinogenic effects:	This product may contain formaldehyde as an impurity. Formaldehyde is listed by IARC in Group 1 as carcinogenic to humans.
Mutagenic effects:	Not known to cause heritable genetic damage.
Teratogenic effects:	Not known to cause birth defects or have a deleterious effect on a developing fetus.
Reproductive toxicity:	Not known to adversely affect reproductive functions and organs.
Target organ effects:	None known.

12. ECOLOGICAL INFORMATION

Ecotoxicity

COMPONENT INFORMATION

Amine polymer derivative

Bioaccumulation:	log Pow = -5
Persistence and degradability:	17 % (28d; OECD306)
Algae toxicity:	72h EC50= 60-100 mg/l (Skeletonea costatum)

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products:	Dispose of as special waste in compliance with local and national regulations
Contaminated packaging:	Empty containers should be transported/delivered using a registered waste carrier for local recycling or waste disposal

14. TRANSPORT INFORMATION

UN number: None
Shipping name: Not regulated.

ADR/RID
Class: Not regulated

IMDG/IMO
Class or Div.: Not regulated

ICAO/IATA
Class or Div.: Not regulated

15. REGULATORY INFORMATION

In accordance with the criteria of NOHSC

Indication of danger:
None

R-phrase(s):

-
- R52/53 - Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrase(s):

Exercise reasonable care and cleanliness

International Inventories

Australia (AICS): All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

- R52/53 - Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Prepared by: Chemical Regulatory Compliance

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End of Safety Data Sheet

MATERIAL SAFETY DATA



SHEET - HYACID

1. IDENTIFICATION

Revision Date	JUNE 2010			
Product Name	HYDROCHLORIC ACID			
Other Names	MURIATIC ACID; CHLOROHYDRIC ACID; HYDROGEN CHLORIDE; AQUEOUS HYDROGEN CHLORIDE 28-36% HYDROCHLORIC ACID;			
Uses	Unspecified.			
Contact Information	Organisation	Location	Telephone	Ask For
	Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61 2 97333000	Technical Officer
		11 Mayo Road Wiri Auckland 2104 New Zealand	+64 9 2506222	
	Poison Information Centre	Westmead NSW Australia	131126	
	Chemcall 24 Hour Emergency Number	Australia New Zealand	1800-127406 0800-243622	
	National Poisons Centre	New Zealand	0800-764766	

2. HAZARD IDENTIFICATION

Hazardous according to criteria of NOHSC/ASCC.

Dangerous According to the Australian Code for the Transport of Dangerous Goods.

Classified as Dangerous Goods According to NZS 5433:1999.

TOXIC CORROSIVE

Risk Phrases

R23 Toxic by inhalation.
R35 Causes severe burns.

Safety Phrases

S9	Keep container in a well-ventilated place.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

ERMA New Zealand Approval Code HSR001557

HSNO Hazard Classification 6.1B 8.1A 8.2B 9.3A 9.1D 9.3C

This Material Safety Data Sheet may not provide exhaustive guidance for all HSNO Controls assigned to this substance. The ERMA Web Site should be consulted for a full list of triggered controls and cited regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Chemical Entity	CAS Number	Proportions (%)
	HYDROCHLORIC ACID	[7647-01-0]	28.0-36.0

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure.

Swallowed	Immediately rinse mouth with water. Give water to drink. DO NOT induce vomiting. If vomiting occurs give further water. Seek immediate medical attention.
Eye	SPEED IS ESSENTIAL! Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Take care not to rinse contaminated water into the non-affected eye. Seek immediate medical attention.
Skin	Remove contaminated clothing. Wash affected area with large quantities of water. Continue to wash skin for at least 10 minutes. Seek immediate medical attention.
Inhaled	Remove victim from exposure to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth to mouth method. Induce artificial respiration with the aid of a pocket mask equipped with a one way valve or other proper respiratory medical device. Seek medical attention immediately.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of patient. Following exposure, the patient should be kept under medical review for at least 48 hours as delayed pulmonary oedema may develop.
Aggravated medical conditions caused by exposure	Repeated exposure at low levels may produce erosion of the teeth and ulceration of the nasal septum and gums. High atmospheric contamination may lead to pulmonary oedema.

5. FIRE FIGHTING MEASURES

Extinguishing Media	In case of fire, use appropriate extinguishing media most suitable for surrounding fire conditions. Use water spray to cool fire exposed containers.
Hazards from Combustion Products	Non-combustible liquid. Containers may burst if overheated. Incompatible with oxidising agents, most common metals, alkalis and sources of ignition. Hazardous decomposition products may include hydrogen chloride.
Special Protective Precautions and Equipment for Fire Fighters	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) or chemical splash suit. 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. Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
Flammability Conditions	Product is a non-flammable liquid. However, flammable hydrogen gas may be formed in contact with metals.

Additional Information

Hazchem Code 2R

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures	Personnel involved in the clean up should wear full protective clothing as listed in section 8. Avoid accidents, clean up immediately. Evacuate all unnecessary personnel. Increase ventilation. Avoid walking through spilled product as it is slippery when spilt. Stop leak if safe to do so. Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management. Use clean, non-sparking tools and equipment. Shut off all possible sources if ignition.
Methods and Materials for Containment and Clean Up	Soak up spilled product using absorbent non-combustible material such as sand or soil. Avoid using sawdust or cellulose. When saturated collect material, transfer to suitable, labelled, dry chemical-waste containers and dispose of promptly as hazardous waste. Spillages should be neutralised by the use of lime or lime slurry followed by water washing.

7. HANDLING AND STORAGE

Precautions for Safe 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 discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do not inhale product vapours. Avoid prolonged or repeated exposure. Provide adequate ventilation, including appropriate local extraction to ensure that the defined occupational exposure limit is not exceeded. Keep away from common metals, oxidising agents and alkalis. Remove contaminated clothing and wash before reuse.
Conditions for Safe	Store in a cool, dry, well-ventilated area. Keep containers tightly closed

Storage (Including Any Incompatibles)	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. Bulk quantities should be stored in rubber lined steel or suitable plastic equipment. Keep smaller quantities in suitable plastic or glass containers. This product has a UN classification of 1789 and a Dangerous Goods Class 8 Corrosive) according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.
Container Type	Container type/packaging must comply with all applicable local legislation. Store in original packaging as approved by manufacturer. Bulk quantities should be stored in rubber lined steel or suitable plastic equipment. Keep smaller quantities in suitable plastic or glass containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards	The following exposure standard has been established by The Australian Safety and Compensation Council (ASCC); Hydrochloric Acid CAS 7647-01-0: TWA = 5ppm (7.5 mg/m ³ Peak Limitation) 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. Peak limitation is a ceiling concentration which should not be exceeded over a measurement period which should be as short as possible but not exceeding 15 minutes. 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.
Biological Limit Values	No information available on biological limit values for this product.
Engineering Controls	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	RESPIRATOR: Wear an approved full-face piece respirator with high efficiency particulate filter (AS/NZS1715/1716). EYES: Wear chemical splash goggles in combination with a full-face shield (AS1336/1337). HANDS: Wear impervious, elbow-length neoprene or nitrile acid resistant gloves (AS2161). CLOTHING: Chemical-resistant coveralls, splash apron and safety footwear (AS3765/2210).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Almost colourless to Pale yellow Fuming Liquid
Formula	ClH
Odour	Characteristically Pungent
Vapour Pressure	11 (28% HCl, 20°C) mm Hg (1 atmosphere)
Vapour Density	Not applicable.
Boiling Point	97.7°C (28% HCl) deg C
Melting Point	-63°C (28% HCl) deg C

Solubility in Water	Soluble
Specific Gravity	1.14 (28% HCl,15°C) (Water = 1)
Flash Point	Not applicable.
pH	Not applicable.
Lower Explosion Limit	Not applicable.
Upper Explosion Limit	Not applicable.
Ignition Temperature	Not applicable.
Specific Heat Value	Not applicable.
Particle Size	Not applicable.
Volatile Organic Compounds (VOC) Content	Not applicable.
Evaporation Rate	Not applicable.
Viscosity	Not applicable.
Percent Volatile	Not applicable.
Octanol/Water partition coefficient	Not applicable.
Saturated Vapour Concentration	Not applicable.
Additional Characteristics	Not applicable.
Flame Propagation/Burning Rate of Solid Materials	Not applicable.
Properties of Materials That May Initiate or Contribute to Fire Intensity	Not applicable.
Potential for Dust Explosion	Product is a liquid.
Reactions that Release Flammable Gases	Corrosive to metals liberating hydrogen gas.
Fast or Intensely Burning Characteristics	Not applicable.
Non-flammables That Could Contribute Unusual Hazards to a Fire	Not applicable.
Release of Invisible	Not applicable.

Flammable Vapours and Gases Not applicable.

Decomposition Temperature

Additional Information Boiling Point : 56.1°C (36% HCl) Vapour Pressure : 115 (36% HCl, 20°C)
Freezing Point : -27°C (36% HCl) Specific Gravity : 1.18 (36% HCl, 15°C)

10. STABILITY AND REACTIVITY

Chemical Stability Product is stable under normal conditions of use, storage and temperature. Corrosive Liquid.

Conditions to Avoid Avoid excessive heat, direct sunlight, moisture, static discharges, freezing and high temperatures.

Incompatible Materials Incompatible with oxidising agents, most common metals, alkalis and sources of ignition.

Hazardous Decomposition Products Hazardous decomposition products may include hydrogen chloride. Can react violently if in contact with oxidising agents, liberating chlorine gas. Attacks most common metals liberating hydrogen, which can form explosive mixtures with air.

Hazardous Reactions Hazardous Polymerisation has not been reported. Can react violently if in contact with oxidising agents, liberating chlorine gas. Attacks most common metals liberating hydrogen, which can form explosive mixtures with air. Exothermic reaction with alkalis.

11. TOXICOLOGICAL INFORMATION

Toxicity Data No toxicological information available for this product.

Health Effects - Acute

Swallowed Will immediately cause corrosion of and damage to the gastrointestinal tract.

Eye Causes burns. Risk of serious damage to eyes. May cause permanent impairment of vision.

Skin Causes burns.

Inhaled Mist vapour will cause irritation to the upper respiratory tract, coughing and choking sensation. Concentration of 50-100ppm are barely tolerated for up to 1 hour. Higher concentrations may cause corrosion of the respiratory tract. Fluid build up on the lung (pulmonary oedema) may occur up to 48 hours after exposure and could prove fatal.

12. ECOLOGICAL INFORMATION

Ecotoxicity Large discharges may contribute to the acidification of water and be fatal to fish and other aquatic life. Can cause damage to vegetation. Can cause severe damage to aquatic plants.

Persistence and Degradability	Will freely dissociate to hydrogen and chloride ions.
Mobility	The product is predicted to have high mobility in soil. Liquid with high volatility. The product is soluble in water.
Environmental Fate (Exposure)	Do not allow product to enter drains, waterways or sewers. Effect of Effluent Treatment: Large discharge may contribute to the acidification of effluent treatment systems and injure sewage treatment organisms.
Bioaccumulative Potential	The product does not bioaccumulate.

13. DISPOSAL CONSIDERATIONS

Disposal	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 or Incineration	Contact a specialist disposal company or the local waste regulator for advice. This should be done in accordance with 'The Hazardous Waste Act'.

14. TRANSPORT INFORMATION

Land Transport (Australia)

Regulation Name	ADG
UN Number	1789
Shipping Name	HYDROCHLORIC ACID
Dangerous Goods Class	8 Corrosive Substance
Subsidiary Risk	Not applicable.
Pack Group	II
Precaution for User	TOXIC CORROSIVE
Hazchem Code	2R
EPG	40 TOXIC AND/OR CORROSIVE SUBSTANCES Non-combustible - Water reactive
Special Provision	Not applicable.



Sea Transport

Regulation Name	IMDG
UN Number	

	1789
Shipping Name	HYDROCHLORIC ACID
Dangerous Goods Class	8 Corrosive Substance
Subsidiary Risk	Not applicable.
Pack Group	II
Precaution for User	TOXIC CORROSIVE
Hazchem Code	No data available.
EPG	40 TOXIC AND/OR CORROSIVE SUBSTANCES Non-combustible - Water reactive
Special Provision	Not applicable.



Air Transport

Regulation Name	IATA
UN Number	1789
Shipping Name	HYDROCHLORIC ACID
Dangerous Goods Class	8 Corrosive Substance
Subsidiary Risk	Not applicable.
Pack Group	II
Precaution for User	TOXIC CORROSIVE
Hazchem Code	No data available.
EPG	No data available.
Special Provision	Not applicable.



Land Transport (New Zealand)

Regulation Name	NZS5433
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UN Number	1789
Shipping Name	HYDROCHLORIC ACID
Dangerous Goods Class	8 Corrosive Substance
Subsidiary Risk	Not applicable.
Pack Group	II
Precaution for User	TOXIC CORROSIVE
Hazchem Code	2R
EPG	40 TOXIC AND/OR CORROSIVE SUBSTANCES Non-combustible - Water reactive
Special Provision	Not applicable.



Land Transport (Papua New Guinea)

Regulation Name	NZS5433
UN Number	1789
Shipping Name	HYDROCHLORIC ACID
Dangerous Goods Class	8 Corrosive Substance
Subsidiary Risk	Not applicable.
Pack Group	II
Precaution for User	TOXIC CORROSIVE
Hazchem Code	2R
EPG	40 TOXIC AND/OR CORROSIVE SUBSTANCES Non-combustible - Water reactive
Special Provision	Not applicable.



Land Transport (Fiji)

Regulation Name

	NZS5433
UN Number	1789
Shipping Name	HYDROCHLORIC ACID
Dangerous Goods Class	8 Corrosive Substance
Subsidiary Risk	Not applicable.
Pack Group	II
Precaution for User	TOXIC CORROSIVE
Hazchem Code	2R
EPG	40 TOXIC AND/OR CORROSIVE SUBSTANCES Non-combustible - Water reactive
Special Provision	Not applicable.



15. REGULATORY INFORMATION

Poisons Schedule	6
EPG	40
AICS Name	HYDROCHLORIC ACID
NZ Toxic Substance	3
HSNO Hazard Classification	6.1B 8.1A 8.2B 9.3A 9.1D 9.3C
ERMA Approval Code	HSR001557

16. OTHER INFORMATION

Literature References	No data available.
Sources for Data	No data available.

Legend to Abbreviations and Acronyms

<	less than
>	greater than

ADG	Australian Dangerous Goods Code
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstracts Service (Registry Number)
cm²	square centimetres
CO₂	Carbon Dioxide
COD	Chemical Oxygen Demand
deg C (°C)	degrees Celsius
ERMA	Environmental Risk Management Authority
g	gram
g/cm³	grams per cubic centimetre
g/l	grams per litre
HSNO	Hazardous Substance and New Organism
IATA	International Air Transport Association Dangerous Goods Regulations
IDLH	Immediately Dangerous to Life and Health
IMDG	International Maritime Dangerous Goods Code
immiscible	liquids are insoluble in each other
kg	kilogram
kg/m³	kilograms per cubic metre
LC₅₀	LC stands for lethal concentration. LC ₅₀ 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. LD ₅₀ 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	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	miscible
miscible	liquids form one homogeneous liquid phase regardless of the amount of either component present
mm	millimetre
mPa.s	milli Pascal per second
N/A	Not Applicable
NOHSC	National Occupational Health and Safety Commission
OECD	Organization for Economic Co-operation and Development
PEL	Permissible Exposure Limit
ppb	parts per billion
ppm	parts per million
ppm/2h	parts per million per 2 hours

ppm/6h	parts per millionper 6 hours
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 (number)
wt	weight



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This MSDS summarises Redox Pty Ltd best knowledge of the health and safety hazard information of the selected substance and how to safely handle the selected substance in the workplace however Redox Pty Ltd expressly disclaims that the MSDS is a representation or guarantee of the chemical specifications for the substance.

Each user should read the MSDS and consider the information in the context of how the selected substance will be handled and used in the workplace including its use in conjunction with other substances.

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Material Safety Data Sheet (MSDS)



MSDS No. CA 001

Portland Cement

Section 1: Identification of the Material and Supplier

Company Details:

Cement Australia Pty Limited

ABN 75 104 053 474

12 Station Avenue

Darra

Queensland 4075

Tel: 1300 CEMENT (1300 236 368)

Fax: 1800 CEMENT (1800 236 368)

Website: www.cementaustralia.com.au

Manufacturing Plants

Gladstone: Landing Rd, Fisherman's Landing, Gladstone QLD 4680

Brisbane: 77 Pamela St, Pinkenba QLD 4008

Kandos: Jamieson St, Kandos NSW 2848

Railton: Cement Works Rd, Railton, TAS 7305

Product: Portland Cement

Other Names: General Purpose Cement
Shrinkage Limited Cement
HE (High Early) Cement
Off White Cement
Grey Cement

Use: Portland Cement is used as a binder in concrete, concrete masonry, mortar and grouts. It is also used in the manufacture of fibre cement products, in soil stabilisation in building construction and civil engineering projects.

Section 2: Hazards Identification

Hazardous Substance. Non-dangerous Goods

Risk Phrases

R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.

R36/37/38: Irritating to eyes, respiratory system and skin.

R43: May cause sensitisation by skin contact.

R66: Repeated exposure may cause skin dryness or cracking.

Safety Phrases

S22: Do not breathe dust.

S24/25: Avoid contact with skin and eyes.

S29: Do not empty into drains.

S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.

Section 3: Composition/Information on Ingredients

Portland Cement consists of a crystalline mass manufactured from substances mined from the earth's crust. It contains trace amounts of naturally occurring, but potentially hazardous chemical entities including metals such as chromium and nickel and crystalline silica. All significant constituents are listed below:

Chemical Entity	Proportion	CAS Number
Portland Cement Clinker	<97%	65997-15-1
Gypsum (CaSO ₄ 2H ₂ O)	2-5%	10101-41-4
Limestone (CaCO ₃)	0-7.5%	1317-65-3
Calcium Oxide	0-3%	1305-78-8
Hexavalent Chrome (Cr VI)	<20 ppm	1333-82-0
Crystalline Silica (Quartz)	<1%	14808-60-7

Section 4: First Aid Measures

Swallowed:	Rinse mouth and lips with water. Do not induce vomiting. Give water to drink to dilute stomach contents. If symptoms persist, seek medical attention.
Eyes:	Flush thoroughly with flowing water for 15 minutes to remove all traces. If symptoms such as irritation or redness persist, seek medical attention. If wet cement is splashed in the eye, always treat as above, and seek urgent medical attention.
Skin:	Remove heavily contaminated clothing immediately. Wash off skin thoroughly with water. Use a mild soap if available. Shower if necessary. Seek medical attention for persistent irritation or burning of the skin.
Inhaled:	Remove to fresh air, away from dusty area. If symptoms persist, seek medical attention.
First Aid Facilities:	Eye wash station. Washing facilities with running water.
Advice to Doctor:	Treat symptomatically. Wet cement burns to skin or eye may result in corrosive caustic burns. Ingestion of significant amounts of cement dry or wet is unlikely. Do not induce emesis or perform gastric lavage. Neutralization with acidic agents is not advised because of increased risks of exothermic burns. Water-mineral oil soaks may aid in removing hardened cement from the skin. Ophthalmological opinion should be sought for ocular burns..

Section 5: Fire Fighting Measures

Fire/Explosion Hazard:	None
Hazchem Code:	None allocated
Flammability:	Not flammable
Extinguishing Media:	None required
Hazards from Combustion Products:	None
Special Protective Precautions and equipment for fire fighters:	None required

Section 6: Accidental Release Measures

Spills:	Spills are best cleaned up by vacuum device to avoid generating airborne dust. Recommendations on Exposure Control and Personal Protection should be followed during spill clean-up. Keep product out of storm water and sewer drains. Wetting during clean-up will cause formation of setting cement.
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Section 7: Handling and Storage

Handling:	When supplied in bags these need to be handled in accordance with manual handling Regulations and Code of Practice.
Storage:	Protect from moisture to prevent hardening. Storage of cement may be in concrete silos, steel bins, or plastic lined multi-ply paper bags.

Section 8: Exposure Controls/Personal Protection

Exposure Limits:	National Occupational Health & Safety Commission (NOHSC) Australia Occupational Exposure Standard: Exposure to dust should be kept as low as practicable, and below the following OES. Portland Cement: 10mg/m ³ TWA (time-weighted average) as inspirable dust. Crystalline silica (quartz): 0.1 mg/m ³ TWA as respirable dust (≤ 7 microns particle equivalent aerodynamic diameter). Chromium VI (hexavalent): 0.05 mg/m ³ - sensitiser.
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Engineering Controls:	All work with dry cement should be carried out in such a way as to minimise dust generation, exposure to dust and repeated or extended skin contact. When handling dry cement, use local mechanical ventilation or extraction in areas where dust could escape into the work environment. For bulk deliveries, closed pumping systems are recommended. For handling of individual bags, follow instructions below if no local exhaust ventilation is available. Local dust extraction and collection may be used, if necessary, to control airborne dust levels. Work methods and engineering should aim to minimise contact with wet cement onto exposed skin. Work areas should be cleaned regularly.
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Personal Protection:

Skin:	Minimise contact with Portland Cement materials. When handling dry or wet cement, wet concrete, mortar or grout, personnel should wear protective clothing and impervious footwear, and gloves such as PVC (see Australian and New Zealand Standards AS/NZS 4501 and AS 2161). Never kneel in wet cement, or allow extended contact of skin with wet cement. Remove clothing which has become contaminated with wet or dry cement to avoid prolonged contact with the skin. If cement gets into boots, remove socks and boots immediately and wash skin thoroughly. Wash work clothes regularly. To avoid contamination of face and lips and ingestion, wash hands before eating or smoking.
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Eyes:	Splash resistant Safety Glasses with side shields or safety goggles (AS/NZ 1336) or a face shield should be worn to ensure all contact with eyes is avoided.
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Respiratory:	Where engineering and handling controls are not adequate to minimise exposure to total dust and to respirable crystalline silica wear a suitable P1 or P2 particulate respirator (AS/NZS 1715 and AS/NZS 1716). Use only respirators that bear the Australian Standards mark and are fitted and maintained correctly. For dust levels approaching or exceeding the NES (see above) a more effective particulate respirator as described in AS/NZS 1715 should be worn. Procedures for effective use of respirators should be applied and supervised..
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Section 9: Physical and Chemical Properties

Appearance:	A fine powder ranging in colour from grey to off-white
Odour:	No distinctive odour
Boiling/Melting Point:	Melting point >1200°C
Vapour Pressure:	Not applicable
Specific Gravity:	3.0 – 3.2
Flash Point:	Non applicable
Flammability Limits:	Not applicable
Solubility In Water:	Slight, reacts on mixing with water forming an alkaline (caustic) solution (pH >11)
Particle Size:	Up to 50% of the fresh dry material may be respirable (below 10 microns)

Section 10: Stability and Reactivity

Chemical Stability:	Chemically stable
Conditions to Avoid:	Keep free of moisture
Incompatible Materials:	None
Hazardous Decomposition Products:	None
Hazardous Reactions:	None

Section 11: Toxicological Information

Portland Cements are stable substances, compatible with most other building materials, will not decompose into hazardous by-products and do not polymerise.

Short Term (Acute) Exposure

Swallowed:	Unlikely under normal industrial use. Mildly abrasive and corrosive to mouth and throat if swallowed. May cause nausea, stomach cramps and constipation.
Eyes:	Irritating and corrosive to the eyes and may cause alkaline burns. Cement dust is irritating to the eyes. Exposure to dust may aggravate existing eye irritations.
Skin:	Dust is irritating and drying to the skin. Direct contact with wet cement may cause serious skin burns. Within 12 to 48 hours (after one- to six-hour exposures) possible first, second or third degree burns may occur. There may be no obvious pain at the time of the exposure. Chronic skin disorders may be aggravated by exposure to dust or contact with wet cement.
Inhaled:	Cement dust is irritating to the nose, throat and respiratory tract causing coughing and sneezing. Pre-existing upper respiratory and lung diseases including asthma and bronchitis may be aggravated.

Section 11: Toxicological Information (Cont'd)

Long Term (Chronic) Exposure

Eyes:	Dust may cause irritation and inflammation of the cornea.
Skin:	Repeated contact causes irritation and drying of the skin and can result in skin reddening and skin rash (dermatitis). Over time this may become chronic and can also become infected. Persons who are allergic to chromium may develop an allergic dermatitis which aggravates the irritant effects and this combination can lead to chronic cement dermatitis and serious disability particularly affecting the hands.
Inhaled:	<p>Repeated exposure to the dust may result in increased nasal and respiratory secretions and coughing. Inflammation of lining tissue of the respiratory system may follow repeated exposure to high levels of dust, with increased risk of bronchitis and pneumonia.</p> <p>Repeated and prolonged exposure to dust levels which exceed the OES for crystalline silica (see above) may occur. This can cause bronchitis, and silicosis (scarring of the lung). Long term overexposure to respirable crystalline silica dust may increase the risk of other irreversible and serious disorders including scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels and internal organs).</p> <p>Cement (Portland Cement) is not classified as a carcinogen by NOHSC. Of the ingredients Hexavalent Chromium (Cr VI) is classified as a carcinogen by NOHSC. There is debate in the medical literature concerning whether there is any risk of lung cancer arising from long term high overexposure to respirable crystalline silica. Risk of lung cancer has not been identified from using Portland Cements containing silica. The International Agency for Research on Cancer (IARC) has classified crystalline silica, inhaled in the form of quartz or cristobalite from occupational sources, as carcinogenic to humans (Group 1). NOHSC has not classified crystalline silica as a carcinogen.</p>

Section 12: Ecological Information

Ecotoxicity:	Product forms an alkaline slurry when mixed with water.
Persistence and Degradability:	Product is persistent and would have a low degradability.
Mobility:	A low mobility would be expected in a landfill situation.

Section 13: Disposal Considerations

Portland Cement can be treated as a common waste for disposal or dumped into a landfill site, in accordance with local authority guidelines.

Keep material out of storm water and sewer drains.

Measures should be taken to prevent dust generation during disposal, and exposure and personal precautions should be observed (see above).

Section 14: Transport Information

Transportation is done in bulk or bag form by Ship, Rail and Road.

UN Number:	None allocated
Proper Shipping Name:	None allocated
Class and Subsidiary Risk:	None allocated
Packing Group:	None allocated
Special precautions for user:	Avoid generating and breathing dust
Hazchem Code:	None allocated

Section 15: Regulatory Information

Portland cement is not classified as Dangerous Goods.

Classified as Hazardous according to the criteria of the National Occupational Health and Safety Commission (NOHSC) Approved Criteria For Classifying Hazardous Substances [NOHSC:1008] 3rd Edition

Exposures by inhalation to high levels of dust may be regulated under the Hazardous Substances Regulations (State) as they are applicable to Respirable Crystalline Silica, requiring exposure assessment, controls and health surveillance (NOHSC).

Section 16: Other Information

For further information on this product contact:	Telephone: (07) 3375 0501 (Business Hours) Facsimile: (07) 3375 0473
Emergency Contact Number:	Contact Person: Technical Manager Telephone: (07) 3375 0501 (Business Hours) or Poisons Information Centre 13 11 26

Next Review Date for this MSDS: 31 December 2016.

Australian and New Zealand Standards:

AS 2161: Industrial Safety Gloves and Mittens (excluding electrical and medical gloves).

AS/NZ 1336: Recommended Practices for Occupational Eye Protection.

AS/NZS 1715: Selection, use and maintenance of respiratory protective devices.

AS/NZS 1716: Respiratory protective devices.

AS/NZS 4501: Occupational protective clothing.

Advice Note:

Cement Australia believes the information in this document to be accurate as at the date of preparation noted below, but, to the maximum extent permitted by law, Cement Australia accepts no responsibility for any loss or damage caused by any person acting or refraining from action because of this information.

The provision of this information should not be construed by anyone as a recommendation to use this product. In particular, no one should use any product in violation of any patent or other intellectual proprietary rights or in breach of any statute or regulation.

Users should rely on their own knowledge and inquiries and make their own determination as to the applicability of this information in relation to their particular purposes and specific circumstances. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace and in conjunction with other substances or products.

This MSDS must be reviewed before 31 December 2016.

MATERIAL SAFETY DATA SHEET



1. IDENTIFICATION

Revision Date	JULY 2010			
Product Name	GUAR GUM			
Other Names	GUAR GUM (CYAMOPSIS TETRAGONOLOBUS); CYAMOPSIS GUM; GUAR FLOUR; GUARAN; GUM CYANOPSIS;			
Uses	Stabiliser/thickener. Food applications.			
Contact Information	Organisation	Location	Telephone	Ask For
	Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61 2 97333000	Technical Officer
		11 Mayo Road Wiri Auckland 2104 New Zealand	+64 9 2506222	
	Poison Information Centre	Westmead NSW Australia	131126	
	Chemcall 24 Hour Emergency Number	Australia	1800- 127406	
		New Zealand	0800- 243622	
	National Poisons Centre	New Zealand	0800- 764766	

2. HAZARD IDENTIFICATION

NOT Hazardous according to criteria of NOHSC/ASCC.

Risk Phrases	No data available.
Safety Phrases	No data available.
ERMA New Zealand Approval Code	HSR002732 6.3B 6.5A 6.5B 9.1D
HSNO Hazard Classification	

This Material Safety Data Sheet may not provide exhaustive guidance for all HSNO Controls assigned to this substance. The ERMA Web Site should be consulted for a full list of triggered controls and cited regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Chemical Entity	CAS Number	Proportions (%)
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4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure.

Swallowed	Rinse mouth with water. If swallowed, give a glass of water to drink. If vomiting occurs give further water. Seek medical advice.
Eye	If in eyes, wash out immediately with water. In all cases of eye contamination it is a sensible precaution to seek medical advice.
Skin	If skin contact occurs, remove contaminated clothing and wash skin with running water. If irritation occurs seek medical advice.
Inhaled	Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice if effects persist.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of patient. Material swells on contact with water.
Aggravated medical conditions caused by exposure	No information available on medical conditions which are aggravated from exposure to this product.

5. FIRE FIGHTING MEASURES

Extinguishing Media	In case of fire, appropriate extinguishing media include Dry agent (carbon dioxide, dry chemical powder) - water MUST NOT be allowed to come into contact with substance, forms a very slippery surface and may cause accidents.
Hazards from Combustion Products	Combustible solid. Avoid dust generation. In common with many organic chemicals, may form flammable dust clouds in air. Incompatible with strong oxidising agents, and sources of ignition. On burning will emit toxic fumes, including those of oxides of carbon.
Special Protective Precautions and Equipment for Fire Fighters	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). 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. Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
Flammability Conditions	Product is a combustible solid.
Additional Information	
Hazchem Code	N/A

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures	Avoid accidents, clean up immediately. Slippery when spilt. Personnel involved in the clean up should wear full protective clothing as listed in section 8. Evacuate all unnecessary personnel. Eliminate all sources of ignition. Increase ventilation. Avoid generating dust. Stop leak if safe to do so. Isolate the danger
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area. Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management. Use clean, non-sparking tools and equipment. The material is not explosive, nor does it release any obnoxious gases. But if water is mixed with spilled powder, the floor should be thoroughly cleaned to remove slippery effect on floors.

Methods and Materials for Containment and Clean Up

Contain and sweep/shovel up spills with dust binding material or use an industrial vacuum cleaner. Transfer to a suitable, labelled chemical-waste container and hold for safe disposal.

7. HANDLING AND STORAGE

Precautions for Safe 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 discharges by bonding and grounding equipment. Avoid handling which leads to dust formation. In common with many organic chemicals, may form flammable dust clouds in air. Avoid contact with eyes, skin and clothing. Do not inhale product dust/fumes. Hooks should not be used for handling bags, and not thrown while shifting. The powder should not be kept in the open air since it is susceptible to moisture.

Conditions for Safe Storage (Including Any Incompatibles)

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. Protect from direct sunlight, moisture and static discharges. Store under atmospheric temperature. This product is not classified dangerous for transport according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.

Container Type

Store in original packaging as approved by manufacturer. The material is packaged in multiwall paper bags with polyethylene lining - 25Kg net.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards

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/m³ (for inspirable dust) and 3mg/m³ (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.

Biological Limit Values

No information available on biological limit values for this product.

Engineering Controls

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.

Personal Protection

RESPIRATOR: Wear a P2 particulate respirator when handling this product (AS1715/1716). EYES: Safety glasses with side shields (AS1336/1337). HANDS: Wear impervious gloves (AS2161). CLOTHING: Long-sleeved protective clothing and safety footwear (AS3765/2210).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Creamy/White Free-flowing Powder
Formula	Unspecified
Odour	Slight, Bean-like
Vapour Pressure	Not applicable.
Vapour Density	Not applicable.
Boiling Point	Not applicable.
Melting Point	Not applicable.
Solubility in Water	Excellent in water
Specific Gravity	0.68 (Water = 1)
Flash Point	Test Unknown 300°C
pH	5.00-6.00 ()
Lower Explosion Limit	Not applicable.
Upper Explosion Limit	Not applicable.
Ignition Temperature	Not applicable.
Specific Heat Value	Not applicable.
Particle Size	Not applicable.
Volatile Organic Compounds (VOC) Content	3000-7000 cps Not applicable.
Evaporation Rate	Not applicable.
Viscosity	Not applicable.
Percent Volatile	Not applicable.
Octanol/Water partition coefficient	Not applicable.
Saturated Vapour Concentration	Not applicable.
Additional Characteristics	Not applicable.
Flame Propagation/Burning Rate of Solid Materials	Not applicable. 170°C
Properties of Materials That May Initiate or Contribute to Fire Intensity	Solubility In Other Substances: Not very readily soluble
Potential for Dust Explosion	
Reactions that Release Flammable Gases	
Fast of Intensely Burning	

Characteristics

Non-flammables
That Could
Contribute Unusual
Hazards to a Fire

Release of Invisible
Flammable Vapours
and Gases

Decomposition
Temperature

Additional
Information

10. STABILITY AND REACTIVITY

Chemical Stability	Product is stable under normal conditions of use, storage and temperature.
Conditions to Avoid	Avoid excessive heat, direct sunlight, static discharges, open flame, sources of ignition, dust generation and high temperatures.
Incompatible Materials	Incompatible with strong oxidising agents, and sources of ignition. On burning will emit toxic fumes, including those of oxides of carbon.
Hazardous Decomposition Products	Hazardous polymerization will not occur. No dangerous reaction with any material.
Hazardous Reactions	

11. TOXICOLOGICAL INFORMATION

Toxicity Data	Oral LD50 Rat: 6770mg/Kg
Health Effects - Acute	
Swallowed	No adverse effects expected, however, large amounts may cause nausea and vomiting.
Eye	May be an eye irritant. Exposure to the dust may cause discomfort due to particulate nature. May cause physical irritation to the eyes.
Skin	Repeated or prolonged skin contact may lead to irritation.
Inhaled	Breathing in dust may result in respiratory irritation.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Algae: Nil - the material when mixed with water it will form a paste and remain for 24 hrs, by which time the paste is to be consumed.
Persistence and Degradability	The material is biodegradable. No information available on mobility for this product. Soluble in water.
Mobility	Avoid contaminating waterways, drains and sewers.
Environmental Fate (Exposure)	No information available on bioaccumulation for this product.
Bioaccumulative Potential	

13. DISPOSAL CONSIDERATIONS

Disposal	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 or Incineration	Contact a specialist disposal company or the local waste regulator for advice. Normally suitable for disposal at approved land waste site.

14. TRANSPORT INFORMATION

Land Transport (Australia)

Regulation Name	ADG
UN Number	Not applicable.
Shipping Name	GUAR GUM
Dangerous Goods Class	Not applicable.
Subsidiary Risk	Not applicable.
Pack Group	No data available.
Precaution for User	N/A
Hazchem Code	Not applicable.
EPG	Not applicable.
Special Provision	

Sea Transport (New Zealand)

Regulation Name	IMDG
UN Number	Not applicable.
Shipping Name	GUAR GUM
Dangerous Goods Class	Not applicable.
Subsidiary Risk	Not applicable.
Pack Group	No data available.
Precaution for User	N/A
Hazchem Code	Not applicable.
EPG	Not applicable.
Special Provision	

Air Transport

Regulation Name	IATA
UN Number	Not applicable.
Shipping Name	GUAR GUM
Dangerous Goods Class	Not applicable.
Subsidiary Risk	Not applicable.
Pack Group	No data available.
Precaution for User	No data available.

Hazchem Code	No data available.
EPG	Not applicable.
Special Provision	Land Transport (New Zealand)
Regulation Name	NZS5433
UN Number	Not applicable.
Shipping Name	GUAR GUM
Dangerous Goods Class	Not applicable.
Subsidiary Risk	Not applicable.
Pack Group	No data available.
Precaution for User	N/A
Hazchem Code	Not applicable.
EPG	Not applicable.
Special Provision	

15. REGULATORY INFORMATION

Poisons Schedule	N/A
EPG	N/A
AICS Name	GUAR GUM
NZ Toxic Substance	N
HSNO Hazard Classification	6.3B 6.5A 6.5B 9.1D HSR002732
ERMA Approval Code	

16. OTHER INFORMATION

Literature References	No data available.
Sources for Data	

Legend to Abbreviations and Acronyms

<	less than
>	greater than
ADG	Australian Dangerous Goods Code
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstracts Service (Registry Number)
cm²	square centimetres
CO₂	Carbon Dioxide
COD	Chemical Oxygen Demand
deg C (°C)	degrees Celsius
ERMA	Environmental Risk Management Authority
g	gram

g/cm³	grams per cubic centimetre
g/l	grams per litre
HSNO	Hazardous Substance and New Organism
IATA	International Air Transport Association Dangerous Goods Regulations
IDLH	Immediately Dangerous to Life and Health
IMDG	International Maritime Dangerous Goods Code
immiscible	liquids are insoluble in each other
kg	kilogram
kg/m³	kilograms per cubic metre
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	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	miscible
miscible	liquids form one homogeneous liquid phase regardless of the amount of either component present
mm	millimetre
mPa.s	milli Pascal per second
N/A	Not Applicable
NOHSC	National Occupational Health and Safety Commission
OECD	Organization for Economic Co-operation and Development
PEL	Permissible Exposure Limit
ppb	parts per billion
ppm	parts per million
ppm/2h	parts per million per 2 hours
ppm/6h	parts per million per 6 hours
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 (number)
wt	weight



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This MSDS summarises Redox Pty Ltd best knowledge of the health and safety hazard information of the selected substance and how to safely handle the selected substance in the workplace however Redox Pty Ltd expressly disclaims that the MSDS is a representation or guarantee of the chemical specifications for the substance.

Each user should read the MSDS and consider the information in the context of how the selected substance will be handled and used in the workplace including its use in conjunction with other substances.

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1. IDENTIFICATION

Product Name	Potassium Chloride			
Other Names	Potassium Chloride (KCl)			
Uses	Suitable for use in all food industries and pharmaceutical industry.			
Chemical Family	No Data Available			
Chemical Formula	KCl			
Chemical Name	Potassium Chloride			
Product Description	No Data Available			
Contact Information	Organisation	Location	Telephone	Ask For
	Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000	Technical Officer
		11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222	
	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	NOT Hazardous according to the criteria of ASCC [NOHSC:1008(2004)]
Categories	
Risk Phrases	
Safety Phrases	
HSNO Hazard Classification	6.1E; 6.3B; 6.4A; 9.3B
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
Potassium Chloride	No Data Available	7447-40-7	99.0 - 99.5 %
Sodium Chloride	No Data Available	7647-14-5	0.5 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	If swallowed, wash mouth thoroughly with plenty of water. Get medical attention immediately. Never give an unconscious person anything to drink.
Eye	Holding the eyelids apart, flush eyes promptly with copious flowing water for at least 20 minutes. Get medical attention immediately.
Skin	Remove contaminated clothing. Wash skin thoroughly with mild soap and plenty of water for at least 15 minutes. Wash clothing before re-use. Get medical attention if irritation occurs.
Inhaled	In case of dust inhalation or breathing fumes released from heated material, remove person to fresh air. Keep him quiet and warm. Apply artificial respiration if necessary and get medical attention immediately.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of patient. In case of ingestion, the salt level in the blood must be determined.
Medical Conditions Aggravated by Exposure	No information available on medical conditions aggravated by exposure to this product.

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	Material is not combustible.
Extinguishing Media	In case of fire, use appropriate extinguishing media most suitable for surrounding fire conditions.
Fire and Explosion Hazard	Product is a non-flammable solid.
Hazardous Products of Combustion	When heated to decomposition, may release poisonous and corrosive fumes of potassium oxides, chlorine and HCl.
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	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Avoid accidents, clean up immediately. Slippery when spilt. 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 or use an industrial vacuum cleaner. Transfer to a suitable, labelled container and dispose of promptly.
Containment	Stop leak if safe to do so. Isolate the danger area.
Decontamination	Ventilate area and wash spill site after material pickup is complete.
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. 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

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).
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.
Personal Protection Equipment	RESPIRATOR: Wear an effective dust mask where dusts are generated (AS1715/1716). EYES: Chemical safety goggles (AS1336/1337). HANDS: Protective gloves (AS2161). CLOTHING: Long-sleeved protective coveralls and safety footwear (AS3765/2210).
Work Hygienic Practices	Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Safety shower and eye bath should be provided.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Crystals
Odour	None
Colour	White
pH	7
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling/Melting Point	1500 °C
Solubility	28.1g/100mL °C
Freezing Point	No Data Available
Specific Gravity	1.987
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	>700 °C
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	74.55 g/mol
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	Solubility in other solvents: Ether Glycerin, Alcohol Methanol Boiling point/range: 1500 deg C (sublimation)
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

Chemical Stability	Product is stable under normal conditions of use, storage and temperature.
Conditions to Avoid	Heating above decomposition temperature.
Materials to Avoid	Incompatible with bromine trifluoride, and sulfuric acid (at 600 deg C).
Hazardous Decomposition Products	Potassium oxides, Chlorine and hydrogen chloride.
Hazardous Polymerisation	Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

General Information	Oral LD50 Rat: 2600mg/Kg Mutagenicity: Not mutagenic by the Ames Test. Positive in chromosomal aberrations test (hamster's V79 cells). Negative in DNA damage and repair assay (rat hepatocytes) Carcinogenicity: Not included in NTP 11th report on Carcinogens. Not classified by IARC, OSHA, EPA.
Eye/Irritant	Irritating to eyes.
Ingestion	Large oral doses may cause gastro-intestinal irritation, purging, weakness, and circulaory disorders.
Carcinogen Category	0

12. ECOLOGICAL INFORMATION

Ecotoxicity	Fathead minnow LC50/96hr (Fish): 880mg/L Daphnia magna LC50/48hr: 357mg/L Daphnia magna EC50/48hr: 141mg/L
Persistence/Degradability	No Data Available
Mobility	Soluble in water
Environmental Fate	No Data Available
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. Containers can be recycled after proper cleaning.
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).

Air

IATA

Proper Shipping Name	POTASSIUM CHLORIDE
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	POTASSIUM CHLORIDE
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	POTASSIUM CHLORIDE
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	POTASSIUM CHLORIDE
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

EPA (New Zealand)

Hazardous Substances and New Organisms Act (HSNO)

Approval Code: HSR003261

Poisons Schedule (Aust) No Data Available

AICS Name POTASSIUM CHLORIDE (KCI)

16. OTHER INFORMATION

Related Product Codes POCHLA1000, POCHLA1001, POCHLA1002, POCHLA2000, POCHLA3000, POCHLA4000, POCHLA4100, POCHLA5000, POCHLA6000, POCHLO0500, POCHLO0600, POCHLO1000, POCHLO1001, POCHLO1002, POCHLO1003, POCHLO1004, POCHLO1005, POCHLO1006, POCHLO1007, POCHLO1008, POCHLO1009, POCHLO1010, POCHLO1011, POCHLO1012, POCHLO1013, POCHLO1200, POCHLO1500, POCHLO1501, POCHLO1600, POCHLO1700, POCHLO1800, POCHLO2000, POCHLO2200, POCHLO2500, POCHLO2501, POCHLO2600, POCHLO2700, POCHLO2701, POCHLO2800, POCHLO3000, POCHLO3001, POCHLO3002, POCHLO3100, POCHLO3200, POCHLO3201, POCHLO3202, POCHLO3203, POCHLO3204, POCHLO3205, POCHLO3500, POCHLO3600, POCHLO4000, POCHLO4001, POCHLO4002, POCHLO4200, POCHLO4201, POCHLO4202, POCHLO4300, POCHLO4500, POCHLO4501, POCHLO4600, POCHLO4700, POCHLO5000, POCHLO5001, POCHLO5200, POCHLO5400, POCHLO5500, POCHLO5501, POCHLO5600, POCHLO5601, POCHLO5800, POCHLO6000, POCHLO6001, POCHLO6500, POCHLO6700, POCHLO6800, POCHLO6900, POCHLO7000, POCHLO7001, POCHLO7002, POCHLO7003, POCHLO7100, POCHLO7101, POCHLO7102, POCHLO7103, POCHLO7200, POCHLO7201, POCHLO7300, POCHLO7301, POCHLO7400, POCHLO7401, POCHLO7500, POCHLO7501, POCHLO7502, POCHLO7503, POCHLO7504, POCHLO7505, POCHLO7506, POCHLO7507, POCHLO7600, POCHLO7601, POCHLO7700, POCHLO7701, POCHLO7800, POCHLO7801, POCHLO7802, POCHLO7803, POCHLO7900, POCHLO7901, POCHLO8000, POCHLO8001, POCHLO8002, POCHLO8500, POCHLO8501, POCHLO8600, POCHLO8700, POCHLO8701, POCHLO8800, POCHLO8801, POCHLO8900, POCHLO9000, POCHLO9200, POCHLO9500, POCHLO9501, POCHLO9700, POCHLO9900, POCHLO6550, POCHLO2400, POCHLO1801, POCHLO1802, POCHLO1803, POCHLO1804, POCHLO1805, POCHLO1806, POCHLO1807, POCHLO1808, POCHLO1809, POCHLO1810, POCHLO1811, POCHLO1812, POCHLO1813, POCHLO1814, POCHLO1815, POCHLO1816, POCHLO1817, POCHLO1818, POCHLO1819, POCHLO1820, POCHLO1821, POCHLO8810, POCHLO9100, POCHLO6520

Revision 2

Revision Date 03-Oct-2011

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 insoluble 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 Health 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
tn Tonne
torr Millimetre of Mercury
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight

MATERIAL SAFETY DATA



SHEET - SUACID

1. IDENTIFICATION

Revision Date	SEPTEMBER 2009			
Product Name	SULPHAMIC ACID			
Other Names	AMINOSULFURIC ACID; AMINOSULFONIC ACID; SULFAMIDIC ACID; AMIDOSULFURIC ACID; AMIDOSULFONIC ACID; IMIDOSULFONIC ACID.			
Uses	Metal and ceramic cleaning, nitrite removal in azo dye operations, gas liberating compositions, organic synthesis, analytical acidimetric standard, amine sulphamates used as plasticizers and fire retardants, stabilizing agent for chlorine and hypochlorite in swimming pools, bleaching paper pulp/textiles, catalyst for urea-formaldehyde resins, sulphonating agent, pH control, hard water scale removal, and electroplating.			
Contact Information	Organisation	Location	Telephone	Ask For
	Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61 2 97333000	Technical Officer
		11 Mayo Road Wiri Auckland 2104 New Zealand	+64 9 2506222	
	Poison Information Centre	Westmead NSW Australia	131126	
	Chemcall 24 Hour Emergency Number	Australia New Zealand	1800-127406 0800-243622	
	National Poisons Centre	New Zealand	0800-764766	

2. HAZARD IDENTIFICATION

Hazardous according to criteria of NOHSC/ASCC.

Dangerous According to the Australian Code for the Transport of Dangerous Goods.

Classified as Dangerous Goods According to NZS 5433:1999.

IRRITANT

Risk Phrases	R36/38	Irritating to eyes and skin.
	R52/53	Harmful to aquatic organisms; may cause long term adverse effects in aquatic environment.
Safety Phrases	S2	Keep out of reach of children.
	S24/25	Avoid contact with skin and eyes.
	S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S28:SUACID	After contact with skin, wash immediately with plenty of soap and water.
	S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
	S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
	S61	Avoid release to the environment. Refer to special instructions/Material Safety Data Sheets.
ERMA New Zealand Approval Code	HSR001549	
HSNO Hazard Classification	6.1D 8.1A 8.2C 8.3A 9.1C 9.3C	

This Material Safety Data Sheet may not provide exhaustive guidance for all HSNO Controls assigned to this substance. The ERMA Web Site should be consulted for a full list of triggered controls and cited regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Chemical Entity	CAS Number	Proportions (%)
	SULPHAMIC ACID	[5329-14-6]	99.5-100.0

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure.

Swallowed	Rinse mouth with water. Give water to drink provided victim is conscious. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Seek medical attention immediately.
Eye	If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
Skin	If spilt on large areas of skin or hair, immediately drench with running water and remove contaminated clothing. Continue to wash skin and hair with plenty of water (and soap if material is insoluble) until advised to stop by the Poisons Information Centre or a doctor. Wash clothing and shoes

	before reuse.
Inhaled	Remove victim from exposure to fresh air - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm and at rest. Seek medical advice if effects persist.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of patient. For severe exposures, monitor for delayed onset of pulmonary edema.
Aggravated medical conditions caused by exposure	No information available on medical conditions which are aggravated from exposure to this product.

5. FIRE FIGHTING MEASURES

Extinguishing Media	In case of fire, use appropriate extinguishing media most suitable for surrounding fire conditions. Suitable media may include fine water spray, normal foam, dry agent such as carbon dioxide or dry chemical powder.
Hazards from Combustion Products	Non-combustible solid. Not considered to be a fire hazard. Not considered to be an explosion hazard. Avoid generating dust. Incompatible with oxidizing agents, strong bases, chlorine, hypochlorous acid, hypochlorites, cyanides, sulfides, nitrites, nitrates, carbonates, metal oxides, nitric acid, and sources of ignition. When involved in a fire this product may emit toxic fumes of ammonia, oxides of sulfur, oxides of nitrogen, and oxides of carbon.
Special Protective Precautions and Equipment for Fire Fighters	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) or chemical splash suit. 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. Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
Flammability Conditions	Product is a non-flammable solid.
Additional Information	
Hazchem Code	2X

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures	Personnel involved in the clean up should wear full protective clothing. Avoid accidents, clean up immediately. Evacuate all unnecessary personnel. Increase ventilation. Avoid walking through spilled product as it is slippery when spilt. Stop leak if safe to do so. Isolate the danger area. Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management. Use clean, non-sparking tools and equipment. Shut off all possible sources of ignition. Avoid contact with humid air for the corrosive effect of its aqueous solution.
Methods and Materials for Containment and Clean Up	Contain and sweep/shovel up spills with dust binding material or use an industrial vacuum cleaner. Transfer to suitable, labelled, corrosion-resistant containers and dispose of promptly as hazardous waste.

7. HANDLING AND STORAGE

Precautions for Safe 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 discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do not inhale product vapours. Avoid prolonged or repeated exposure. Remove contaminated clothing and wash before reuse. Keep away from heat, flame, sparks, moisture, incompatibles, and foodstuffs. Keep out of reach of children. Keep containers dry at all times. Prevent moisture absorption (possible caking). Empty containers of this material may be hazardous when empty since they retain product residues. Observe all warnings for the product.
Conditions for Safe Storage (Including Any Incompatibles)	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. Store away from foodstuffs. Keep away from heat, flame sparks, moisture, and sources of ignition. Keep out of reach of children. Keep containers dry at all times. Prevent moisture absorption (possible caking). Empty containers of this material may be hazardous when empty since they retain product residues. Observe all warnings for the product. This product has a UN classification of 2967 and a Dangerous Goods Class 8 (corrosive) according to The Australian Code for the Transport of Dangerous Goods by Road and Rail.
Container Type	Packaging must comply with requirements of Hazardous Substances (Packaging) Regulations 2001. Store in original packaging as approved by manufacturer. NOTE: Use corrosion-resistant containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards	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). 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.
Biological Limit Values	No information available on biological limit values for this product.
Engineering Controls	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.
Personal Protection	RESPIRATOR: Wear an approved particulate respirator when handling this product (AS1715/1716). EYES: Safety glasses with side shields (AS1336/1337). HANDS: Chemical resistant gloves (AS2161). CLOTHING: Chemical resistant protective coveralls and safety footwear (AS3765/2210).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White Crystals or Powder
Formula	H3NO3S
Odour	Odourless
Vapour Pressure	Not applicable.
Vapour Density	3.3
Boiling Point	Decomposes (408°C) deg C
Melting Point	200-205°C deg C
Solubility in Water	213g/L (20°C)
Specific Gravity	2.126 (Water = 1)
Flash Point	Not applicable.
pH	1.18 (1% Solution (25°C))
Lower Explosion Limit	Not applicable.
Upper Explosion Limit	Not applicable.
Ignition Temperature	Not applicable.
Specific Heat Value	Not applicable.
Particle Size	Not applicable.
Volatile Organic Compounds (VOC) Content	Not applicable.
Evaporation Rate	Not applicable.
Viscosity	Not applicable.
Percent Volatile	0%
Octanol/Water partition coefficient	Not applicable.
Saturated Vapour Concentration	Not applicable.
Additional Characteristics	Not applicable.
Flame Propagation/Burning Rate of Solid Materials	Not applicable.
Properties of Materials That May Initiate or Contribute to Fire Intensity	Not applicable.
Potential for Dust Explosion	Not applicable.

Reactions that Release Flammable Gases	Not applicable.
Fast or Intensely Burning Characteristics	Not applicable.
Non-flammables That Could Contribute Unusual Hazards to a Fire	Not applicable.
Release of Invisible Flammable Vapours and Gases	Not applicable.
Decomposition Temperature	209°C
Additional Information	Molecular Weight: 97.1g/mol Solubility : 213g/L, in H ₂ O (20°C) 470g/L, in H ₂ O (80°C) pH (25°C) : 1.1 at 0.15 moles/L 0.6 at 0.50 moles/L

10. STABILITY AND REACTIVITY

Chemical Stability	Product is stable under normal conditions of use, storage and temperature. Corrosive Solid. Solutions are acidic. In water, solution slowly hydrolyses to form ammonium sulfate and bisulfate.
Conditions to Avoid	Avoid excessive heat, elevated temperatures, sparks, flame, sources of ignition, dust generation, moisture/high humidity, avoid heating above decomposition point, avoid storage with strong acid and strong oxidising agents.
Incompatible Materials	Incompatible with oxidizing agents, strong bases, chlorine, hypochlorous acid, hypochlorites, cyanides, sulfides, nitrites, nitrates, carbonates, metal oxides, nitric acid, and sources of ignition.
Hazardous Decomposition Products	When involved in a fire this product may emit toxic fumes of ammonia, oxides of sulfur, oxides of nitrogen, and oxides of carbon.
Hazardous Reactions	Hazardous polymerization will not occur. Attacks metals in the presence of moisture.

11. TOXICOLOGICAL INFORMATION

Toxicity Data	Oral LD50 Rat : >3000mg/Kg Oral LD50 Rat : 3160mg/Kg Oral LD50 Mouse : >1000mg/Kg Oral LD50 Mouse : 1312mg/Kg Oral LD50 Guinea Pig : 1050mg/Kg Irritation Data, Skin, Human: Standard Draize Test: 4%/5days-I mild. Skin, Rabbit: Standard Draize Test: 500mg/24hr severe. Eye, Rabbit: Standard Draize Test: 250ug/24hr severe.
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Health Effects - Acute

Swallowed Corrosive. Swallowing may result in nausea, vomiting, diarrhoea,

abdominal pain, and chemical burns to the gastrointestinal tract. Swallowing may cause severe ere burns of the mouth, throat and stomach, leading to death.

Eye	Causes eye irritation. May cause blurred vision, redness, pain and severe tissue burns and eye damage.
Skin	Irritating to skin. Corrosive. Contact with skin will result in irritation with redness, pain and possible severe burns and stains.
Inhaled	Extremely destructive to tissues of the mucous membranes and upper respiratory tract. Symptoms may include burning sensation due to severe mucous membrane irritation, coughing, choking, headache, dizziness, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. May cause pulmonary oedema, a medical emergency. Pulmonary oedema may be delayed for up to 48 hours.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Harmful effect on aquatic organisms, may cause long-term adverse effects in the aquatic environment. Sulfamic Acid solution is a strong acid, so it changes pH of the water in the limit volume very quickly and ruins the ecological environment. pH of Sulfamic Acid solution at 25'C is as follows: CONCENTRATION: pH: 1.00N 0.41 0.75N 0.50 0.50N 0.63 0.25N 0.87 0.10N 1.18 0.05N 1.41 0.01N 2.02
Persistence and Degardability	No information available on persistence/degradability for this product.
Mobility	No information available on mobility for this product. Soluble in water.
Environmental Fate (Exposure)	Do NOT allow product to enter waterways, drains or sewers.
Bioaccumulative Potential	No information available on bioaccumulation for this product.

13. DISPOSAL CONSIDERATIONS

Disposal	Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. 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 or Incineration	Contact a specialist disposal company or the local waste regulator for advice. This should be done in accordance with 'The Hazardous Waste Act'.

14. TRANSPORT INFORMATION

Land Transport (Australia)

Regulation Name	ADG
UN Number	2967
Shipping Name	SULPHAMIC ACID

Dangerous Goods Class	8 Corrosive Substance
Subsidiary Risk	Not applicable.
Pack Group	III
Precaution for User	IRRITANT
Hazchem Code	2X
EPG	37 TOXIC AND/OR CORROSIVE SUBSTANCES Non-Combustible
Special Provision	Not applicable.



Sea Transport (New Zealand)

Regulation Name	IMDG
UN Number	2967
Shipping Name	SULPHAMIC ACID
Dangerous Goods Class	8 Corrosive Substance
Subsidiary Risk	Not applicable.
Pack Group	III
Precaution for User	IRRITANT
Hazchem Code	2X
EPG	37 TOXIC AND/OR CORROSIVE SUBSTANCES Non-Combustible
Special Provision	Not applicable.



Air Transport

Regulation Name	IATA
UN Number	2967
Shipping Name	SULPHAMIC ACID
Dangerous Goods	8 Corrosive Substance
Subsidiary Risk	

Class	Not applicable.
Pack Group	III
Precaution for User	IRRITANT
Hazchem Code	2X
EPG	37 TOXIC AND/OR CORROSIVE SUBSTANCES Non-Combustible
Special Provision	Not applicable.



Land Transport (New Zealand)

Regulation Name	NZS5433
UN Number	2967
Shipping Name	SULPHAMIC ACID
Dangerous Goods Class	8 Corrosive Substance
Subsidiary Risk	Not applicable.
Pack Group	III
Precaution for User	IRRITANT
Hazchem Code	2X
EPG	37 TOXIC AND/OR CORROSIVE SUBSTANCES Non-Combustible
Special Provision	Not applicable.



Land Transport (Papua New Guinea)

Regulation Name	NZS5433
UN Number	2967
Shipping Name	SULPHAMIC ACID
Dangerous Goods Class	8 Corrosive Substance
Subsidiary Risk	Not applicable.
Pack Group	

	III
Precaution for User	IRRITANT
Hazchem Code	2X
EPG	37 TOXIC AND/OR CORROSIVE SUBSTANCES Non-Combustible
Special Provision	Not applicable.



15. REGULATORY INFORMATION

Poisons Schedule	6
EPG	37
AICS Name	SULFAMIC ACID
NZ Toxic Substance	N
HSNO Hazard Classification	6.1D 8.1A 8.2C 8.3A 9.1C 9.3C
ERMA Approval Code	HSR001549

16. OTHER INFORMATION

Literature References	No data available.
Sources for Data	No data available.

Legend to Abbreviations and Acronyms

<	less than
>	greater than
ADG	Australian Dangerous Goods Code
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstracts Service (Registry Number)
cm²	square centimetres
CO₂	Carbon Dioxide
COD	Chemical Oxygen Demand
deg C (°C)	degrees Celsius
ERMA	

	Environmental Risk Management Authority
g	gram
g/cm³	grams per cubic centimetre
g/l	grams per litre
HSNO	Hazardous Substance and New Organism
IATA	International Air Transport Association Dangerous Goods Regulations
IDLH	Immediately Dangerous to Life and Health
IMDG	International Maritime Dangerous Goods Code
immiscible	liquids are insoluble in each other
kg	kilogram
kg/m³	kilograms per cubic metre
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	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	miscible
miscible	liquids form one homogeneous liquid phase regardless of the amount of either component present
mm	millimetre
mPa.s	milli Pascal per second
N/A	Not Applicable
NOHSC	National Occupational Health and Safety Commission
OECD	Organization for Economic Co-operation and Development
PEL	Permissible Exposure Limit
ppb	parts per billion
ppm	parts per million
ppm/2h	parts per million per 2 hours
ppm/6h	parts per million per 6 hours
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 (number)
wt weight



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Adelaide	Auckland	2 Swettenham Road	facsimile	+61 2 97333111
Brisbane	Christchurch	Minto NSW 2566	web	http://www.redox.com/
Melbourne	Hawke's Bay	Australia	email	mailto:info@redox.com?subject=MSDS%20for%20SULPHAMIC%20ACID
Perth				

Sydney

This MSDS summarises Redox Pty Ltd best knowledge of the health and safety hazard information of the selected substance and how to safely handle the selected substance in the workplace however Redox Pty Ltd expressly disclaims that the MSDS is a representation or guarantee of the chemical specifications for the substance.

Each user should read the MSDS and consider the information in the context of how the selected substance will be handled and used in the workplace including its use in conjunction with other substances.

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MATERIAL SAFETY DATA SHEET

Product Name **XANVIS (RHEOCHEM)****1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER**

Supplier Name RHEOCHEM LTD
Address 11 Alacrity Place, Henderson, WA, AUSTRALIA, 6166
Telephone +61 8 9410 8200
Fax +61 8 9410 8299
Emergency 1800 127 406 (Australia); 011 64 3 3530199 (International)
Web Site <http://www.rheochem.com.au/>
Synonym(s) XANTHUM GUM
Use(s) DRILLING FLUID ADDITIVE • VISCOSITY MODIFIER
SDS Date 01 Nov 2010

2. HAZARDS IDENTIFICATION

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

UN No. None Allocated **DG Class** None Allocated **Subsidiary Risk(s)** None Allocated
Packing Group None Allocated **Hazchem Code** None Allocated

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Formula	CAS No.	Content
GLYOXAL	C2-H2-O2	107-22-2	<1%
XANTHAN GUM	Not Available	11138-66-2	>60%

4. FIRST AID MEASURES

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting. Ingestion is considered unlikely due to product form.

Advice to Doctor Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flammability Combustible. May evolve toxic gases (carbon oxides, hydrocarbons) when heated to decomposition. Finely divided dust may form explosive mixtures with air.

Fire and Explosion Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

Extinguishing Dry agent, carbon dioxide, foam or water fog. Prevent contamination of drains or waterways.

Product Name XANVIS (RHEOCHEM)

Hazchem Code None Allocated

6. ACCIDENTAL RELEASE MEASURES

Spillage Contact emergency services where appropriate. Use personal protective equipment. Clear area of all unprotected personnel. Prevent spill entering drains or waterways. Contain spillage, then collect and place in suitable containers for reuse or disposal. Avoid generating dust.

7. STORAGE AND HANDLING

Storage Store in a cool, dry, well ventilated area, removed from oxidising agents, acids and foodstuffs. Ensure containers are adequately labelled.

Handling Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Exposure Stds No exposure standard(s) allocated.

Biological Limits No biological limit allocated.

Engineering Controls Avoid inhalation. Use in well ventilated areas. Maintain dust levels below the recommended exposure standard.

PPE Wear dust-proof goggles and PVC or rubber gloves. When using large quantities or where heavy contamination is likely, wear: coveralls. Where an inhalation risk exists, wear: a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	WHITE POWDER	Solubility (water)	SOLUBLE
Odour	SLIGHT ODOUR	Specific Gravity	1.5
pH	7 (Approximately)	% Volatiles	NOT AVAILABLE
Vapour Pressure	NOT AVAILABLE	Flammability	COMBUSTIBLE
Vapour Density	NOT AVAILABLE	Flash Point	NOT AVAILABLE
Boiling Point	NOT AVAILABLE	Upper Explosion Limit	NOT AVAILABLE
Melting Point	NOT AVAILABLE	Lower Explosion Limit	NOT AVAILABLE
Evaporation Rate	NOT AVAILABLE		

10. STABILITY AND REACTIVITY

Chemical Stability Stable under recommended conditions of storage.

Conditions to Avoid Avoid heat, sparks, open flames and other ignition sources.

Material to Avoid Incompatible with oxidising agents and acids (eg. nitric acid).

Hazardous Decomposition Products May evolve toxic gases (carbon oxides, hydrocarbons) when heated to decomposition.

Hazardous Reactions Polymerization is not expected to occur.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary	Low toxicity. Under normal conditions of use, adverse health effects are not anticipated. This product is generally considered to be of low toxicity. Use safe work practices to avoid eye contact, prolonged skin contact and dust generation - inhalation.
Eye	Low to moderate irritant. Contact may result in irritation, lacrimation, pain and redness.
Inhalation	Low irritant. Over exposure may result in irritation of the nose and throat, with coughing.
Skin	Low irritant. Prolonged or repeated contact may result in mild irritation.
Ingestion	Low toxicity. Ingestion may result in gastrointestinal irritation. However, due to product form ingestion is considered unlikely. Maintain good personal hygiene standards.
Toxicity Data	GLYOXAL (107-22-2) LD50 (Ingestion): 200 mg/kg (rat) LD50 (Intraperitoneal): 200 mg/kg (mouse) LD50 (Skin): 6600 mg/kg (guinea pig)

12. ECOLOGICAL INFORMATION

Environment	This product is not anticipated to cause adverse effects to animal or plant life if released to the environment in small quantities. Not expected to bioaccumulate.
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13. DISPOSAL CONSIDERATIONS

Waste Disposal	Ensure product is covered with moist soil to prevent dust generation and dispose of to approved Council landfill. Contact the manufacturer if additional information is required.
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

Shipping Name	None Allocated			
UN No.	None Allocated	DG Class	None Allocated	Subsidiary Risk(s) None Allocated
Packing Group	None Allocated	Hazchem Code	None Allocated	

15. REGULATORY INFORMATION

Poison Schedule	A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).
AICS	All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Additional Information	RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.
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ABBREVIATIONS:

ACGIH - American Conference of Industrial Hygienists.
ADG - Australian Dangerous Goods.
BEI - Biological Exposure Indice(s).
CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.
CNS - Central Nervous System.
EC No - European Community Number.
HSNO - Hazardous Substances and New Organisms.
IARC - International Agency for Research on Cancer.
mg/m³ - Milligrams per Cubic Metre.
NOS - Not Otherwise Specified.
pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm - Parts Per Million.
RTECS - Registry of Toxic Effects of Chemical Substances.
STEL - Short Term Exposure Limit.
SWA - Safe Work Australia.
TWA - Time Weighted Average.

Product Name **XANVIS (RHEOCHEM)**

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a Chem Alert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this Chem Alert report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

Report Status

This document has been compiled by RMT on behalf of the manufacturer of the product and serves as the manufacturer's Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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SDS Date 01 Nov 2010

End of Report