

MATERIAL SAFETY DATA SHEET**Product Trade Name:** OPTIFLO-HTE**Revision Date:** 20-Feb-2014**Revision Number:** 11**1. Product and Company Identification****Product Identifier**

Product Trade Name: OPTIFLO-HTE
Synonyms: None
Chemical Family: Blend
Internal ID Code: HM001137

Product Use

Application: Breaker

Manufacturer's Name and Contact Details

Name and Address Halliburton Energy Services
645 - 7th Ave SW Suite 2200
Calgary, AB
T2P 4G8
Canada

Emergency Telephone Number (281) 575-5000

Prepared By

Chemical Compliance
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2. Hazard(s) Identification**WHMIS Classification**

WHMIS Hazard Class D2A Very Toxic Materials
D2B Toxic Materials

WHMIS Symbol(s)**Summary of hazards of the product****Hazard Overview**

May cause allergic respiratory 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, or equivalent respirator when using this product. Review the Material Safety Data Sheet (MSDS) for this product, which has been provided to your employer.

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	HMIRA Registry Number	Filing Date
Hemicellulase	9025-56-3	1 - 5%	Not applicable	Not applicable
Crystalline silica, quartz	14808-60-7	10 - 30%	Not applicable	Not applicable

4. First aid measures

Description of first aid measures

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

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.

Most important symptoms and effects, both acute and delayed

May cause allergic respiratory reaction. Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

Indication of any immediate medical attention and special treatment needed

Notes to Physician

Treat symptomatically

5. Fire Fighting Measures

Extinguishing media

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Special hazards arising from the substance or mixture

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.

Advice for firefighters

Special Protective Equipment for Fire-Fighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

Hazardous combustion products

Carbon monoxide and carbon dioxide. Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

6. Accidental release measures

Personal precautions and emergency procedures

Protective Equipment

Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures

None known.

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

Precautions for safe handling

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.

Conditions for safe storage and Incompatible materials for storage

Store in a cool, dry location. Store between 20 F (-6 C) and 100 F (38 C). 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 24 months.

8. Exposure Controls/Personal Protection

Occupational Exposure Limits

Exposure Limits

Substances	CAS Number	ACGIH TLV-TWA	OSHA PEL-TWA
Hemicellulase	9025-56-3	Not applicable	Not applicable
Crystalline silica, quartz	14808-60-7	TWA: 0.025 mg/m ³	10 mg/m ³ %SiO ₂ + 2

Appropriate 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), 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

Information on basic physical and chemical properties

Physical State: Solid

Odor: Fermentive

Color: Tan to Brown

Odor Threshold: No information available

Property

Remarks/ - Method

pH:

pH Concentration of Solution:

Freezing Point/Range

Melting Point/Range

Boiling Point/Range (C):

Flash Point/Range (C):

Flash Point Method:

Autoignition Temperature (C):

Flammability Limits in Air - Lower (%):

Flammability Limits in Air - Upper (%):

Evaporation Rate (Butyl Acetate=1):

Vapor Pressure @ 20 C (mmHg):

Vapor Density (Air=1):

Values

No information available.

No information available.

No information available.

No information available.

No information available.

No information available.

Not Determined

No information available.

No information available.

No information available.

No information available.

No information available.

No information available.

Specific Gravity @ 20 C (Water=1):	1.5
Solubility in Water (g/100ml):	Partially soluble
Solubility in other solvents	No information available.
Partition Coefficient/n-Octanol/Water:	No information available.
Decomposition Temperature (C):	No information available.
Viscosity	No information available
Explosive Properties	No information available
Oxidizing Properties	No information available
Other Information	
Molecular Weight (g/mole):	No information available.
VOC Content (%)	No information available

10. Stability and Reactivity

Conditions of Reactivity

Conditions to Avoid	None anticipated
Hazardous Polymerization:	Will Not Occur

Chemical Stability

Stable

Sensitivity to Static Discharge

Not available

Sensitivity to Mechanical Impact

Not available

Incompatible materials

Strong oxidizers.

Hazardous Decomposition Products

Carbon monoxide and carbon dioxide. Amorphous silica may transform at elevated temperatures to tridymite (870 C) or cristobalite (1470 C).

11. Toxicological Information

Routes of entry

Eye or skin contact, inhalation.

Information on Toxicological Effects

Acute effects from exposure

Inhalation

May cause allergic respiratory reaction. 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 mechanical irritation to eye.

Skin Contact

None known.

Ingestion

None known

Chronic effects from exposure

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.

Irritancy of product
Irritation

Non-irritating to the skin Non-irritating to the eye

Sensitization of product
Sensitization

May cause allergic respiratory reaction.

Mutagenicity
Mutagenic Effects

Not regarded as mutagenic

Carcinogenicity
Carcinogenic Effects

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.

Reproductive Toxicity
Reproductive Toxicity

This product does not contain any known or suspected reproductive hazards

Teratogenicity/embryotoxicity
Teratogenic

Not a teratogen or embryotoxin.

Toxicologically synergistic material Not available**Acute Toxicity**

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hemicellulase	9025-56-3	No data available	No data available	No data available
Crystalline silica, quartz	14808-60-7	500 mg/kg (Rat)	No data available	No data available

12. Ecological Information

Toxicity
Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity for Invertebrates
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Hemicellulase	9025-56-3	No information available	No information available	No information available	No information available
Crystalline silica, quartz	14808-60-7	EC50(72h): 89 mg/L (biomass) (Scenedesmus subspicatus) (similar substance)	LC50(96h): 508 mg/L (Danio rerio) (similar substance)	No information available	LC50(48h): 731 mg/L (Daphnia magna) (similar substance) LC50(48h): 33.5 mg/L (Ceriodaphnia dubia) (similar substance)

Persistence and Degradability

No information available

Bioaccumulation potential

No information available

Mobility in soil

No information available

Results of PBT and vPvB assessment

No information available.

Other adverse effects**Endocrine Disruptor Information**

This product does not contain any known or suspected endocrine disruptors

13. Disposal Considerations

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

Canadian TDG

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

IATA/ICAO

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

IMDG/IMO

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

<u>Special Precautions for User</u>	None
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Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

15. Regulatory Information

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

Canadian Regulations**Canadian DSL Inventory**

Product contains one or more components not listed on the inventory.

WHMIS Hazard Class

D2A Very Toxic Materials

D2B Toxic Materials

WHMIS Symbol(s)**US Regulations****US TSCA Inventory**

All components listed on inventory or are exempt.

16. Other Information**Preparation Information****Prepared By**

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Revision Date:

20-Feb-2014

The following sections have been revised since the last issue of this SDS

Section 9. Physical and Chemical Properties

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 or legend to abbreviations and acronyms

WHMIS: Workplace Hazardous Materials Information System

Key literature references and sources for datawww.ChemADVISOR.com/**Disclaimer Statement**

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*****END OF MSDS*****