Weatherford

Material Safety Data Sheet

WFL 191

1. Product and Company Identification

Material name	**WFL 191**
Patent Number	Not available
Chemical name	Silica Dioxide
Revision date	May-13-2009
Version No.	1
Product use	Fracturing Fluid Loss Additive
Supplier information	Weatherford Fracturing Technologies 515 Post Oak Blvd Suite 1000 Houston, TX 77027 US

2. Hazards Identification

Emergency overview	WARNING HARMFUL IF INHALED. Cancer hazard. This product contains crystalline silica that may cause silicosis and cancer. Dust causes irritation to the eyes, skin and mucous membranes and may lead to toxic lung edemas. Risk of serious damage to the lungs (by inhalation).
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Ingestion. Inhalation. Eye contact.
Eyes	Avoid contact with eyes. Dust of this product may be irritating and can cause tearing, reddening and swelling.
Skin	Avoid contact with the skin.
Inhalation	Do not breathe dust. Dust may be mildly irritating. Inhalation of dusts from this product may cause respiratory irritation with throat discomfort, coughing and sneezing. Can cause severe respiratory irritation. Overexposure to dusts may result in pneumoconiosis, a lung disease due to permanent deposition of substantial amounts of particulate matter in the lungs.
Ingestion	Do not ingest. May be harmful if swallowed.
Target organs	Respiratory system.
Potential environmental effects	Ecological injuries are not known or expected under normal use.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Crystalline Silica in the form of Quartz	14808-60-7	90 - 100

4. First Aid Measures

First aid procedures

Eye contact Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Get medical attention immediately.

Skin contact Remove and isolate contaminated clothing and shoes. Wash skin with soap and plenty of water for 15-20 minutes. Get medical attention if irritation develops or persists.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.

Ingestion If swallowed, seek medical advice immediately and show this container or label. Have victim rinse mouth thoroughly with water. Do not induce vomiting without medical advice. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Never give anything by mouth to a victim who is unconscious or is having convulsions.

General advice Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties Not a fire hazard. The product is not flammable.

Extinguishing media

Suitable extinguishing media Water. Water fog. Dry chemical, CO2, water spray or regular foam.

Protection of firefighters

Protective equipment and precautions for firefighters Use water spray to cool unopened containers. Cool containers with flooding quantities of water until well after fire is out.

6. Accidental Release Measures

Personal precautions Local authorities should be advised if significant spillages cannot be contained. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering. Keep unnecessary personnel away. Stay upwind. Keep out of low areas.

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods for containment Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas.

Methods for cleaning up

Large Spills: Dike far ahead of liquid spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. After removal flush contaminated area thoroughly with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean contaminated surface thoroughly.

Never return spills in original containers for re-use.

Other information

Do Not dry sweep. Vacuum and place in closed container for disposal with water.

7. Handling and Storage

Handling

Do not breathe dust from this material. Use only with adequate ventilation. Wash hands after handling and before eating. Handle and open container with care. Wash thoroughly after handling. Avoid prolonged exposure.

Storage

Keep container tightly closed. Keep in a well-ventilated place. Keep out of the reach of children. Use care in handling/storage.

8. Exposure Controls / Personal Protection

Exposure limits

ACGIH

Components	CAS #	TWA	STEL	Ceiling
Crystalline Silica in the form of Quartz	14808-60-7	0.025 mg/m3	Not established	Not established

Engineering controls

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower nearby.

Personal protective equipment

Eye / face protection

Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

Protective gloves.Impervious gloves. Where contact is likely, wear chemical-resistant gloves, a chemical suit, rubber boots, and chemical safety goggles plus a face shield.

Respiratory protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Wear respirator with dust filter.

General hygeine considerations

Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice. Wash hands after handling and before eating.

9. Physical & Chemical Properties

Appearance Solid.

Color White. - Tan.

Odor Odorless.

Odor threshold Not available

Physical state Solid.

Form Solid.

pH 2.2 @ 1% soln in water

Melting point Not available

Freezing point	Not available
Boiling point	Not available
Flash point	Not available
Evaporation rate	Not available
Flammability	Not available.
Flammability limits in air, upper, % by volume	Not available
Flammability limits in air, lower, % by volume	Not available
Vapor pressure	Not available
Vapor density	Not available
Specific gravity	2.65
Relative density	2.6497 g/cm3 estimated
Solubility (water)	Insoluble in water
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not available
Decomposition temperature	Not available

10. Chemical Stability & Reactivity Information

Chemical stability	Stable at normal conditions.
Incompatible materials	Fluoride. Powerful oxidizers.

11. Toxicological Information

Acute effects Acute LD50: 500 mg/kg estimated, Rat, Oral

Component analysis - LD50

Toxicology Data - Selected LD50s and LC50s

Crystalline Silica in the form of Quartz	14808-60-7	Oral LD50 Rat: 500 mg/kg

Sensitization Not expected to be hazardous by OSHA criteria.

Local effects Harmful by inhalation. Harmful if swallowed.

Carcinogenicity Cancer hazard.

ACGIH - Threshold Limit Values - Carcinogens

Crystalline Silica in the form of Quartz	14808-60-7	A2 - Suspected Human Carcinogen

NTP (National Toxicology Program) - Report on Carcinogens - Known Human Carcinogens

Crystalline Silica in the form of Quartz	14808-60-7	Known Human Carcinogen

Neurological effects Not expected to be hazardous by OSHA criteria.

Symptoms and target organs Respiratory system

12. Ecological Information

Ecotoxicity This product has no known eco-toxicological effects.

13. Disposal Considerations

Disposal instructions This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose in accordance with all applicable regulations.

14. Transport Information

Department of Transportation (DOT) Requirements

Not regulated as dangerous goods.

Canadian Transportation of Dangerous Goods (TDG) Requirements

Basic shipping requirements:

Proper shipping name	TOXIC SOLID, INORGANIC, N.O.S. (Crystalline Silica in the form of Quartz)
Hazard class	6.1
UN number	UN3288
Packing group	III
Additional information:	
Special provisions	16

IMDG

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

15. Regulatory Information

Labelling

Contains Crystalline Silica in the form of Quartz

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA Hazardous Substances - Not applicable.

NTP (National Toxicology Program) - Report on Carcinogens - Known Human Carcinogens

Crystalline Silica in the form of Quartz	14808-60-7	Known Human Carcinogen

Occupational Safety and Health Administration (OSHA)

29 CFR 1910.1200 hazardous chemical Yes

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance	No
Section 311 hazardous chemical	Yes

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
Europe	European Inventory of New and Existing Chemicals (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

International regulations

Canada - WHMIS - Ingredient Disclosure List

Crystalline Silica in the form of Quartz	14808-60-7	1 %

IARC - Group 1 (Carcinogenic to Humans)

Crystalline Silica in the form of Quartz	14808-60-7	Monograph 68 [1997] (listed under Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources)

State regulations WARNING: This product contains a chemical known to the State of California to cause cancer.

U.S. - California - Proposition 65 - Carcinogens List

Crystalline Silica in the form of Quartz	14808-60-7	carcinogen, initial date 10/1/88 (airborne particles of respirable size)

U.S. - Massachusetts - Right To Know List

Crystalline Silica in the form of Quartz	14808-60-7	Carcinogen; Extraordinarily hazardous

U.S. - Minnesota - Hazardous Substance List

Crystalline Silica in the form of Quartz	14808-60-7	Carcinogen

U.S. - New Jersey - Right to Know Hazardous Substance List

Crystalline Silica in the form of Quartz	14808-60-7	sn 1660

U.S. - Pennsylvania - RTK (Right to Know) List

Crystalline Silica in the form of Quartz	14808-60-7	Present

U.S. - Rhode Island - Hazardous Substance List

Crystalline Silica in the form of Quartz	14808-60-7	Toxic (dust)

U.S. - Texas - Effects Screening Levels - Long Term

Crystalline Silica in the form of Quartz	14808-60-7	0.1 µg/m3 ESL (respirable, under review)

U.S. - Texas - Effects Screening Levels - Short Term

Crystalline Silica in the form of Quartz	14808-60-7	1 µg/m3 ESL (under review)

16. Other Information

HMIS® ratings

Health: 2
Flammability: 0
Physical hazard: 0

NFPA ratings	Health: 2 Flammability: 0 Instability: 0
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