HALLIBURTON

SAFETY DATA SHEET

TAU-MOD™

Revision Date: 29-Sep-2014 **Revision Number:** 17

1. Product and Company Identification

Product Name
Product Trade Name: TAU-MOD™

Other Names
Synonyms: None
Product Code: HM006276

Recommended Use
Recommended Use Viscosifier
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 +64-6-7559274

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

2. Hazard(s) Identification

Statement of Hazardous Nature
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
6.7A Known or presumed human carcinogens
6.9B Harmful to human target organs or systems

Hazard and Precautionary Statements

Hazard Pictograms

Signal Word Danger

Hazard Statements H350 - May cause cancer by inhalation
H373 - May cause damage to organs through prolonged or repeated exposure if inhaled

Precautionary Statements

Prevention	P103 - Read label before use P104 - Read Safety Data Sheet before use P201 - Obtain special instructions before use P202 - Do not handle until all safety precautions have been read and understood P260 - Do not breathe dust/fume/gas/mist/vapors/spray P281 - Use personal protective equipment as required
Response	P308 + P313 - IF exposed or concerned: Get medical advice/attention P314 - Get medical attention/advice if you feel unwell
Storage	P405 - Store locked up
Disposal	P501 - Dispose of contents/container to an approved landfill

Contains

Substances	CAS Number	Substance HSNO Classification
Crystalline silica, quartz	14808-60-7	6.7A 6.9A
Crystalline silica, cristobalite	14464-46-1	6.7A 6.9A
Crystalline silica, tridymite	15468-32-3	6.7A 6.9A

2.3. Other Hazards

None known

3. Composition and Information on Ingredients

Substances	CAS Number	PERCENT (w/w)
Crystalline silica, quartz	14808-60-7	1 - 5%
Crystalline silica, cristobalite	14464-46-1	0.1 - 1%
Crystalline silica, tridymite	15468-32-3	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

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. Avoid creating and breathing dust.
See Section 8 for additional information

6.2. Environmental precautions

None known.

6.3. Methods and material for containment and cleaning up

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.

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
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.

Handling Practices

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

Approved Handlers

If more than 10 kg (Class 6) is present, then an approved handler must be present when the substance is being handled and when not in use, the substance must be locked away.

7.2. Conditions for safe storage, including any incompatibilities

Store in a cool, dry location. Store locked up. Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container. Product has a shelf life of 36 months.

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
Crystalline silica, quartz	14808-60-7	TWA: 0.2 mg/m³	TWA: 0.025 mg/m³
Crystalline silica, cristobalite	14464-46-1	TWA: 0.1 mg/m³	TWA: 0.025 mg/m³
Crystalline silica, tridymite	15468-32-3	TWA: 0.1 mg/m³	0.05 mg/m³

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: Powder **Color:** Pink to tan to gray

Odor: Mild earthy **Odor Threshold:** No information available

Property	Values	Remarks/ - Method
pH:	No data available	
Freezing Point/Range		
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	1.9 - 2.4	
Water Solubility	Insoluble in water	
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

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 skin irritation.

Ingestion Irritation of the mouth, throat, and stomach.

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
Crystalline silica, quartz	14808-60-7	> 5000 mg/kg (Rat)	No data available	No data available
Crystalline silica, cristobalite	14464-46-1	> 5000 mg/kg (Rat)	No data available	No data available
Crystalline silica, tridymite	15468-32-3	> 5000 mg/kg (Rat)	No data available	No data available

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
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)
Crystalline silica, cristobalite	14464-46-1	No information available	LL0(96h): 10000 mg/L(Danio rerio) (similar substance)	No information available	LL50(24h): > 10000 mg/L (Daphnia magna) (similar substance)
Crystalline silica, tridymite	15468-32-3	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
Crystalline silica, quartz	14808-60-7	The methods for determining biodegradability are not applicable to inorganic substances.
Crystalline silica, cristobalite	14464-46-1	The methods for determining biodegradability are not applicable to inorganic substances.
Crystalline silica, tridymite	15468-32-3	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Crystalline silica, quartz	14808-60-7	No data available
Crystalline silica, cristobalite	14464-46-1	No data available
Crystalline silica, tridymite	15468-32-3	No data available

12.4. Mobility in soil
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 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

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 listed on inventory or are exempt.

HSNO Approval Number HSR002512

Group Name Additives, Process Chemicals and Raw Materials (Toxic 6.7 HSR002512)

HSNO Controls Refer to the NZ EPA website for more information: http://www.epa.govt.nz

Approved Handlers If more than 10 kg (Class 6) is present, then an approved handler must be present when the substance is being handled and when not in use, the substance must be locked away.

Poisons Schedule: None Allocated

16. Other information, including date of preparation or last revision

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 Compliance at 1-580-251-4335.

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

Revision Date: 29-Sep-2014
Revision Note
Update to Format SECTION: 8

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End of Safety Data Sheet