Weatherford®

Engineered Chemistry™

Material Safety Data Sheet

WSI-685L

1. Product and Company Identification

Material name	**WSI-685L**
Version #	01
Issue date	April-19-2013
CAS #	Mixture
Product use	Scale Inhibitor
Manufacturer information	Weatherford Fracturing Technologies 2000 St. James Place Houston, TX 77056 United States Email: productsafety.compliance@weatherford.com CHEMTREC 1-800-424-9300 CHEMTREC INT'L 703-527-3887
Supplier information	Weatherford Fracturing Technologies 2000 St. James Place Houston, TX 77056 US
Supplier emergency telephone number(s)	CHEMTREC 800-424-9300 CHEMTREC INT'L 001-703-527-3887

2. Hazards Identification

Emergency overview	WARNING Harmful if swallowed, inhaled or absorbed through skin. Causes eye irritation. Causes central nervous system and optic nerve damage. This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Irritating to eyes. Contact may cause irritation with redness, tearing and pain. Avoid contact with eyes.
Skin	Harmful if absorbed through the skin. Absorption may result in systemic effects. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. Once absorbed into the body, it is very slowly eliminated. Avoid contact with the skin.
Inhalation	Harmful if inhaled. Symptoms of overexposure may include headache, drowsiness, nausea, vomiting, blurred vision, blindness, coma and death. Inhalation of methanol causes CNS effects and neurobehavioral impairment. Once absorbed into the body, it is very slowly eliminated. Do not breathe dust/fume/gas/mist/vapors/spray.

Ingestion	Harmful if swallowed. Symptoms are stomach ache, nausea, vomiting, dullness, visual disorder, and blindness. Do not ingest.
Target organs	Central nervous system. Eyes. Skin. Optic nerves.
Chronic effects	Prolonged and repeated exposure to high vapor concentrations, skin absorption or ingestion of methanol may result in visual disturbances, metabolic acidosis, headache, giddiness, nausea, insomnia, gastric disturbance, dizziness and slow breathing. There have been severe cases reported of blindness, coma and death due to the ingestion of methanol.
Signs and symptoms	Irritation. visual disturbances blindness metabolic acidosis headache nausea dizziness Decrease in motor functions. Behavioral changes.
Potential environmental effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Ammonium Chloride	12125-02-9	5 - 15
Monoethanolamine Hydrochloride	2002-24-6	5 - 15
Methyl Alcohol	67-56-1	1 - 2.5

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Skin contact	Immediately flush skin with plenty of water. Remove contaminated clothing, including shoes, after flushing has begun. Get medical attention if irritation develops and persists. Thoroughly wash (or discard) clothing and shoes before reuse. If breathing stopped, trained personnel should begin artificial respiration immediately; and if the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately.
Inhalation	Call a POISON CENTER or doctor/physician if you feel unwell. If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed.
Ingestion	Get medical advice/attention if you feel unwell. If ingestion of a large amount does occur, call a poison control center immediately. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting without medical advice. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. 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. If breathing stopped, trained personnel should begin artificial respiration immediately; and if the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately.
General advice	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If you feel unwell, seek medical advice (show the label where possible). Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties	The product is not flammable.

Extinguishing media	
Suitable extinguishing media	Water fog. Carbon dioxide (CO2). Alcohol resistant foam. Dry chemical powder.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Protection of firefighters	
Specific hazards arising from the chemical	No unusual fire or explosion hazards noted.
Protective equipment and precautions for firefighters	Firefighters should wear full protective gear. Evacuate area and fight fire from a safe distance.
Fire fighting equipment/instructions	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. In the event of fire and/or explosion do not breathe fumes. Cool containers with flooding quantities of water until well after fire is out. ALWAYS stay away from tanks engulfed in flame. Move containers from fire area if you can do so without risk.
Hazardous combustion products	May include oxides of carbon. May include oxides of nitrogen. May include oxides of phosphorus. Hydrogen chloride.

6. Accidental Release Measures

Personal precautions	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep out of low areas. Ensure adequate ventilation. Ventilate closed spaces before entering them.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not contaminate water.
Methods for containment	Stop leak if you can do so without risk. Prevent entry into waterways, sewer, basements or confined areas. Should not be released into the environment.
Methods for cleaning up	Extinguish all flames in the vicinity. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Clean contaminated surface thoroughly. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills in original containers for re-use. For waste disposal, see section 13 of the MSDS.
Other information	Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling	Avoid heat, sparks, open flames and other ignition sources. When using, do not eat, drink or smoke. Do not use in areas without adequate ventilation. Wash thoroughly after handling. Wear personal protective equipment. Avoid release to the environment. Do not empty into drains. Do not breathe mist or vapor. Do not get this material in contact with eyes. Do not taste or swallow. Do not get on skin and clothing.
Storage	Keep away from heat and sources of ignition. Store in a closed container away from incompatible materials. Keep away from food and drink. Store in a well-ventilated place. Keep container tightly closed. Store in accordance with local/regional/national/international regulation.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Ammonium Chloride (12125-02-9)	STEL	20 mg/m3	Fume.
	TWA	10 mg/m3	Fume.
Methyl Alcohol (67-56-1)	STEL	250 ppm	
	TWA	200 ppm	

US. ACGIH. BEIs. Biological Exposure Indices

Components	Type	Value
Methyl Alcohol (67-56-1)	BEI	15 mg/l

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Methyl Alcohol (67-56-1)	PEL	260 mg/m3 200 ppm

Exposure guidelines

US ACGIH Threshold Limit Values: Skin designation

Methyl Alcohol (CAS 67-56-1) Can be absorbed through the skin.

Engineering controls Ensure adequate ventilation, especially in confined areas. Eye wash fountain and emergency showers are recommended.

Personal protective equipment

Eye / face protection Avoid contact with eyes. Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection Avoid contact with the skin. Wear protective gloves. Wear suitable protective clothing. Normal work clothing (long sleeved shirts and long pants) is recommended. Closed-toe shoes recommended.
The suitability for a specific workplace should be discussed with the producers of the protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

General hygiene considerations Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice. When using, do not eat, drink or smoke.

9. Physical & Chemical Properties

Appearance Clear

Physical state Liquid.

Form Liquid.

Color Dark

Odor Pungent.

Odor threshold Not available.

pH	6.8 - 7
Vapor pressure	Not available.
Vapor density	Not available.
Boiling point	Similar to water
Melting point/Freezing point	Not available.
Solubility (water)	Not available.
Specific gravity	1.21 - 1.25
Relative density	Not available.
Flash point	> 201.00 °F (> 93.89 °C) Tag Closed Cup
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not available.
Evaporation rate	Not available
Other data	
Density	10.10 - 10.43 lbs/gal
Flammability class	Combustible IIIB
Partition coefficient (oil/water)	Not available

10. Chemical Stability & Reactivity Information

Chemical stability	Stable at normal conditions.
Conditions to avoid	None known.
Incompatible materials	None known.
Hazardous decomposition products	Elemental oxides
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Components	Species	Test Results
Ammonium Chloride (12125-02-9)		
Acute		
Oral		
LD50	Rat	1650 mg/kg
Methyl Alcohol (67-56-1)		
Acute		
Dermal		
LD50	Rabbit	15800 mg/kg

Components	Species	Test Results
Inhalation		
LC50	Rat	83.2 mg/l/4h
Oral		
LD50	Rat	5628 mg/kg

* Estimates for product may be based on additional component data not shown.

Acute effects Methanol is significantly less toxic to animals because they metabolize it differently. Non-primate species do not ordinarily show symptoms of metabolic acidosis or the visual effects which have been observed in primates and humans.

Chronic effects Prolonged and repeated exposure to high vapor concentrations, skin absorption or ingestion of methanol may result in visual disturbances, metabolic acidosis, headache, giddiness, nausea, insomnia, gastric disturbance, dizziness and slow breathing. There have been severe cases reported of blindness, coma and death due to the ingestion of methanol.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Skin corrosion/irritation May be irritating to the skin.

Mutagenicity Not expected to be hazardous by OSHA criteria.

Neurological effects Hazardous by OSHA criteria.

Reproductive effects Not expected to be hazardous by OSHA criteria.

Teratogenicity Methanol has shown fetotoxic and teratogenic effects in animals at concentrations that did not produce maternal toxicity.

12. Ecological Information

Ecotoxicological data

Product		Species	Test Results
WSI-685L (Mixture)			
Crustacea	EC50	Daphnia	11822.5449 mg/l, 48 hours, estimated
Fish	LC50	Fish	429.4124 mg/l, 96 hours, estimated

Components		Species	Test Results
Ammonium Chloride (12125-02-9)			
Aquatic			
Crustacea	EC50	American lobster (Homarus americanus)	0.237 - 0.288 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	0 - 126.26 mg/l, 96 hours
Methyl Alcohol (67-56-1)			
Fish	LC50	Fish	28100 mg/L, 96 Hours
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	> 10000 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Environmental effects An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Persistence and degradability Not available.

Bioaccumulation / Accumulation

Bioaccumulative potential

Octanol/water partition coefficient log Kow

Methyl Alcohol	-0.77

Partition coefficient

Methyl Alcohol	-0.77

13. Disposal Considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations. It is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets the criteria for hazardous waste.

Waste from residues / unused products Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

General DOT: This material ships as non-regulated when the amount of the RQ substance in the individual container does not equal or exceed the RQ.

DOT: This product contains Ammonium Chloride, Reportable Quantity (RQ) = 5000 pounds.

Hazardous Substances/Reportable Quantities - DOT requirements specific to Hazardous Substances only apply if the quantity in one package equals or exceeds the reportable quantity.

DOT

Not regulated as dangerous goods.

DOT

BULK

Basic shipping requirements:

UN number	UN3082
Proper shipping name	Environmentally hazardous substances, liquid, n.o.s. (Ammonium Chloride)
Hazard class	9
Packing group	III
Additional information:	
Special provisions	8, 146, 335, IB3, T4, TP1, TP29
Packaging exceptions	155
Packaging non bulk	203
Packaging bulk	241

TDG

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

DOT BULK

15. Regulatory Information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2)

Not regulated.

DEA Essential Chemical Code Number

Not regulated.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated.

DEA Exempt Chemical Mixtures Code Number

Not regulated.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

Methyl Alcohol (CAS 67-56-1)	1.0 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Methyl Alcohol (CAS 67-56-1)	Listed.

CERCLA (Superfund) reportable quantity

Ammonium Chloride: 5000.0000
Methyl Alcohol: 5000.0000

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	No

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	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)

State regulations WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

US - New Jersey RTK - Substances: Listed substance

Ammonium Chloride (CAS 12125-02-9)	Listed.
Methyl Alcohol (CAS 67-56-1)	Listed.

US - Pennsylvania RTK - Hazardous Substances: Listed substance

Ammonium Chloride (CAS 12125-02-9)	Listed.
Methyl Alcohol (CAS 67-56-1)	Listed.

16. Other Information

Further information HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings
Health: 1*
Flammability: 1
Physical hazard: 0
Personal protection: B

NFPA ratings
Health: 1
Flammability: 1
Instability: 0

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available.

This data sheet contains changes from the previous version in section(s):
Product and Company Identification: Product and Company Identification
Physical & Chemical Properties: Multiple Properties
Toxicological Information: Toxicological Data
Regulatory Information: United States