

MATERIAL SAFETY DATA SHEET

Product Trade Name: BaraECD System - Amodrill 1235

Revision Date: 26-Sep-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.
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Jandakot
WA 6164
Australia

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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: BaraECD System - Amodrill 1235
Synonyms: None
Chemical Family: Blend
Dangerous Goods Class: None
Subsidiary Risk: None
Hazchem Code: None Allocated
Poisons Schedule: None Allocated
Application: Mud System

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
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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 be harmful if swallowed. Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal. May cause allergic skin reaction. 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, AS/NZS 1715, or equivalent respirator when using this product. Review the Safety Data Sheet (SDS) for this product, which has been provided to your employer.

Classification

T - Toxic.
Xi - Irritant.

Risk Phrases

R36 Irritating to eyes.
R43 May cause sensitization by skin contact.
R49 May cause cancer by inhalation.
R48/20 - Harmful: danger of serious damage to health by prolonged exposure through inhalation

Safety Phrases

S23 Do not breathe gas, fumes, vapour or spray.
S62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

HSNO Classification

6.4A Irritating to the eye
6.5B Contact sensitisers
6.7A Known or presumed human carcinogens
6.9A Toxic to human target organs or systems

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	Australia	NOHSC	New Zealand	ACGIH TLV-TWA
					WES	
Alkenes, C14-18 .alpha.-	68855-59-4	30 - 60%	Not applicable		Not applicable	Not applicable
Barium sulfate	7727-43-7	30 - 60%	TWA: 10 mg/m ³		TWA: 10 mg/m ³	TWA: 10 mg/m ³
Calcium chloride	10043-52-4	1 - 5%	Not applicable		Not applicable	Not applicable
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	1 - 5%	Not applicable		Not applicable	Not applicable
Crystalline silica, quartz	14808-60-7	0.1 - 1%	TWA: 0.1 mg/m ³		TWA: 0.2 mg/m ³	TWA: 0.025 mg/m ³

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	Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration.
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.

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. 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 in a well ventilated area. 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), AS/NZS 1715, or equivalent respirator when using this product.

Hand Protection	Chemical-resistant protective gloves (EN 374) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Nitrile gloves. (>= 0.4 mm thickness) This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.
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	Chemical goggles; also wear a face shield if splashing hazard exists.
Other Precautions	None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Yellow to brown
Odor:	Mild
pH:	9-10
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):	> 120
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):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Insoluble
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

Acute Toxicity

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).

Eye Contact

May cause eye irritation

Skin Contact

May cause mild skin irritation. May cause an allergic skin reaction.

Ingestion

Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

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.

Prolonged or repeated application of a similar product to the skin of laboratory mice without washing between applications resulted in increased incidence of skin tumors. It is suspected that tumors may be due in part to severely irritated conditions from continuous contact with the product.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Alkenes, C14-18 .alpha.-	68855-59-4	> 5000 mg/kg (Rat) (similar substance)	> 3160 mg/kg (Rabbit) (similar substance)	> 5266 mg/m ³ (Rat, 4h) (similar substance)
Barium sulfate	7727-43-7	> 307,000 mg/kg (Rat) > 2000mg/kg (Rat) (similar substance - barium dichloride)	> 2,000 mg/kg (Rabbit)	No data available

Calcium chloride	10043-52-4	> 1000 mg/kg (Rat) 2301 mg/kg (Rat)	2630 mg/kg (Rat) > 5000 mg/kg (Rabbit)	No data available
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	> 2020 mg/kg (Rat)	> 2000 mg/kg (Rat)	No data available
Crystalline silica, quartz	14808-60-7	> 5000 mg/kg (Rat)	No data available	No data available

12. ECOLOGICAL INFORMATION

Ecotoxicological Information

Ecotoxicity Product

Acute Fish Toxicity:	Not determined
Acute Crustaceans Toxicity:	TLM48: > 50000 mg/l (Acartia tonsa)
Acute Algae Toxicity:	Not determined

Ecotoxicity Substance

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Alkenes, C14-18 .alpha.-	68855-59-4	EL50(72h): > 10000 mg/L (Skeletonema costatum) (similar substance)	LL50(96h): > 1028 mg/L (Scophthalmus maximus) (similar substance)	No information available	LL50(48h): > 3193 mg/L (Acartia tonsa) (similar substance)
Barium sulfate	7727-43-7	EC50(72h): (growth rate) > 61.1 mg/L (Pseudokirchnerella subcapitata) EC50(72h): > 34.31 mg/L (Pseudokirchnerella subcapitata) (elemental Barium)	TLM96: 7500 ppm (Oncorhynchus mykiss) (Danio rerio) LC50(96h): > 174 mg/L (Danio rerio) LC50(96h): > 97.5 mg/L (Danio rerio) (elemental Barium) LC50(28d): 42700 ug/L (Oncorhynchus mykiss) (elemental Barium)	EC50(3h): (respiration rate) > 1000 mg/L (activated sludge)	TLM96: > 1,000,000 ppm (Mysidopsis bahia) LC50(48h): 14500 ug/L (Daphnia magna) (elemental Barium) EC16(3wk): 5800 ug/L (Daphnia magna) (elemental Barium) EC16(3wk): 4800 ug/L (Daphnia magna)
Calcium chloride	10043-52-4	EC50(72h): 2900 mg/L (Pseudokirchnerella subcapitata)	LC50(96h): 4630 mg/L (Pimephales promelas)	No information available	EC50(48h): 2400 mg/L (Daphnia magna) EC50(21d) 610 mg/L (reproduction) (Daphnia magna)
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	EC50(72h): > 100 mg/L (growth rate) (Pseudokirchnerella subcapitata)	LC50(96h): > 100 mg/L (Danio rerio)	EC50(3h): > 100 mg/L (respiration rate) (Activated sludge)	IC50(48h): > 100 mg/L (Daphnia magna)
Crystalline silica, quartz	14808-60-7	No information available	LL0(96h): 10000 mg/L (Danio rerio) (similar substance)	No information available	LL50(24h): > 10000 mg/L (Daphnia magna) (similar substance)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Alkenes, C14-18 .alpha.-	68855-59-4	Readily biodegradable (74% @ 28d) (similar substances)
Barium sulfate	7727-43-7	The methods for determining biodegradability are not applicable to inorganic substances.
Calcium chloride	10043-52-4	The methods for determining biodegradability are not applicable to inorganic substances.
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Readily biodegradable (71% @ 28d)

Crystalline silica, quartz	14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.
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12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Alkenes, C14-18 .alpha.-	68855-59-4	No information available
Barium sulfate	7727-43-7	BCF: 1.2 - 74.4 L/kg (Lepomis macrochirus)
Calcium chloride	10043-52-4	No information available
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	2.4
Crystalline silica, quartz	14808-60-7	No information available

12.4. Mobility in soil

No information available

12.5. Results of PBT and vPvB assessment

Substances	PBT and vPvB assessment
Crystalline silica, quartz	Not PBT/vPvB

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

Australia Dangerous Goods

UN Number: Not restricted.
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable

IMDG/IMO

UN Number: Not restricted.
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IATA/ICAO

UN Number: Not restricted.
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable

Special Precautions for User: None

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

15. REGULATORY INFORMATION

Chemical Inventories

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

Product contains one or more components not listed on inventory.
This product does not comply with NZIOC

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

Classification

T - Toxic.

Xi - Irritant.

Risk Phrases

R36 Irritating to eyes.
R43 May cause sensitization by skin contact.
R49 May cause cancer by inhalation.
R48/20 - Harmful: danger of serious damage to health by prolonged exposure through inhalation

Safety Phrases

S23 Do not breathe gas, fumes, vapour or spray.
S62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

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*****