

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: ACETIC ACID 60%

Revision Date: 02-Jan-2013

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING
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Statement of Hazardous Nature Hazardous according to the criteria of NOHSC, Dangerous Goods according to the criteria of ADG.

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road
Jandakot
WA 6164
Australia

ACN Number: 009 000 775
Telephone Number: 61 (08) 9455 8300
Fax Number: 61 (08) 9455 5300

Product Emergency Telephone
Australia: 08-64244950
Papua New Guinea: 05 1 281 575 5000
NewZealand: 06-7559274

Fire, Police & Ambulance - Emergency Telephone
Australia: 000
Papua New Guinea: 000
New Zealand: 111

Identification of Substances or Preparation

Product Trade Name: ACETIC ACID 60%
Synonyms: None
Chemical Family: Organic acid
UN Number: , UN2790
Dangerous Goods Class: 8
Subsidiary Risk: None
Hazchem Code: 2R
Poisons Schedule: S6
Application: Solvent

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS
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Substances	CAS Number	PERCENT	Australia NOHSC	New Zealand WES	ACGIH TLV-TWA
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2. COMPOSITION/INFORMATION ON INGREDIENTS

Acetic acid	64-19-7	60 - 100%	TWA: 10 ppm TWA: 25 mg/m ³ STEL: 15 ppm STEL: 37 mg/m ³	STEL: 15 ppm STEL: 37 mg/m ³ TWA: 10 ppm TWA: 25 mg/m ³	TWA: 10 ppm STEL: 15 ppm
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Non-Hazardous Substance to Total of 100%

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye, skin, and respiratory burns. May be harmful if swallowed. Combustible.

Risk Phrases R34 Causes burns.

HSNO Classification Not Determined

4. FIRST AID MEASURES

Inhalation If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

Eyes In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

Ingestion Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

Notes to Physician Not Applicable

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons None known.

Special Exposure Hazards Use water spray to cool fire exposed surfaces. Decomposition in fire may produce toxic gases. Do not allow runoff to enter waterways.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment.

Environmental Precautionary Measures Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Neutralize to pH of 6-8. Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions	Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse.
Storage Information	Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 24 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.
Respiratory Protection	Organic vapor/acid gas respirator.
Hand Protection	Impervious rubber gloves.
Skin Protection	Full protective chemical resistant clothing.
Eye Protection	Chemical goggles; also wear a face shield if splashing hazard exists.
Other Precautions	Eyewash fountains and safety showers must be easily accessible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Clear
Odor:	Acrid
pH:	1.38
Specific Gravity @ 20 C (Water=1):	1.05
Density @ 20 C (kg/l):	1.05
Bulk Density @ 20 C (kg/m³):	Not Determined
Boiling Point/Range (C):	117
Freezing Point/Range (C):	16
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	55
Flash Point Method:	PMCC
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (g/m³):	Not Determined
Flammability Limits in Air - Lower (%):	5.4
Flammability Limits in Air - Upper (g/m³):	Not Determined
Flammability Limits in Air - Upper (%):	16
Vapor Pressure @ 20 C (mmHg):	11.7
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	100
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (g/l):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	60.6
Decomposition Temperature (C):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur

ACETIC ACID 60%
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Conditions to Avoid	Keep away from heat, sparks and flame.
Incompatibility (Materials to Avoid)	Strong alkalis.
Hazardous Decomposition Products	Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
<u>Symptoms related to exposure</u>	
Inhalation	Causes severe respiratory irritation.
Skin Contact	May cause skin burns.
Eye Contact	May cause eye burns.
Ingestion	Causes burns of the mouth, throat and stomach.
Aggravated Medical Conditions	Skin disorders.
Chronic Effects/Carcinogenicity	Prolonged, excessive exposure may cause erosion of the teeth.
Other Information	None known.
Toxicity Tests	
Oral Toxicity:	LD50: 3310 mg/kg (Rat)
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Readily biodegradable
Bio-accumulation	Not determined

Ecotoxicological Information

Acute Fish Toxicity:	Not determined
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined

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Other Information Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method Disposal should be made in accordance with federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

ADR

UN2790, Acetic Acid Solution, 8, II

Air Transportation

ICAO/IATA

UN2790, Acetic Acid Solution, 8, IIRQ (Acetic Acid - 3788 kg.)

Sea Transportation

IMDG

UN2790, Acetic Acid Solution, 8, IIRQ (Acetic Acid - 3788 kg.)
EmS F-A, S-B

Other Transportation Information

Labels: Corrosive

15. REGULATORY INFORMATION

Chemical Inventories

Australian AICS Inventory	All components listed on inventory or are exempt.
New Zealand Inventory of Chemicals	All components listed on inventory or are exempt.
US TSCA Inventory	All components listed on inventory or are exempt.
EINECS Inventory	This product, and all its components, complies with EINECS

Classification C - Corrosive.

Risk Phrases R34 Causes burns.

Safety Phrases
S2 Keep out of reach of children.
S23 Do not breathe gas, fumes, vapour or spray.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45 In case of accident or if you feel unwell, seek medical advice immediately.

16. OTHER INFORMATION

The following sections have been revised since the last issue of this SDS
Not applicable

Contact**Australian Poisons Information Centre**

24 Hour Service: - 13 11 26

Police or Fire Brigade: - 000 (exchange): - 1100

New Zealand National Poisons Centre

0800 764 766

Additional Information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

END OF MSDS

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: BC-140C

Revision Date: 27-Aug-2013

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING
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Statement of Hazardous Nature Non-Hazardous according to the criteria of NOHSC, Non-Dangerous Goods according to the criteria of ADG.

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road
Jandakot
WA 6164
Australia

ACN Number: 009 000 775
Telephone Number: 61 (08) 9455 8300
Fax Number: 61 (08) 9455 5300

Product Emergency Telephone
Australia: 08-64244950
Papua New Guinea: 05 1 281 575 5000
NewZealand: 06-7559274

Fire, Police & Ambulance - Emergency Telephone
Australia: 000
Papua New Guinea: 000
New Zealand: 111

Identification of Substances or Preparation

Product Trade Name: BC-140C
Synonyms: None
Chemical Family: Blend
UN Number: None
Dangerous Goods Class: None
Subsidiary Risk: None
Hazchem Code: None Allocated
Poisons Schedule: None Allocated
Application: Crosslinker

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS
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Substances	CAS Number	PERCENT (w/w)	Australia NOHSC	New Zealand WES	ACGIH TLV-TWA
Monoethanolamine borate	26038-87-9	30 - 60%	Not applicable	Not applicable	Not applicable
Non-Hazardous Substance to Total of 100%					

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3. HAZARDS IDENTIFICATION

Hazard Overview	May cause eye, skin, and respiratory irritation. May be harmful if swallowed.
Risk Phrases	None
HSNO Classification	Not Determined

4. FIRST AID MEASURES

Inhalation	If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.
Skin	In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.
Eyes	In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Ingestion	Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.
Notes to Physician	Not Applicable

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media	Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons	None known.
Special Exposure Hazards	Decomposition in fire may produce toxic gases.
Special Protective Equipment for Fire-Fighters	Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures	Use appropriate protective equipment.
Environmental Precautionary Measures	Prevent from entering sewers, waterways, or low areas.
Procedure for Cleaning / Absorption	Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions	Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse.
Storage Information	Store away from oxidizers. Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 36 months.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.
Respiratory Protection	Not normally needed. But if significant exposures are possible then the following respirator is recommended: Organic vapor respirator.
Hand Protection	Impervious rubber gloves.
Skin Protection	Rubber apron.
Eye Protection	Safety glasses.
Other Precautions	Eyewash fountains and safety showers must be easily accessible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Blue
Odor:	Amine
pH:	7.9
Specific Gravity @ 20 C (Water=1):	1.16
Density @ 20 C (kg/l):	1.16
Bulk Density @ 20 C (kg/M3):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (C):	Not Determined
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (g/m³):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (g/m³):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (g/l):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined
Decomposition Temperature (C):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated

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Incompatibility (Materials to Avoid) Strong oxidizers. Dehydrating agents.

Hazardous Decomposition Products Toxic fumes. Carbon monoxide and carbon dioxide.

Additional Guidelines Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Acute Toxicity

Inhalation May cause respiratory irritation.
Eye Contact May cause eye irritation.
Skin Contact May cause skin irritation.
Ingestion May be harmful if swallowed.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 1% are chronic health hazards.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Monoethanolamine borate	26038-87-9	>2000 mg/kg (Rat)	>2000 mg/kg (Rat)	No data available

12. ECOLOGICAL INFORMATION

Ecotoxicological Information

Ecotoxicity Product

Acute Fish Toxicity: Not determined
Acute Crustaceans Toxicity: Not determined
Acute Algae Toxicity: Not determined

Ecotoxicity Substance

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Monoethanolamine borate	26038-87-9	No information available	No information available	No information available	No information available

Persistence and degradability

No information available

Bioaccumulative potential

No information available

Mobility in soil

No information available

Results of PBT and vPvB assessment

No information available.

Other adverse effects

13. DISPOSAL CONSIDERATIONS

Disposal Method Disposal should be made in accordance with federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

ADR
Not restricted

Air Transportation

ICAO/IATA
Not restricted

Sea Transportation

IMDG
Not restricted

Other Transportation Information

Labels: None

15. REGULATORY INFORMATION

Chemical Inventories

Australian AICS Inventory	All components listed on inventory or are exempt.
New Zealand Inventory of Chemicals	All components listed on inventory or are exempt.
US TSCA Inventory	All components listed on inventory or are exempt.
EINECS Inventory	This product, and all its components, complies with EINECS

Classification	Not Classified
Risk Phrases	None

Safety Phrases	None
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16. OTHER INFORMATION

The following sections have been revised since the last issue of this SDS
Not applicable

Contact

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

New Zealand National Poisons Centre
0800 764 766

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Additional Information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

END OF MSDS

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HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: BE-9

Revision Date: 21-Dec-2012

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING
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Statement of Hazardous Nature Hazardous according to the criteria of NOHSC, Dangerous Goods according to the criteria of ADG.

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road
Jandakot
WA 6164
Australia

ACN Number: 009 000 775
Telephone Number: 61 (08) 9455 8300
Fax Number: 61 (08) 9455 5300

Product Emergency Telephone
Australia: 08-64244950
Papua New Guinea: 05 1 281 575 5000
New Zealand: 06-7559274

Fire, Police & Ambulance - Emergency Telephone
Australia: 000
Papua New Guinea: 000
New Zealand: 111

Identification of Substances or Preparation

Product Trade Name: BE-9
Synonyms: None
Chemical Family: Solution
UN Number: , UN2922
Dangerous Goods Class: 6.1
Subsidiary Risk: 8
Hazchem Code: 2X
Poisons Schedule: None
Application: Biocide

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS
--

Substances	CAS Number	PERCENT	Australia NOHSC	New Zealand OEL	ACGIH TLV-TWA
Tributyl tetradecyl phosphonium chloride	81741-28-8	5 - 10%	Not applicable	Not applicable	Not applicable

Non-Hazardous Substance to Total of 100%

3. HAZARDS IDENTIFICATION

Hazard Overview	May cause eye and skin burns. May cause respiratory irritation. May be harmful if swallowed. May be harmful if inhaled.
Risk Phrases	R22 Harmful if swallowed. R36/38 Irritating to eyes and skin. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
HSNO Classification	Not Determined

4. FIRST AID MEASURES

Inhalation	If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.
Skin	Wash with soap and water. Get medical attention if irritation persists. Remove contaminated clothing and launder before reuse. Remove contaminated shoes and discard.
Eyes	In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Ingestion	If swallowed, do NOT induce vomiting. Give victim two glasses of water, Call a physician immediately. Never give anything by mouth to an unconscious person.
Notes to Physician	Not Applicable

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media	Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons	None known.
Special Exposure Hazards	Decomposition in fire may produce toxic gases. Do not allow runoff to enter waterways. Use water spray to cool fire exposed surfaces.
Special Protective Equipment for Fire-Fighters	Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures	Use appropriate protective equipment.
Environmental Precautionary Measures	Prevent from entering sewers, waterways, or low areas.
Procedure for Cleaning / Absorption	Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions	Avoid contact with eyes, skin, or clothing. Wash hands after use. Launder contaminated clothing before reuse. Do NOT consume food, drink, or tobacco in contaminated areas.
Storage Information	Store in a cool well ventilated area. Keep container closed when not in use. Store away from direct sunlight. Store in a dry location. Store in a manner to prevent commingling with incompatible materials. Store away from alkalis. Store away from reducing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.
Respiratory Protection	If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3)
Hand Protection	Impervious rubber gloves. Neoprene gloves. Polyvinylchloride gloves.
Skin Protection	Wear impervious protective clothing, including boots, gloves, lab coat, apron, rain jacket, pants or coverall, as appropriate, to prevent skin contact.
Eye Protection	Chemical goggles; also wear a face shield if splashing hazard exists.
Other Precautions	Eyewash fountains and safety showers must be easily accessible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Clear colorless
Odor:	Slight
pH:	6-8
Specific Gravity @ 20 C (Water=1):	0.95-1.00
Density @ 20 C (kg/l):	0.95-1.00
Bulk Density @ 20 C (kg/m³):	Not Determined
Boiling Point/Range (C):	100
Freezing Point/Range (C):	Not Determined
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (g/m³):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (g/m³):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Miscible
Solubility in Solvents (g/100ml):	Not Determined
VOCs (g/l):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined

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9. PHYSICAL AND CHEMICAL PROPERTIES

Viscosity, Kinematic @ 20 C (centistokes):	55-65
Partition Coefficient/n-Octanol/Water:	< 3
Molecular Weight (g/mole):	Not Determined
Decomposition Temperature (C):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Reducing agents. Strong alkalis.
Hazardous Decomposition Products	Chlorine. Phosphorus acids. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause respiratory irritation. May be harmful if inhaled.
Skin Contact	May cause skin burns. Harmful if absorbed through the skin.
Eye Contact	May cause eye burns.
Ingestion	May be harmful if swallowed.
Aggravated Medical Conditions	Lung disorders. Skin disorders.
Chronic Effects/Carcinogenicity	Not determined
Other Information	None known.
Toxicity Tests	
Oral Toxicity:	LD50: > 2000 mg/kg (Rat)
Dermal Toxicity:	Not determined
Inhalation Toxicity:	LC50: 0.9 mg/l 4-hour (rat) (TTPC)
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Ames test: negative
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Readily biodegradable

Bio-accumulation Not determined

Ecotoxicological Information

Acute Fish Toxicity: LC50: (96 hour) 0.46 mg/L (Oncorhynchus mykiss)
 LC50: (96 hour) 0.06 mg/l (Lepomis macrochirus)
 LC50: (96 hour) 0.58 mg/l (fish)
 Acute Crustaceans Toxicity: TLM96: 1.6 mg/l (Crangon crangon) TLM48: 0.025 mg/l (Daphnia magna)
 Acute Algae Toxicity: Not determined

Chemical Fate Information Not determined

Other Information Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

ADR

UN2922, Corrosive Liquid, Toxic, N.O.S.(contains Tributyl Tetradecyl Phosphonium Chloride), 8, (6.1), II

Air Transportation

ICAO/IATA

UN2922, Corrosive Liquid, Toxic, N.O.S., 8, (6.1), II
 (contains Tributyl Tetradecyl Phosphonium Chloride)

Sea Transportation

IMDG

UN2922, Corrosive Liquid, Toxic, N.O.S.(contains Tributyl Tetradecyl Phosphonium Chloride), 8, (6.1), II
 EmS F-A, S-B

Other Transportation Information

Labels: Corrosive
 Toxic

15. REGULATORY INFORMATION

Chemical Inventories

Australian AICS Inventory All components listed on inventory or are exempt.
 New Zealand Inventory of Chemicals This product does not comply with NZIOC
 US TSCA Inventory All components listed on inventory or are exempt.
 EINECS Inventory This product, and all its components, complies with EINECS

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Classification	Xi - Irritant. N - Dangerous For The Environment.
Risk Phrases	R22 Harmful if swallowed. R36/38 Irritating to eyes and skin. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Phrases	S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S45 In case of accident or if you feel unwell, seek medical advice immediately. S60 This material and/or its container must be disposed of as hazardous waste. S61 Avoid release to the environment. Refer to special instructions/Safety data sheets. S1/2 Keep locked up and out of reach of children. S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS
 Section 15. Regulatory Information

Contact

Australian Poisons Information Centre
 24 Hour Service: - 13 11 26
 Police or Fire Brigade: - 000 (exchange): - 1100

New Zealand National Poisons Centre
 0800 764 766

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

END OF MSDS

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: DCA-16001

Revision Date: 14-Feb-2014

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

Statement of Hazardous Nature Non-Hazardous according to the criteria of NOHSC, Non-Dangerous Goods according to the criteria of ADG.

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road
Jandakot
WA 6164
Australia

ACN Number: 009 000 775
Telephone Number: 61 (08) 9455 8300
Fax Number: 61 (08) 9455 5300

Product Emergency Telephone
Australia: 08-64244950
Papua New Guinea: 05 1 281 575 5000
NewZealand: 06-7559274

Fire, Police & Ambulance - Emergency Telephone
Australia: 000
Papua New Guinea: 000
New Zealand: 111

Identification of Substances or Preparation

Product Trade Name: DCA-16001
Synonyms: None
Chemical Family: Salt
UN Number: None
Dangerous Goods Class: None
Subsidiary Risk: None
Hazchem Code: None Allocated
Poisons Schedule: None Allocated
Application: Clay Stabilization Agent

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. HAZARDS IDENTIFICATION

Statement of Hazardous Nature Non-Hazardous according to the criteria of NOHSC, Non-Dangerous Goods according to the criteria of ADG.

Hazard Overview May cause mild eye, skin, and respiratory irritation. May be harmful if swallowed.

Classification	None
Risk Phrases	None
Safety Phrases	None
HSNO Classification	6.1E (Oral) Acutely Toxic Substances 6.3B Mildly irritating to the skin 6.4A (mild irritant) Irritating to the eye

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	Australia NOHSC	New Zealand WES	ACGIH TLV-TWA
Contains no hazardous substances	Mixture	60 - 100%	Not applicable	Not applicable	Not applicable
Non-Hazardous Substance to Total of 100%					

4. FIRST AID MEASURES

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Skin	Wash with soap and water. Get medical attention if irritation persists.
Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Ingestion	Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.
Notes to Physician	Not Applicable

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media
Not Determined

Extinguishing media which must not be used for safety reasons
None known.

Special Exposure Hazards Not applicable.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment.

Environmental Precautionary Measures None known.

Procedure for Cleaning / Absorption Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions	Avoid contact with eyes, skin, or clothing.
Storage Information	Store in a cool, dry location. Keep container closed when not in use. Product has a shelf life of 24 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use in a well ventilated area.
Respiratory Protection	Not normally necessary.
Hand Protection	Impervious rubber gloves.
Skin Protection	Normal work coveralls.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	Eyewash fountains and safety showers must be easily accessible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	White
Odor:	Mild amine
pH:	7-9
Specific Gravity @ 20 C (Water=1):	1.07 - 1.091
Density @ 20 C (kg/l):	Not Determined
Bulk Density @ 20 C (kg/M3):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (C):	Not Determined
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (g/m³):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (g/m³):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (g/l):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined
Decomposition Temperature (C):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
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Page 3 of 6

Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	Avoid contact with metals such as aluminum, tin, lead, brass, bronze, copper, and zinc.
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Oxides of nitrogen. Hydrogen chloride. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure None known

Symptoms related to exposure

Acute Toxicity

Inhalation	May cause mild respiratory irritation.
Eye Contact	May cause mild eye irritation.
Skin Contact	May cause mild skin irritation.
Ingestion	May be harmful if swallowed.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 1% are chronic health hazards.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances	Mixture	No data available	No data available	No data available

12. ECOLOGICAL INFORMATION

Ecotoxicological Information

Ecotoxicity Product

Acute Fish Toxicity:	Not determined
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined

Ecotoxicity Substance

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances	Mixture	No information available	No information available	No information available	No information available

12.2 Persistence and degradability
Expected to be readily biodegradable

12.3 Bioaccumulative potential
Does not bioaccumulate

12.4 Mobility in soil
No information available

12.5 Results of PBT and vPvB assessment

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This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

12.6 Other adverse effects

13. DISPOSAL CONSIDERATIONS

Disposal Method Disposal should be made in accordance with federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

ADR
Not restricted

Air Transportation

ICAO/IATA
Not restricted

Sea Transportation

IMDG
Not restricted

Other Transportation Information

Labels: None

15. REGULATORY INFORMATION

Chemical Inventories

Australian AICS Inventory	All components listed on inventory or are exempt.
New Zealand Inventory of Chemicals	All components listed on inventory or are exempt.
US TSCA Inventory	All components listed on inventory or are exempt.
EINECS Inventory	This product, and all its components, complies with EINECS

Classification	Not Classified
Risk Phrases	None

Safety Phrases	None
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16. OTHER INFORMATION

The following sections have been revised since the last issue of this SDS
Not applicable

Contact**Australian Poisons Information Centre**

24 Hour Service: - 13 11 26

Police or Fire Brigade: - 000 (exchange): - 1100

New Zealand National Poisons Centre

0800 764 766

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

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END OF MSDS

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HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: DCA-17004

Revision Date: 13-Mar-2014

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

Statement of Hazardous Nature Non-Hazardous according to the criteria of NOHSC, Non-Dangerous Goods according to the criteria of ADG.

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road
Jandakot
WA 6164
Australia

ACN Number: 009 000 775
Telephone Number: 61 (08) 9455 8300
Fax Number: 61 (08) 9455 5300

Product Emergency Telephone
Australia: 08-64244950
Papua New Guinea: 05 1 281 575 5000
New Zealand: 06-7559274

Fire, Police & Ambulance - Emergency Telephone
Australia: 000
Papua New Guinea: 000
New Zealand: 111

Identification of Substances or Preparation

Product Trade Name: DCA-17004
Synonyms: None
Chemical Family: Blend
UN Number: None
Dangerous Goods Class: None
Subsidiary Risk: None
Hazchem Code: None Allocated
Poisons Schedule: None Allocated
Application: Corrosion Inhibitor

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. HAZARDS IDENTIFICATION

Statement of Hazardous Nature Non-Hazardous according to the criteria of NOHSC, Non-Dangerous Goods according to the criteria of ADG.

Hazard Overview No significant hazards expected.

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Classification None
Risk Phrases None
Safety Phrases None
HSNO Classification Non-hazardous

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	Australia NOHSC	New Zealand WES	ACGIH TLV-TWA
Contains no hazardous substances	Mixture	60 - 100%	Not applicable	Not applicable	Not applicable

Non-Hazardous Substance to Total of 100%

4. FIRST AID MEASURES

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Skin Get medical attention if irritation persists. Wash with soap and water.
Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Ingestion Under normal conditions, first aid procedures are not required.
Notes to Physician Not Applicable

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media
 All standard fire fighting media

Extinguishing media which must not be used for safety reasons
 None known.

Special Exposure Hazards Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment.

Environmental Precautionary Measures None known.

Procedure for Cleaning / Absorption Scoop up and remove.

7. HANDLING AND STORAGE

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Handling Precautions	Avoid creating or inhaling dust.
Storage Information	Store away from oxidizers. Store in a dry location. Product has a shelf life of 24 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	A well ventilated area to control dust levels.
Respiratory Protection	Not normally needed. But if significant exposures are possible then the following respirator is recommended: Dust/mist respirator. (N95, P2/P3)
Hand Protection	Normal work gloves.
Skin Protection	Normal work coveralls.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Color:	Brown
Odor:	Coffee bean
pH:	Not Determined
Specific Gravity @ 20 C (Water=1):	Not Determined
Density @ 20 C (kg/l):	Not Determined
Bulk Density @ 20 C (kg/M3):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (C):	Not Determined
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (g/m³):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (g/m³):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (g/l):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined
Decomposition Temperature (C):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
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Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None known.
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Acute Toxicity

Inhalation	May cause mild respiratory irritation.
Eye Contact	May cause mild eye irritation.
Skin Contact	May cause mild skin irritation.
Ingestion	None known

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 1% are chronic health hazards. Generally Recognized As Safe (GRAS)

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances	Mixture	No data available	No data available	No data available

12. ECOLOGICAL INFORMATION

Ecotoxicological Information

Ecotoxicity Product

Acute Fish Toxicity:	Not determined
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined

Ecotoxicity Substance

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances	Mixture	No information available	No information available	No information available	No information available

12.2 Persistence and degradability

Product is biodegradable

12.3 Bioaccumulative potential

Does not bioaccumulate

12.4 Mobility in soil

No information available

12.5 Results of PBT and vPvB assessment

No information available.

12.6 Other adverse effects

13. DISPOSAL CONSIDERATIONS

Disposal Method Bury in a licensed landfill according to federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

ADR
Not restricted

Air Transportation

ICAO/IATA
Not restricted

Sea Transportation

IMDG
Not restricted

Other Transportation Information

Labels: None

15. REGULATORY INFORMATION

Chemical Inventories

Australian AICS Inventory	All components listed on inventory or are exempt.
New Zealand Inventory of Chemicals	All components listed on inventory or are exempt.
US TSCA Inventory	All components listed on inventory or are exempt.
EINECS Inventory	This product, and all its components, complies with EINECS

Classification	Not Classified
Risk Phrases	None

Safety Phrases	None
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16. OTHER INFORMATION

The following sections have been revised since the last issue of this SDS
Not applicable

Contact**Australian Poisons Information Centre**

24 Hour Service: - 13 11 26

Police or Fire Brigade: - 000 (exchange): - 1100

New Zealand National Poisons Centre

0800 764 766

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

END OF MSDS

HALLIBURTON**MATERIAL SAFETY DATA SHEET****Product Trade Name:** DCA-25005**Revision Date:** 05-Mar-2014**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING****Statement of Hazardous Nature** Non-Hazardous according to the criteria of NOHSC, Non-Dangerous Goods according to the criteria of ADG.**Manufacturer/Supplier** Halliburton Australia Pty. Ltd.
15 Marriott Road
Jandakot
WA 6164
AustraliaACN Number: 009 000 775
Telephone Number: 61 (08) 9455 8300
Fax Number: 61 (08) 9455 5300**Product Emergency Telephone**
Australia: 08-64244950
Papua New Guinea: 05 1 281 575 5000
NewZealand: 06-7559274**Fire, Police & Ambulance - Emergency Telephone**
Australia: 000
Papua New Guinea: 000
New Zealand: 111**Identification of Substances or Preparation****Product Trade Name:** DCA-25005
Synonyms: None
Chemical Family: Polysaccharide
UN Number: None
Dangerous Goods Class: None
Subsidiary Risk: None
Hazchem Code: None Allocated
Poisons Schedule: None Allocated
Application: Gelling Agent**Prepared By** Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com**2. HAZARDS IDENTIFICATION****Statement of Hazardous Nature** Non-Hazardous according to the criteria of NOHSC, Non-Dangerous Goods according to the criteria of ADG.DCA-25005
Page 1 of 6

Hazard Overview May cause mild eye, skin, and respiratory irritation. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Classification None

Risk Phrases None

Safety Phrases None

HSNO Classification 6.3B Mildly irritating to the skin
6.5A Respiratory sensitisers
6.5B Contact sensitisers
9.1D Slightly harmful in the aquatic environment

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	Australia NOHSC	New Zealand WES	ACGIH TLV-TWA
Contains no hazardous substances	Mixture	60 - 100%	Not applicable	Not applicable	Not applicable

Non-Hazardous Substance to Total of 100%

4. FIRST AID MEASURES

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Skin Wash with soap and water. Get medical attention if irritation persists.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Notes to Physician Not Applicable

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons
None known.

Special Exposure Hazards Decomposition in fire may produce toxic gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust.

Storage Information Store away from oxidizers. Store in a cool, dry location. Product has a shelf life of 24 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Use in a well ventilated area.

Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Dust/mist respirator. (N95, P2/P3)

Hand Protection Normal work gloves.

Skin Protection Normal work coveralls.

Eye Protection Wear safety glasses or goggles to protect against exposure.

Other Precautions None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Color:	Off white
Odor:	Bean
pH:	6.5-7.5
Specific Gravity @ 20 C (Water=1):	1.42 -1.47
Density @ 20 C (kg/l):	Not Determined
Bulk Density @ 20 C (kg/M3):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (C):	Not Determined
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	Not Determined Min: > 93
Flash Point Method:	COC
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (g/m³):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (g/m³):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (g/l):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined

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Molecular Weight (g/mole):
Decomposition Temperature (C):

Not Determined
Not Determined

10. STABILITY AND REACTIVITY

Stability Data: Stable

Hazardous Polymerization: Will Not Occur

Conditions to Avoid: None anticipated

Incompatibility (Materials to Avoid): Strong oxidizers.

Hazardous Decomposition Products: Carbon monoxide and carbon dioxide.

Additional Guidelines: Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure: Eye or skin contact, inhalation.

Symptoms related to exposure

Acute Toxicity

Inhalation: May cause mild respiratory irritation. May cause allergic respiratory reaction.

Eye Contact: May cause mild eye irritation.

Skin Contact: None known.

Ingestion: None known

Chronic Effects/Carcinogenicity: No data available to indicate product or components present at greater than 1% are chronic health hazards.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances	Mixture	No data available	No data available	No data available

12. ECOLOGICAL INFORMATION

Ecotoxicological Information

Ecotoxicity Product

Acute Fish Toxicity: Not determined

Acute Crustaceans Toxicity: Not determined

Acute Algae Toxicity: Not determined

Ecotoxicity Substance

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances	Mixture	No information available	No information available	No information available	No information available

12.2 Persistence and degradability

Readily biodegradable

12.3 Bioaccumulative potential
Does not bioaccumulate

12.4 Mobility in soil
No information available

12.5 Results of PBT and vPvB assessment
No information available.

12.6 Other adverse effects

13. DISPOSAL CONSIDERATIONS

Disposal Method Bury in a licensed landfill according to federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

ADR
Not restricted

Air Transportation

ICAO/IATA
Not restricted

Sea Transportation

IMDG
Not restricted

Other Transportation Information

Labels: None

15. REGULATORY INFORMATION

Chemical Inventories

Australian AICS Inventory	All components listed on inventory or are exempt.
New Zealand Inventory of Chemicals	All components listed on inventory or are exempt.
US TSCA Inventory	All components listed on inventory or are exempt.
EINECS Inventory	This product, and all its components, complies with EINECS

Classification	Not Classified
Risk Phrases	None

Safety Phrases	None
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16. OTHER INFORMATION

The following sections have been revised since the last issue of this SDS
Not applicable

Contact

Australian Poisons Information Centre

24 Hour Service: - 13 11 26

Police or Fire Brigade: - 000 (exchange): - 1100

New Zealand National Poisons Centre

0800 764 766

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

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END OF MSDS

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: DCA-32002

Revision Date: 05-Mar-2014

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

Statement of Hazardous Nature Hazardous according to the criteria of NOHSC, Non-Dangerous Goods according to the criteria of ADG.

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road
Jandakot
WA 6164
Australia

ACN Number: 009 000 775
Telephone Number: 61 (08) 9455 8300
Fax Number: 61 (08) 9455 5300

Product Emergency Telephone
Australia: 08-64244950
Papua New Guinea: 05 1 281 575 5000
New Zealand: 06-7559274

Fire, Police & Ambulance - Emergency Telephone
Australia: 000
Papua New Guinea: 000
New Zealand: 111

Identification of Substances or Preparation

Product Trade Name: DCA-32002
Synonyms: None
Chemical Family: Ethoxylated and propoxylated alcohols
UN Number: None
Dangerous Goods Class: None
Subsidiary Risk: None
Hazchem Code: None Allocated
Poisons Schedule: None Allocated
Application: Surfactant

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. HAZARDS IDENTIFICATION

Statement of Hazardous Nature Hazardous according to the criteria of NOHSC, Non-Dangerous Goods according to the criteria of ADG.

Hazard Overview May cause eye irritation

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Classification	Xi - Irritant. N - Dangerous For The Environment.
Risk Phrases	R41 Risk of serious damage to eyes. R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Phrases	S25 Avoid contact with eyes. S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
HSNO Classification	8.3A Corrosive to ocular tissue 9.1A Very ecotoxic in the aquatic environment

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	Australia NOHSC	New Zealand WES	ACGIH TLV-TWA
Alcohols, C6-C12, ethoxylated propoxylated	68937-66-6	60 - 100%	Not applicable	Not applicable	Not applicable
Alcohols, C10-C16, ethoxylated propoxylated	69227-22-1	10 - 30%	Not applicable	Not applicable	Not applicable

Non-Hazardous Substance to Total of 100%

4. FIRST AID MEASURES

Inhalation	Under normal conditions, first aid procedures are not required.
Skin	Wash with soap and water. Get medical attention if irritation persists.
Eyes	Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.
Ingestion	Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.
Notes to Physician	Not Applicable

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media
 Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons
 None known.

Special Exposure Hazards Decomposition in fire may produce toxic gases.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures	Use appropriate protective equipment.
Environmental Precautionary Measures	Prevent from entering sewers, waterways, or low areas.
Procedure for Cleaning / Absorption	Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions	Avoid contact with eyes, skin, or clothing. Wash hands after use. Slippery when wet. Launder contaminated clothing before reuse.
Storage Information	Store away from oxidizers. Keep container closed when not in use. Keep from heat, sparks, and open flames. Product has a shelf life of 24 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	None known.
Respiratory Protection	Not normally necessary.
Hand Protection	Impervious rubber gloves. Polyvinylchloride gloves.
Skin Protection	Normal work coveralls.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Yellow
Odor:	Mild
pH:	6.5 (1%)
Specific Gravity @ 20 C (Water=1):	0.98
Density @ 20 C (kg/l):	0.95
Bulk Density @ 20 C (kg/M3):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (C):	-3
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	240 Min: > 100
Flash Point Method:	PMCC
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (g/m³):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (g/m³):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	> 10
Percent Volatiles:	0
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (g/l):	Not Determined

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Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	30.07
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined
Decomposition Temperature (C):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Strong oxidizers. Strong acids. Strong alkalis.
Hazardous Decomposition Products	Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Acute Toxicity

Inhalation	May cause mild respiratory irritation.
Eye Contact	Causes severe eye irritation
Skin Contact	May cause mild skin irritation.
Ingestion	Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 1% are chronic health hazards.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Alcohols, C6-C12, ethoxylated propoxylated	68937-66-6	> 5000 mg/kg (Rat) (similar substance)	> 2000 mg/kg (Rat) (similar substance)	> 1.6 mg/L air (Rat) (similar substance)
Alcohols, C10-C16, ethoxylated propoxylated	69227-22-1	> 5000 mg/kg (Rat) (similar substance)	> 2000 mg/kg (Rat) (similar substance)	> 1.6 mg/L air (Rat) (similar substance)

12. ECOLOGICAL INFORMATION

Ecotoxicological Information

Ecotoxicity Product

Acute Fish Toxicity:	Not determined
Acute Crustaceans Toxicity:	EC50: 1.45-1.79 mg/l (Daphnia magna)
Acute Algae Toxicity:	EC50(72hr): 1.45-1.75 mg/l (Scenedesmus subspicatus)

Ecotoxicity Substance

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
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Alcohols, C6-C12, ethoxylated propoxylated	68937-66-6	EC50(72h): 0.75 mg/L (Pseudokirchnerella subcapitata) (similar substance)	LC50(96h): 0.59 mg/L (Pleurocetes platessa) (similar substance)	EC50(16.9h): > 10 g/L (growth inhibition) (Pseudomonas putida) (similar substance)	EC50(48h): 0.14 mg/L (Daphnia magna) (similar substance)
Alcohols, C10-C16, ethoxylated propoxylated	69227-22-1	EC50(72h): 0.75 mg/L (Pseudokirchnerella subcapitata) (similar substance)	LC50(96h): 0.59 mg/L (Pleurocetes platessa) (similar substance)	EC50(16.9h): > 10 g/L (growth inhibition) (Pseudomonas putida) (similar substance)	EC50(48h): 0.14 mg/L (Daphnia magna) (similar substance)

12.2 Persistence and degradability

Readily biodegradable

Substances	Persistence and Degradability
Alcohols, C6-C12, ethoxylated propoxylated	Readily biodegradable (72% @ 28d) (similar substances)
Alcohols, C10-C16, ethoxylated propoxylated	Readily biodegradable (72% @ 28d) (similar substances)

12.3 Bioaccumulative potential

Substances	Log Pow
Alcohols, C6-C12, ethoxylated propoxylated	5.06 (similar substance)
Alcohols, C10-C16, ethoxylated propoxylated	5.06 (similar substance)

12.4 Mobility in soil

No information available

12.5 Results of PBT and vPvB assessment

No information available.

12.6 Other adverse effects

13. DISPOSAL CONSIDERATIONS

Disposal Method Disposal should be made in accordance with federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

ADR

Not restricted

Air Transportation

ICAO/IATA

Not restricted

Sea Transportation

IMDG

Not restricted

Other Transportation Information

Labels: None

15. REGULATORY INFORMATION

Chemical Inventories

Australian AICS Inventory
New Zealand Inventory of
Chemicals
US TSCA Inventory
EINECS Inventory

All components listed on inventory or are exempt.
All components listed on inventory or are exempt.
All components listed on inventory or are exempt.
This product, and all its components, complies with EINECS

Classification

Xi - Irritant.
N - Dangerous For The Environment.

Risk Phrases

R41 Risk of serious damage to eyes.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases

S25 Avoid contact with eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

16. OTHER INFORMATION

The following sections have been revised since the last issue of this SDS
Not applicable

Contact

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

New Zealand National Poisons Centre
0800 764 766

Additional information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

END OF MSDS

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: FE-2

Revision Date: 27-Aug-2013

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

Statement of Hazardous Nature Hazardous according to the criteria of NOHSC, Non-Dangerous Goods according to the criteria of ADG.

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road
Jandakot
WA 6164
Australia

ACN Number: 009 000 775
Telephone Number: 61 (08) 9455 8300
Fax Number: 61 (08) 9455 5300

Product Emergency Telephone
Australia: 08-64244950
Papua New Guinea: 05 1 281 575 5000
NewZealand: 06-7559274

Fire, Police & Ambulance - Emergency Telephone
Australia: 000
Papua New Guinea: 000
New Zealand: 111

Identification of Substances or Preparation

Product Trade Name: FE-2
Synonyms: None
Chemical Family: Organic acid
UN Number: None
Dangerous Goods Class: None
Subsidiary Risk: None
Hazchem Code: None Allocated
Poisons Schedule: None Allocated
Application: Iron Control Agent

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	Australia NOHSC	New Zealand WES	ACGIH TLV-TWA
Citric acid	77-92-9	60 - 100%	Not applicable	Not applicable	Not applicable
Non-Hazardous Substance to Total of 100%					

FE-2
Page 1 of 6

3. HAZARDS IDENTIFICATION

Hazard Overview	May cause eye, skin, and respiratory irritation. Airborne dust may be explosive.
Risk Phrases	R36 Irritating to eyes.
HSNO Classification	6.1E (Inhalation) Acutely Toxic Substances 6.3B Mildly irritating to the skin 8.3A Corrosive to ocular tissue

4. FIRST AID MEASURES

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Skin	Wash with soap and water. Get medical attention if irritation persists.
Eyes	In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Ingestion	Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.
Notes to Physician	Not Applicable

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media	Water fog, carbon dioxide, foam, dry chemical.
Extinguishing media which must not be used for safety reasons	None known.
Special Exposure Hazards	Decomposition in fire may produce toxic gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.
Special Protective Equipment for Fire-Fighters	Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures	Use appropriate protective equipment. Avoid creating and breathing dust.
Environmental Precautionary Measures	Prevent from entering sewers, waterways, or low areas.
Procedure for Cleaning / Absorption	Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions	Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust.
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Storage Information Store away from alkalis. Store away from oxidizers. Store in a cool, dry location.
Product has a shelf life of 60 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Use in a well ventilated area.

Respiratory Protection Dust/mist respirator. (N95, P2/P3)

Hand Protection Impervious rubber gloves. Nitrile gloves. Neoprene gloves. Polyvinyl alcohol gloves. Polyvinylchloride gloves.

Skin Protection Normal work coveralls.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Color:	White
Odor:	Odorless
pH:	2 - 2.2
Specific Gravity @ 20 C (Water=1):	1.665
Density @ 20 C (kg/l):	Not Determined
Bulk Density @ 20 C (kg/M3):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (C):	Not Determined
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (C):	1000
Flammability Limits in Air - Lower (g/m³):	Not Determined
Flammability Limits in Air - Lower (%):	8
Flammability Limits in Air - Upper (g/m³):	Not Determined
Flammability Limits in Air - Upper (%):	65
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	0
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (g/l):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	192.13
Decomposition Temperature (C):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data: Stable

Hazardous Polymerization: Will Not Occur

Conditions to Avoid None anticipated

Incompatibility (Materials to Avoid) Strong alkalis. Strong oxidizers.

Hazardous Decomposition Products Carbon monoxide and carbon dioxide.

Additional Guidelines Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Acute Toxicity

Inhalation May cause respiratory irritation.

Eye Contact May cause severe eye irritation.

Skin Contact May cause skin irritation.

Ingestion Irritation of the mouth, throat, and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at greater than 1% are chronic health hazards.

LD50 Oral: 11700 mg/kg; (rat)

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Citric acid	77-92-9	3000 mg/kg (Rat)	No data available	No data available

Test species: Rat

12. ECOLOGICAL INFORMATION

Ecotoxicological Information

Ecotoxicity Product

Acute Fish Toxicity: Not determined

Acute Crustaceans Toxicity: TLM96: 100-330 ppm (Crangon crangon)

Acute Algae Toxicity: Not determined

Ecotoxicity Substance

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Citric acid	77-92-9	No information available	LC50: 1516 mg/L (Lepomis macrochirus)	No information available	TLM96: 100-330 ppm (Crangon crangon)

Persistence and degradability

Biodegradable.

Bioaccumulative potential

Does not bioaccumulate

Mobility in soil

No information available

Results of PBT and vPvB assessment

No information available.

Other adverse effects

13. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

14. TRANSPORT INFORMATION

Land Transportation

ADR
Not restricted

Air Transportation

ICAO/IATA
Not restricted

Sea Transportation

IMDG
Not restricted

Other Transportation Information

Labels: None

15. REGULATORY INFORMATION

Chemical Inventories

Australian AICS Inventory	All components listed on inventory or are exempt.
New Zealand Inventory of Chemicals	All components listed on inventory or are exempt.
US TSCA Inventory	All components listed on inventory or are exempt.
EINECS Inventory	This product, and all its components, complies with EINECS

Classification Xi - Irritant.

Risk Phrases R36 Irritating to eyes.

Safety Phrases S24/25 Avoid contact with skin and eyes.

16. OTHER INFORMATION

The following sections have been revised since the last issue of this SDS
Not applicable

Contact**Australian Poisons Information Centre**

24 Hour Service: - 13 11 26

Police or Fire Brigade: - 000 (exchange): - 1100

New Zealand National Poisons Centre

0800 764 766

Additional Information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

END OF MSDS

Material Safety Data Sheet

GHS 1.5.9

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Infosafe No SM HXS10	Issue Date : October 2008	ISSUED by IMCDAUST
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 Product Name **FLUORESCENCE DYE**

Classified as hazardous according to criteria of NOHSC

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	FLUORESCENCE DYE
Product Code	4200876
Company Name	IMCD AUSTRALIA LIMITED (ABN 44 000 005 578)
Address	1st Floor, 372 Wellington Road Mulgrave Vic 3170 Australia
Emergency Tel.	1800 625 526
Telephone/Fax Number	Tel: (03) 8544 3100 Fax: (03) 8544 3299
Recommended Use	Main use is for tracing water leaks and is known to be used by Australian Government departments on a regular basis
Additional Information	Substance: Isobenzofuran derived pigment.

2. HAZARDS IDENTIFICATION

Hazard Classification	Classified as hazardous according to criteria of NOHSC HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. Hazard classification according to the criteria of NOHSC. Dangerous goods classification according to the Australia Dangerous Goods Code.
Risk Phrase(s)	Classified as hazardous according to criteria of NOHSC R36 Irritating to eyes.
Safety Phrase(s)	S25, S26, S39. Avoid contact with eyes. In case of contact with eyes, rinse immediately with plenty of water and contact a doctor or Poisons Information Centre. Wear eye/face protection.
Other Information	ADG Classification: None allocated. Not a Dangerous Good under the ADG Code. Emergency Overview Physical Description & colour: Fine orange coloured powder. No odour. Forms intense orange/green liquid which fluoresces Odour: No odour Major Health Hazards: eye irritant.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Name	CAS	Proportion	Hazard Symbol	Risk Phrase
	CI 45350	518-47-8	pure *		
Other Information	* Commercially pure. May include small quantities of materials due to manufacturing or reaction processes. This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible.				

4. FIRST AID MEASURES

First Aid Measures	General Information: You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this MSDS with you when you call.
Inhalation	First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.
Ingestion	If product is swallowed or gets in mouth, do NOT induce vomiting; wash mouth with water and give some water to drink. If symptoms develop, or if in doubt contact a Poisons Information Centre or a doctor.

Print Date: 4/06/2010

GHS 1.5.9

Material Safety Data Sheet

GHS 1.1.5.9

Page: 2 of 6

Infosafe No™ HXSIO Issue Date : October 2008 ISSUED by IMCDAUST

 Product Name **FLUORESCENCE DYE**

Classified as hazardous according to criteria of NOHSC

Skin	Gently brush away excess solids. Irritation is unlikely. However, if irritation does occur, flush with lukewarm, gently flowing water for 5 minutes or until chemical is removed.
Eye	Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes or until the product is removed, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical attention immediately. Take special care if exposed person is wearing contact lenses.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media Specific Methods	Preferred extinguishing media are carbon dioxide, dry chemical, foam, water fog.
Specific Hazards	If a significant quantity of this product is involved in a fire, call the fire brigade. Do not scatter spilled material with high pressure water jets. There is no risk of an explosion from this product under normal circumstances if it is involved in a fire. This product, if scattered, may form flammable or explosive dust clouds in air. Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

6. ACCIDENTAL RELEASE MEASURES

Emergency Procedures	In the event of a major spill, prevent spillage from entering drains or water courses. Evacuate the spill area and deny entry to unnecessary and unprotected personnel. Wear full protective clothing including eye/face protection. All skin areas should be covered. See below under Personal Protection regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should include a full face shield. If there is a significant chance that dusts are likely to build up in cleanup area, we recommend that you use a suitable Dust Mask. Stop leak if safe to do so, and contain spill. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Consider vacuuming if appropriate. Recycle containers wherever possible after careful cleaning. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. This material may be suitable for approved landfill. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.
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7. HANDLING AND STORAGE

Precautions for Safe Handling	Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 (Exposure Controls/Personal Protection) of this MSDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under 'Storage' should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10 (Stability and Reactivity).
Conditions for Safe Storage	Make sure that the product does not come into contact with substances listed under 'Incompatibilities' in Section 10 (Stability and Reactivity). Check packaging - there may be further storage instructions on the label.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Controls, Personal Protection	The following Australian Standards will provide general advice regarding safety clothing and equipment: Respiratory equipment: AS/NZS 1715, Protective Gloves: AS 2161, Industrial Clothing: AS2919, Industrial Eye Protection: AS1336 and AS/NZS 1337, Occupational Protective Footwear: AS/NZS2210.
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Material Safety Data Sheet

CS: 1.5.9

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Infosafe No SM HXSIO	Issue Date : October 2008	ISSUED by IMCDAUST
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 Product Name **FLUORESCINE DYE**

Classified as hazardous according to criteria of NOHSC

National Exposure Standards	Exposure Limits CI 45350	TWA (mg/m ³) not set	STEL (mg/m ³) not set
<p>The TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term 'peak' is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.</p> <p>Exposure limits have not been established by ASCC for this product.</p> <p>No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems. Ventilation: No special ventilation requirements are normally necessary for this product. However make sure that the work environment remains clean and that dusts are minimised.</p> <p>Engineering Controls If there is a significant chance that dusts are likely to build up in the area where this product is being used, we recommend that you use a suitable Dust Mask.</p> <p>Respiratory Protection Protective glasses or goggles should be worn when this product is being used. Failure to protect your eyes may cause them harm. Emergency eye wash facilities are also recommended in an area close to where this product is being used.</p> <p>Eye Protection Protective Material Types: We suggest that protective clothing be made from the following materials: rubber, PVC.</p> <p>Personal Protective Equipment Eyebaths or eyewash stations should be provided near to where this product is being used.</p> <p>Body Protection The information at hand indicates that this product is not harmful and that normally no special skin protection is necessary. However, we suggest that you routinely avoid contact with all chemical products and that you wear suitable gloves (preferably elbow-length) when skin contact is likely.</p>			

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Fine orange coloured powder. No odour. Forms intense orange/green liquid which fluores
Odour	No odour
Melting Point	No specific data. Solid at normal temperatures.
Freezing Point	No specific data. Solid at normal temperatures.
Boiling Point	No specific data. Expected to decompose before boiling.
Solubility in Water	Soluble.
Specific Gravity	No data.
pH Value	Not corrosive
Vapour Pressure	No data.
Vapour Density (Air=1)	No data.
Evaporation Rate	No data.
Coefficient Water/Oil Distr.	No data.
Odour Threshold	No data.

Print Date: 4/06/2010

CS: 1.5.9

Material Safety Data Sheet

GR: 1.5.9

Page: 4 of 6

Infosafe No™	HXSIO	Issue Date :October 2008	ISSUED by IMCDAUST
Product Name	FLUORESCENCE DYE		

Classified as hazardous according to criteria of NOHSC

Volatile Component	No specific data. Expected to be low at 100°C.
Flash Point	Not flammable.
Flammability	Flammability Class: No data.
Auto-Ignition Temperature	No data.
Flammable Limits - Lower	Not applicable. This product is not flammable
Flammable Limits - Upper	Not applicable. This product is not flammable
Other Information	Volatility: No data.

10. STABILITY AND REACTIVITY

Conditions to Avoid	None known.
Incompatible Materials	Strong oxidising agents.
Hazardous Decomposition Products	Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.
Hazardous Reactions	This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.
Hazardous Polymerization	Polymerisation reactions are unlikely; they are not expected to occur.

11. TOXICOLOGICAL INFORMATION

Toxicology Information	Local Effects: Target Organs: none known
	Classification of Hazardous Ingredients Ingredient Risk Phrases No ingredient mentioned in the List of Designated Hazardous Substances is present in this product at hazardous concentrations.
Inhalation	Short term exposure: Long term inhalation of high amounts of any nuisance dust may overload lung clearance mechanism. Available data indicates that this product is not harmful. In addition product is unlikely to cause any discomfort or irritation. Long Term exposure: No data for health effects associated with long term inhalation.
Ingestion	Short term exposure: Significant oral exposure is considered to be unlikely. This product is unlikely to cause any irritation problems in the short or long term. Long Term exposure: No data for health effects associated with long term ingestion.
Skin	Short term exposure: Available data indicates that this product is not harmful. It should present no hazards in normal use. In addition product is unlikely to cause any discomfort in normal use. Long Term exposure: No data for health effects associated with long term skin exposure.
Eye	Short term exposure: This product is an eye irritant. Symptoms may include stinging and reddening of eyes and watering which may become copious. Other symptoms may also become evident. If exposure is brief, symptoms should disappear once exposure has ceased. However, lengthy exposure or delayed treatment may cause permanent damage. Long Term exposure: No data for health effects associated with long term eye exposure.

Print Date: 4/06/2010

GR: 1.5.9

Material Safety Data Sheet

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Infosafe No™	HXSIO	Issue Date : October 2008	ISSUED by IMCDAUST
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Product Name	FLUORESCINE DYE
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Classified as hazardous according to criteria of NOHSC

Carcinogenicity	Carcinogen Status:
	ASCC: No significant ingredient is classified as carcinogenic by ASCC.
	NTP: No significant ingredient is classified as carcinogenic by NTP.
	IARC: No significant ingredient is classified as carcinogenic by IARC.

12. ECOLOGICAL INFORMATION

Ecological Information	Insufficient data to be sure of status.
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13. DISPOSAL CONSIDERATIONS

Waste Disposal	There are many pieces of legislation covering waste disposal and they differ in each state and territory, so each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. The Hierarchy of Controls seems to be common - the user should investigate: Reduce, Reuse, and Recycle and only if all else fails should disposal be considered. Note that properties of a product may change in use, so that the following suggestions may not always be appropriate. The following may help you in properly addressing this matter for this product. This product may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. If neither of these options is suitable, consider controlled incineration, or landfill.
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14. TRANSPORT INFORMATION

Transport Information	ADG Code: This product is not classified as a Dangerous Good. No special transport conditions are necessary unless required by other regulations.
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15. REGULATORY INFORMATION

Poisons Schedule	Not Scheduled
Hazard Category	Irritant
AICS (Australia)	This product is compliant with NICNAS regulations.

16. OTHER INFORMATION

Other Information	<p>NEW ZEALAND</p> <p>Emergency Response: 0800 500 288</p> <p>IMCD New Zealand Limited</p> <p>459 Great South Road</p> <p>Penrose, Auckland</p> <p>Ph: (09) 582 0250</p> <p>Fax (09) 525 0030</p> <p>An electronic version of this MSDS is available at www.imcdgroup.com</p> <p>This MSDS contains only safety-related information. For other data see product literature.</p> <p>Acronyms:</p> <p>ADG Code: Australian Code for the Transport of Dangerous Goods by Road and Rail, 7th Edition</p> <p>AICS: Australian Inventory of Chemical Substances</p> <p>CAS number: Chemical Abstracts Service Registry Number</p> <p>Haschem Code: Emergency action code of numbers and letters that provide information to emergency services especially firefighters</p> <p>IARC: International Agency for Research on Cancer</p> <p>ASCC: Office of the Australian Safety and Compensation Council</p> <p>NOS: Not otherwise specified</p> <p>NTP: National Toxicology Program (USA)</p> <p>R-Phrase: Risk Phrase</p>
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Print Date: 4/06/2010

GR: 1.5.9

Material Safety Data Sheet

GHS 1.5.3

Page: 6 of 6

Infosafe No™ HXSIO Issue Date :October 2008 ISSUED by IMCDAUST

Product Name FLUORESCENCE DYE

Classified as hazardous according to criteria of NOHSC

SUSDP: Standard for the Uniform Scheduling of Drugs & Poisons
UN Number: United Nations Number

Please read all labels carefully before using product.
This MSDS is prepared in accord with the ASCC document 'National Code of Practice for the Preparation of Material Safety Data Sheets' 2nd Edition [ASCC:2001(2003)].
Copyright © Kilford & Kilford Pty Ltd, October, 2008.
<http://www.kilford.com.au/> Phone (02) 9251 4532

Poisons Information Centre: 13 1126 from anywhere in Australia, (0800 764 766 in New Zealand)

This MSDS has been transcribed into Infosafe NOHSC format from an original issued by the manufacturer on the date shown. Any disclaimer by the manufacturer may not be included in the transcription.
...End Of MSDS...

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Print Date: 4/06/2010

GHS 1.5.3

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: GBW-30 BREAKER

Revision Date: 24-Apr-2013

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

Statement of Hazardous Nature Hazardous according to the criteria of NOHSC, Non-Dangerous Goods according to the criteria of ADG.

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road
Jandakot
WA 6164
Australia

ACN Number: 009 000 775
Telephone Number: 61 (08) 9455 8300
Fax Number: 61 (08) 9455 5300

Product Emergency Telephone
Australia: 08-64244950
Papua New Guinea: 05 1 281 575 5000
New Zealand: 06-7559274

Fire, Police & Ambulance - Emergency Telephone
Australia: 000
Papua New Guinea: 000
New Zealand: 111

Identification of Substances or Preparation

Product Trade Name: GBW-30 BREAKER
Synonyms: None
Chemical Family: Polysaccharide
UN Number: None
Dangerous Goods Class: None
Subsidiary Risk: None
Hazchem Code: None Allocated
Poisons Schedule: None Allocated
Application: Breaker

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS
--

Substances	CAS Number	PERCENT	Australia NOHSC	New Zealand WES	ACGIH TLV-TWA
Hemicellulase enzyme	9012-54-8	10 - 30%	Not applicable	Not applicable	Not applicable

GBW-30 BREAKER
Page 1 of 6

Non-Hazardous Substance to Total of 100%

3. HAZARDS IDENTIFICATION

Hazard Overview	May cause eye and respiratory irritation. May cause allergic respiratory reaction. Airborne dust may be explosive.
Risk Phrases	R42 May cause sensitization by inhalation.
HSNO Classification	6.5A Respiratory sensitisers

4. FIRST AID MEASURES

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Skin	Wash with soap and water. Get medical attention if irritation persists.
Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Ingestion	Under normal conditions, first aid procedures are not required.
Notes to Physician	Not Applicable

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media	All standard fire fighting media
Extinguishing media which must not be used for safety reasons	None known.
Special Exposure Hazards	Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.
Special Protective Equipment for Fire-Fighters	Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures	Use appropriate protective equipment. Avoid creating and breathing dust.
Environmental Precautionary Measures	Prevent from entering sewers, waterways, or low areas.
Procedure for Cleaning / Absorption	Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions	Avoid creating or inhaling dust.
Storage Information	Store away from oxidizers. Store in a cool, dry location. Product has a shelf life of 12 months.

GBW-30 BREAKER
Page 2 of 6

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use in a well ventilated area.
Respiratory Protection	Not normally needed. But if significant exposures are possible then the following respirator is recommended: Dust/mist respirator. (N95, P2/P3)
Hand Protection	Normal work gloves.
Skin Protection	Normal work coveralls.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Powder
Color:	White
Odor:	Odorless
pH:	7
Specific Gravity @ 20 C (Water=1):	1.5
Density @ 20 C (kg/l):	Not Determined
Bulk Density @ 20 C (kg/m³):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (C):	Not Determined
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	Not Determined Min: > 93
Flash Point Method:	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (g/m³):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (g/m³):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (g/l):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined
Decomposition Temperature (C):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Strong oxidizers.

Hazardous Decomposition Products Carbon monoxide and carbon dioxide.

Additional Guidelines Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Inhalation

May cause mild respiratory irritation. May cause allergic respiratory reaction.

Skin Contact

None known.

Eye Contact

May cause mild eye irritation.

Ingestion

None known

Aggravated Medical Conditions

None known.

Chronic Effects/Carcinogenicity

No data available to indicate product or components present at greater than 1% are chronic health hazards.

Other Information

None known.

Toxicity Tests

Oral Toxicity: LD50: 29700 mg/kg (Rat)

Dermal Toxicity: Not determined

Inhalation Toxicity: Not determined

Primary Irritation Effect: Not determined

Carcinogenicity Not determined

Genotoxicity: Not determined

Reproductive / Developmental Toxicity: Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air) Not determined

Persistence/Degradability Readily biodegradable

Bio-accumulation Not determined

Ecotoxicological Information

Acute Fish Toxicity: Not determined

Acute Crustaceans Toxicity: TLM96: > 3300 ppm (Crangon crangon)

Acute Algae Toxicity: Not determined

Chemical Fate Information Not determined

Other Information Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

ADR
Not restricted

Air Transportation

ICAO/IATA
Not restricted

Sea Transportation

IMDG
Not restricted

Other Transportation Information

Labels: None

15. REGULATORY INFORMATION

Chemical Inventories

Australian AICS Inventory	All components listed on inventory or are exempt.
New Zealand Inventory of Chemicals	All components listed on inventory or are exempt.
US TSCA Inventory	All components listed on inventory or are exempt.
EINECS Inventory	This product, and all its components, complies with EINECS

Classification Xn - Harmful.

Risk Phrases R42 May cause sensitization by inhalation.

Safety Phrases
S2 Keep out of reach of children.
S22 Do not breathe dust.
S24 Avoid contact with skin.
S36/37 Wear suitable protective clothing and gloves.

16. OTHER INFORMATION

The following sections have been revised since the last issue of this SDS
Not applicable

Contact**Australian Poisons Information Centre**

24 Hour Service: - 13 11 26

Police or Fire Brigade: - 000 (exchange): - 1100

New Zealand National Poisons Centre

0800 764 766

Additional Information

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

END OF MSDS

HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: HYDROCHLORIC ACID

Revision Date: 27-Aug-2013

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

Statement of Hazardous Nature Hazardous according to the criteria of NOHSC, Dangerous Goods according to the criteria of ADG.

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road
Jandakot
WA 6164
Australia

ACN Number: 009 000 775
Telephone Number: 61 (08) 9455 8300
Fax Number: 61 (08) 9455 5300

Product Emergency Telephone
Australia: 08-64244950
Papua New Guinea: 05 1 281 575 5000
New Zealand: 06-7559274

Fire, Police & Ambulance - Emergency Telephone
Australia: 000
Papua New Guinea: 000
New Zealand: 111

Identification of Substances or Preparation

Product Trade Name: HYDROCHLORIC ACID
Synonyms: None
Chemical Family: Inorganic acid
UN Number: , UN1789
Dangerous Goods Class: 8
Subsidiary Risk: None
Hazchem Code: 2R
Poisons Schedule: S6
Application: Solvent

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS
--

Substances	CAS Number	PERCENT (w/w)	Australia NOHSC	New Zealand WES	ACGIH TLV-TWA
Hydrochloric acid	7647-01-0	30 - 60%	5 ppm	Not applicable	2 ppm

Non-Hazardous Substance to Total of 100%

HYDROCHLORIC ACID
Page 1 of 6

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye, skin, and respiratory burns. May be harmful if swallowed.

Risk Phrases R34 Causes burns.
R37 Irritating to respiratory system.

HSNO Classification 6.1B (Inhalation) Acutely Toxic Substances
6.1D (Oral) Acutely Toxic Substances
6.1D (Dermal) Acutely Toxic Substances
8.1A Corrosive to metals
8.2B Corrosive to dermal tissue if exposed for greater than 3 mins
8.3A Corrosive to ocular tissue
9.1D Slightly harmful in the aquatic environment
9.3C Harmful to terrestrial vertebrates

4. FIRST AID MEASURES

Inhalation If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

Eyes In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

Ingestion Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

Notes to Physician Not Applicable

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media
Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons
None known.

Special Exposure Hazards May form explosive mixtures with strong alkalis. Decomposition in fire may produce toxic gases. Reaction with steel and certain other metals generates flammable hydrogen gas. Do not allow runoff to enter waterways.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment.

Environmental Precautionary Measures Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Neutralize to pH of 6-8. Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse.

Storage Information Store away from alkalis. Store in a cool well ventilated area. Keep container closed when not in use. Store locked up. Product has a shelf life of 24 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Respiratory Protection Acid gas respirator.

Hand Protection Impervious rubber gloves.

Skin Protection Full protective chemical resistant clothing. Rubber boots.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Clear colorless
Odor:	Pungent acid
pH:	0.8
Specific Gravity @ 20 C (Water=1):	1.18
Density @ 20 C (kg/l):	1.16
Bulk Density @ 20 C (kg/M3):	Not Determined
Boiling Point/Range (C):	110
Freezing Point/Range (C):	-46
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (g/m³):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (g/m³):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined
Vapor Pressure @ 20 C (mmHg):	26
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	35
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (g/l):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined

HYDROCHLORIC ACID
Page 3 of 6

Partition Coefficient/n-Octanol/Water: Not Determined
Molecular Weight (g/mole): 36.5
Decomposition Temperature (C): Not Determined

10. STABILITY AND REACTIVITY

Stability Data: Stable
Hazardous Polymerization: Will Not Occur
Conditions to Avoid: None anticipated
Incompatibility (Materials to Avoid): Strong alkalis.
Hazardous Decomposition Products: Flammable hydrogen gas. Chlorine. Hydrogen sulfide.
Additional Guidelines: Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure: Eye or skin contact, inhalation.

Symptoms related to exposure

Acute Toxicity

Product Information: Under certain conditions of use, some of the product ingredients may cause the following:
Inhalation: Causes severe respiratory irritation.
Eye Contact: May cause eye burns.
Skin Contact: May cause skin burns.
Ingestion: Causes burns of the mouth, throat and stomach.

Chronic Effects/Carcinogenicity: Prolonged, excessive exposure may cause erosion of the teeth.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrochloric acid	7647-01-0	700 mg/kg (Rat)	5010 mg/kg (Rabbit) 1440 mg/kg (Mouse)	3124 ppm (Rat) 1 h 3.2 mg/L (Mouse)

12. ECOLOGICAL INFORMATION

Ecotoxicological Information

Ecotoxicity Product

Acute Fish Toxicity: Not determined
Acute Crustaceans Toxicity: Not determined
Acute Algae Toxicity: Not determined

Ecotoxicity Substance

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Hydrochloric acid	7647-01-0	No information available	LC50: 282 mg/L (Gambusia affinis) LC50: 20.5 mg/L (Lepomis macrochirus)	No information available	No information available

Persistence and degradability

HYDROCHLORIC ACID
Page 4 of 6

The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulative potential
Does not bioaccumulate

Mobility in soil
No information available

Results of PBT and vPvB assessment
No information available.

Other adverse effects

13. DISPOSAL CONSIDERATIONS

Disposal Method	Disposal should be made in accordance with federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.
Contaminated Packaging	Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

14. TRANSPORT INFORMATION

Land Transportation

ADR

UN1789, Hydrochloric Acid Solution , 8 , II

Air Transportation

ICAO/IATA

UN1789, Hydrochloric Acid Solution , 8 , II
RQ (Hydrochloric Acid - 2273 kg.)

Sea Transportation

IMDG

UN1789, Hydrochloric Acid Solution , 8 , II
RQ (Hydrochloric Acid - 2273 kg.)
EmS F-A, S-B

Other Transportation Information

Labels: Corrosive

15. REGULATORY INFORMATION

Chemical Inventories

Australian AICS Inventory All components listed on inventory or are exempt.

HYDROCHLORIC ACID
Page 5 of 6

New Zealand Inventory of Chemicals	All components listed on inventory or are exempt.
US TSCA Inventory	All components listed on inventory or are exempt.
EINECS Inventory	This product, and all its components, complies with EINECS
Classification	C - Corrosive.
Risk Phrases	R34 Causes burns. R37 Irritating to respiratory system.
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. S45 In case of accident or if you feel unwell, seek medical advice immediately. S1/2 Keep locked up and out of reach of children. S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

16. OTHER INFORMATION

The following sections have been revised since the last issue of this SDS
Not applicable

Contact

Australian Poisons Information Centre
24 Hour Service: - 13 11 26
Police or Fire Brigade: - 000 (exchange): - 1100

New Zealand National Poisons Centre
0800 764 766

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

END OF MSDS

HYDROCHLORIC ACID
Page 6 of 6

Non-Hazardous Substance to Total of 100%

3. HAZARDS IDENTIFICATION

Hazard Overview

CAUTION! - ACUTE HEALTH HAZARD
May cause eye and respiratory irritation.

DANGER! - CHRONIC HEALTH HAZARD
Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposures below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product. Review the Material Safety Data Sheet (MSDS) for this product, which has been provided to your employer.

Risk Phrases

None

HSNO Classification

Not Determined

4. FIRST AID MEASURES

Inhalation

If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Skin

Wash with soap and water.

Eyes

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Ingestion

Under normal conditions, first aid procedures are not required.

Notes to Physician

Not Applicable

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media

None - does not burn.

Extinguishing media which must not be used for safety reasons

None known.

Special Exposure Hazards

Not applicable.

Special Protective Equipment for Fire-Fighters

Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures

None known.

SAND - COMMON BROWN
Page 2 of 7

MATERIAL SAFETY DATA SHEET

Product Trade Name: SAND - COMMON BROWN

Revision Date: 04-Jan-2011

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

Statement of Hazardous Nature Hazardous according to the criteria of NOHSC, Non-Dangerous Goods according to the criteria of ADG.

Manufacturer/Supplier Halliburton Australia Pty. Ltd.
15 Marriott Road
Jandakot
WA 6164
Australia

ACN Number: 009 000 775
Telephone Number: 61 (08) 9455 8300
Fax Number: 61 (08) 9455 5300

Product Emergency Telephone
Australia: 08-64244950
Papua New Guinea: 05 1 281 575 5000
New Zealand: 06-7559274

Fire, Police & Ambulance - Emergency Telephone
Australia: 000
Papua New Guinea: 000
New Zealand: 111

Identification of Substances or Preparation

Product Trade Name: SAND - COMMON BROWN
Synonyms: None
Chemical Family: Sand
UN Number: None
Dangerous Goods Class: None
Subsidiary Risk: None
Hazchem Code: None Allocated
Poisons Schedule: None Allocated
Application: Proppant

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS
--

Substances	CAS Number	PERCENT	Australia NOHSC	New Zealand WES	ACGIH TLV-TWA
Crystalline silica, quartz	14808-80-7	80 - 100%	TWA: 0.1 mg/m ³	TWA: 0.2 mg/m ³	TWA: 0.025 mg/m ³

SAND - COMMON BROWN
Page 1 of 7

Procedure for Cleaning / Absorption

Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

7. HANDLING AND STORAGE
Handling Precautions

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product. Material is slippery when wet.

Storage Information

Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Product has a shelf life of 36 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION
Engineering Controls

Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.

Respiratory Protection

Wear a NIOSH certified, European Standard EN 149 (FFP2/FFP3), or equivalent respirator when using this product.

Hand Protection

Normal work gloves.

Skin Protection

Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.

Eye Protection

Wear safety glasses or goggles to protect against exposure.

Other Precautions

None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Color:	Tan
Odor:	Odorless
pH:	Not Determined
Specific Gravity @ 20 C (Water=1):	2.63 - 2.67
Density @ 20 C (kg/l):	Not Determined
Bulk Density @ 20 C (kg/m³):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (C):	Not Determined
Pour Point/Range (C):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (g/m³):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (g/m³):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	0
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Insoluble
Solubility in Solvents (g/100ml):	Not Determined

SAND - COMMON BROWN
Page 3 of 7

9. PHYSICAL AND CHEMICAL PROPERTIES

VOCs (g/l):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	65
Decomposition Temperature (C):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None known.
Incompatibility (Materials to Avoid)	Hydrofluoric acid.
Hazardous Decomposition Products	Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
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Symptoms related to exposure Inhalation

Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A).

Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See "Chronic Effects/Carcinogenicity" subsection below).

Skin Contact	None known.
Eye Contact	May cause mechanical irritation to eye.
Ingestion	None known
Aggravated Medical Conditions	Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to quartz dust.

Chronic Effects/Carcinogenicity Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68, *Silica, Some Silicates and Organic Fibres* (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.

Other Information For further information consult "Adverse Effects of Crystalline Silica Exposure" published by the American Thoracic Society Medical Section of the American Lung Association, *American Journal of Respiratory and Critical Care Medicine*, Volume 155, pages 761-768 (1997).

Toxicity Tests

Oral Toxicity:	Not determined
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Refer to IARC Monograph 68, <i>Silica, Some Silicates and Organic Fibres</i> (June 1997).
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Not applicable
Bio-accumulation	Not determined

Ecotoxicological Information

Acute Fish Toxicity:	Not determined
Acute Crustaceans Toxicity:	Not determined

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Acute Algae Toxicity:	Not determined
Chemical Fate Information	Not determined
Other Information	Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

ADR
Not restricted

Air Transportation

ICAO/IATA
Not restricted

Sea Transportation

IMDG
Not restricted

Other Transportation Information

Labels: None

15. REGULATORY INFORMATION

Chemical Inventories

Australian AICS Inventory	All components listed on inventory or are exempt.
New Zealand Inventory of Chemicals	All components listed on inventory or are exempt.
US TSCA Inventory	All components listed on inventory or are exempt.
EINECS Inventory	This product, and all its components, complies with EINECS

Classification Not Classified

Risk Phrases None

Safety Phrases None

16. OTHER INFORMATION

The following sections have been revised since the last issue of this SDS
Not applicable

Contact**Australian Poisons Information Centre**

24 Hour Service: - 13 11 26

Police or Fire Brigade: - 000 (exchange): - 1100

New Zealand National Poisons Centre

0800 764 766

Additional Information

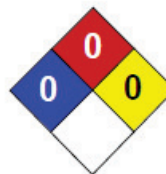
For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

END OF MSDS



Health	0
Fire	0
Reactivity	0
Personal Protection	A

Material Safety Data Sheet

Water MSDS

Section 1: Chemical Product and Company Identification

Product Name: Water	Contact Information:
Catalog Codes: SLW1063	Sciencelab.com, Inc.
CAS#: 7732-18-5	14025 Smith Rd.
RTECS: ZC0110000	Houston, Texas 77396
TSCA: TSCA 8(b) inventory: Water	US Sales: 1-800-901-7247
CI#: Not available.	International Sales: 1-281-441-4400
Synonym: Dihydrogen oxide	Order Online: ScienceLab.com
Chemical Name: Water	CHEMTREC (24HR Emergency Telephone), call:
Chemical Formula: H ₂ O	1-800-424-9300
	International CHEMTREC, call: 1-703-527-3887
	For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Water	7732-18-5	100

Toxicological Data on Ingredients: Not applicable.

Section 3: Hazards Identification

Potential Acute Health Effects:

Non-corrosive for skin. Non-irritant for skin. Non-sensitizer for skin. Non-permeator by skin. Non-irritating to the eyes. Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. Non-irritant for lungs. Non-sensitizer for lungs. Non-corrosive to the eyes. Non-corrosive for lungs.

Potential Chronic Health Effects:

Non-corrosive for skin. Non-irritant for skin. Non-sensitizer for skin. Non-permeator by skin. Non-irritating to the eyes. Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. Non-irritant for lungs. Non-sensitizer for lungs. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available.

Section 4: First Aid Measures

Eye Contact: Not applicable.

Skin Contact: Not applicable.
Serious Skin Contact: Not available.
Inhalation: Not applicable.
Serious Inhalation: Not available.
Ingestion: Not Applicable
Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.
Auto-Ignition Temperature: Not applicable.
Flash Points: Not applicable.
Flammable Limits: Not applicable.
Products of Combustion: Not available.
Fire Hazards in Presence of Various Substances: Not applicable.
Explosion Hazards in Presence of Various Substances: Not Applicable
Fire Fighting Media and Instructions: Not applicable.
Special Remarks on Fire Hazards: Not available.
Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.
Large Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Section 7: Handling and Storage

Precautions: No specific safety phrase has been found applicable for this product.
Storage: Not applicable.

Section 8: Exposure Controls/Personal Protection

Engineering Controls: Not Applicable
Personal Protection: Safety glasses. Lab coat.
Personal Protection in Case of a Large Spill: Not Applicable
Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

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Odor: Odorless.
Taste: Not available.
Molecular Weight: 18.02 g/mole
Color: Colorless.
pH (1% soln/water): 7 [Neutral.]
Boiling Point: 100°C (212°F)
Melting Point: Not available.
Critical Temperature: Not available.
Specific Gravity: 1 (Water = 1)
Vapor Pressure: 2.3 kPa (@ 20°C)
Vapor Density: 0.62 (Air = 1)
Volatility: Not available.
Odor Threshold: Not available.
Water/Oil Dist. Coeff.: Not available.
Ionicity (in Water): Not available.
Dispersion Properties: Not applicable
Solubility: Not Applicable

Section 10: Stability and Reactivity Data

Stability: The product is stable.
Instability Temperature: Not available.
Conditions of Instability: Not available.
Incompatibility with various substances: Not available.
Corrosivity: Not available.
Special Remarks on Reactivity: Not available.
Special Remarks on Corrosivity: Not available.
Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact.
Toxicity to Animals:
 LD50: [Rat] - Route: oral; Dose: > 90 ml/kg LC50: Not available.
Chronic Effects on Humans: Not available.
Other Toxic Effects on Humans:
 Non-corrosive for skin. Non-irritant for skin. Non-sensitizer for skin. Non-permeator by skin. Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. Non-irritant for lungs. Non-sensitizer for lungs. Non-corrosive to the eyes. Non-corrosive for lungs.
Special Remarks on Toxicity to Animals: Not available.

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Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations: TSCA 8(b) inventory: Water

Other Regulations: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC):

This product is not classified according to the EU regulations. Not applicable.

HMIS (U.S.A.):

Health Hazard: 0

Fire Hazard: 0

Reactivity: 0

Personal Protection: a

National Fire Protection Association (U.S.A.):

Health: 0

Flammability: 0

Reactivity: 0

Specific hazard:

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Protective Equipment:

Not applicable. Lab coat. Not applicable. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Last Updated: 05/21/2013 12:00 PM

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