HALLIBURTON

SAFETY DATA SHEET

MAGNETITE CONCENTRATE

Revision Date: 21-Jan-2016 **Revision Number:** 6

1. Product and Company Identification

Product Name
Product Trade Name: MAGNETITE CONCENTRATE

Other Names
Synonyms: None
Product Code: HM003691

Recommended Use
Recommended Use Additive
Uses Advised Against No information available

Company Name, Address and Contact Details
Manufacturer/Supplier Halliburton New Zealand
1 Paraite Rd,
Bell Block, New Plymouth
New Zealand Registration No.: 824207

E-Mail address: fdunexchem@halliburton.com

Emergency Telephone Number +64 800 451719

New Zealand National Poisons Centre 0800 764 766 (24 hours)

2. Hazard(s) Identification

Statement of Hazardous Nature
Not Classified as hazardous according to criteria in the Hazardous Substances (Minimum Degrees of Hazard) Regulation 2001; Not Classified as dangerous good according to NZS 5433:2012, UN, IMDG or IATA

Classification
Non-hazardous

Hazard and Precautionary Statements

Hazard Pictograms

Signal Word None

Hazard Statements Not Hazardous

Precautionary Statements

Prevention None

Response None

Storage None

Disposal None

Contains

Substances	CAS Number	Substance HSNO Classification
Iron oxide	1309-37-1	6.9 (Respiratory tract irritant)
Crystalline silica, quartz	14808-60-7	6.7A

		6.9A

2.3. Other Hazards
None known

3. Composition and Information on Ingredients

Substances	CAS Number	PERCENT (w/w)
Iron oxide	1309-37-1	10 - 30%
Crystalline silica, quartz	14808-60-7	0.1 - 1%

4. First-Aid Measures

Requirements for First Aid or Medical Care

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

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

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

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

Workplace Facilities Required
None

Relation to Health Effect
Most Important Symptoms/Effects
If this product becomes dry, it may produce respirable crystalline silica dust. Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

Medical Attention and Special Treatment
Notes to Physician
Treat symptomatically

5. Fire-fighting measures

Type of Hazard
Flammability Hazard
Non-flammable

5.1. Extinguishing media
Suitable Extinguishing Media
All standard fire fighting media
Extinguishing media which must not be used for safety reasons
None known.

HAZCHEM Code
Hazchem Code: None Allocated

Special Protective Equipment and Precautions for Fire Fighters
Special Protective Equipment for Fire-Fighters
Not applicable.
Special Exposure Hazards
Not applicable.

6. Spillage, Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures
Use appropriate protective equipment.
See Section 8 for additional information

6.2. Environmental precautions
None known.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

6.4. Reference to other sections

See Section 8 and 13 for additional information.

7. Handling and storage

7.1. Precautions for Safe Handling

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 if this product becomes dry. Avoid breathing or creating dust. 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 dried product.

Handling Practices

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

Approved Handlers

This product does NOT require an approved handler.

7.2. Conditions for safe storage, including any incompatibilities

Store in a dry location. Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use.

Store Site Requirements

No special controls required

Packaging

No special packaging required

8. Exposure Controls and Personal Protection

Workplace Exposure Standards

Exposure Limits

Substances	CAS Number	New Zealand WES	ACGIH TLV-TWA
Iron oxide	1309-37-1	TWA: 5 mg/m^3	TWA: 5 mg/m^3
Crystalline silica, quartz	14808-60-7	TWA: 0.2 mg/m^3	TWA: 0.025 mg/m^3

Engineering Controls

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

Personal Protective Equipment (PPE)

Respiratory Protection Wear a NIOSH certified, European Standard EN 149 (FFP2/FFP3), AS/NZS 1715, 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.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid
Color: Black
Odor: Odorless
Odor Threshold: No information available

Property	Values	Remarks/ - Method
pH:	No data available	

Freezing Point/Range	No data available
Melting Point/Range	No data available
Boiling Point/Range	No data available
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.25
Water Solubility	Partly soluble
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.2. Chemical Stability

Stable

10.4. Conditions to Avoid

None anticipated

10.5. Incompatible Materials

Hydrofluoric acid.

10.6. Hazardous Decomposition Products

Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

Hazardous Reactions

Hazardous Polymerization: Will Not Occur

11. Toxicological Information

Health Effect from Likely Routes of Exposure

Acute Toxicity

Inhalation

Dust hazard would exist only if the aqueous phase has evaporated. 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 None known.

Ingestion None known.

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.

Toxicity Data

Toxicology data for the components

Substances	CAS Number	**LD50 Oral**	**LD50 Dermal**	**LC50 Inhalation**
Iron oxide	1309-37-1	> 5000 mg/kg (Rat)	No data available	> 0.21 mg/L (Rat) 2-week
Crystalline silica, quartz	14808-60-7	>15,000 mg/kg (Human)	No data available	No data available

Substances	**CAS Number**	**Skin corrosion/irritation**
Iron oxide	1309-37-1	Non-irritating to the skin (Rabbit)
Crystalline silica, quartz	14808-60-7	Non-irritating to the skin

Substances	**CAS Number**	**Eye damage/irritation**
Iron oxide	1309-37-1	Non-irritating to the eye (Rabbit)
Crystalline silica, quartz	14808-60-7	Mechanical irritation of the eyes is possible.

Substances	**CAS Number**	**Skin Sensitization**
Iron oxide	1309-37-1	Did not cause sensitization on humans or laboratory animals. (guinea pig)
Crystalline silica, quartz	14808-60-7	No information available.

Substances	**CAS Number**	**Respiratory Sensitization**
Iron oxide	1309-37-1	No information available
Crystalline silica, quartz	14808-60-7	No information available

Substances	**CAS Number**	**Mutagenic Effects**
Iron oxide	1309-37-1	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects.
Crystalline silica, quartz	14808-60-7	Not regarded as mutagenic.

Substances	**CAS Number**	**Carcinogenic Effects**
Iron oxide	1309-37-1	Not regarded as carcinogenic.
Crystalline silica, quartz	14808-60-7	Contains crystalline silica which may cause silicosis, a delayed and progressive lung disease. The IARC and NTP have determined there is sufficient evidence in humans of the carcinogenicity of crystalline silica with repeated respiratory exposure. Based on available scientific evidence, this substance is a threshold carcinogen with a mode of action involving indirect genotoxicity secondary to lung injury.

Substances	**CAS Number**	**Reproductive toxicity**
Iron oxide	1309-37-1	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)
Crystalline silica, quartz	14808-60-7	No information available

Substances	**CAS Number**	**STOT - single exposure**
Iron oxide	1309-37-1	No significant toxicity observed in animal studies at concentration requiring classification.
Crystalline silica, quartz	14808-60-7	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	**CAS Number**	**STOT - repeated exposure**
Iron oxide	1309-37-1	No significant toxicity observed in animal studies at concentration requiring classification.

Crystalline silica, quartz	14808-60-7	Causes damage to organs through prolonged or repeated exposure if inhaled: (Lungs)

Substances	CAS Number	Aspiration hazard
Iron oxide	1309-37-1	Not applicable
Crystalline silica, quartz	14808-60-7	Not applicable

12. Ecological Information

12.1. Toxicity

Ecotoxicity Effects

Product Ecotoxicity Data

No data available

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Iron oxide	1309-37-1	NOEC (120d) 2.7 mg/L (Chlorella vulgaris)	LC0 (96h) > 50000 mg/L (Danio rerio) LC0 (96h) 1000 mg/L (Leuciscus idus)	No information available	EC50 (48h) > 100 mg/L (Daphnia magna)
Crystalline silica, quartz	14808-60-7	No information available	LL0 (96h) 10,000 mg/L (Danio rerio) (similar substance)	No information available	LL50 (24h) > 10,000 mg/L (Daphnia magna) (similar substance)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Iron oxide	1309-37-1	The methods for determining biodegradability are not applicable to inorganic substances.
Crystalline silica, quartz	14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Iron oxide	1309-37-1	No data available
Crystalline silica, quartz	14808-60-7	No data available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Iron oxide	1309-37-1	No information available
Crystalline silica, quartz	14808-60-7	No information available

Ecotoxicity Hazard Statements

None known

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

13.1. Waste treatment methods

Disposal Method

Contaminated Packaging

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

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

NZ 5433.1999

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

New Zealand Inventory of Chemicals	All components are listed on the AICS or are subject to a relevant exemption, permit, or assessment certificate.
HSNO Approval Number	Non-hazardous
Group Name	Not Applicable
HSNO Controls	Refer to the NZ EPA website for more information: http://www.epa.govt.nz
Approved Handlers	Not Applicable
Poisons Schedule:	None Allocated

16. Other information

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

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 Stewardship at 1-580-251-4335.

Key or legend to abbreviations and acronyms
bw – body weight CAS – Chemical Abstracts Service EC50 – Effective Concentration 50% LC50 – Lethal Concentration 50% LD50 – Lethal Dose 50% LL50 – Lethal Loading 50% MARPOL – International Convention for the Prevention of Pollution from Ships mg/kg – milligram/kilogram mg/L – milligram/liter NOEC – No Observed Effect Concentration OEL – Occupational Exposure Limit ppm – parts per million TWA – Time-Weighted Average VOC – Volatile Organic Carbon C - Celsius IATA/ICAO - International Air Transport Association / International Civil Aviation Organization IMDG/IMO - International Maritime Dangerous Goods / International Maritime Organization mg/m^3 - milligram/cubic meter mm - millimeter mmHg - millimeter mercury w/w - weight/weight d - day

Key literature references and sources for data
www.ChemADVISOR.com/
NZ CCID

Revision Date: 21-Jan-2016
Revision Note
SDS sections updated:
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End of Safety Data Sheet