

MATERIAL SAFETY DATA SHEET

Product Trade Name: MORFLO III SURFACTANT

Revision Date: 07-Feb-2014

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: MORFLO III SURFACTANT
Synonyms: None
Chemical Family: Blend
Application: Surfactant

Manufacturer/Supplier Halliburton Energy Services
P.O. Box 1431
Duncan, Oklahoma 73536-0431
Emergency Telephone: (281) 575-5000

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
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2. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	ACGIH TLV-TWA	OSHA PEL-TWA
Dodecylbenzene sulfonic acid	27176-87-0	10 - 30%	Not applicable	Not applicable
1-Methoxy-2-propanol	107-98-2	10 - 30%	TWA: 100 ppm STEL: 150 ppm	Not applicable

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye and skin burns. May cause headache, dizziness, and other central nervous system effects. May cause allergic skin reaction. May be harmful if swallowed. Combustible.

4. FIRST AID MEASURES

Inhalation If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

Eyes In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

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.

Notes to Physician Not Applicable

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	138
Flash Point/Range (C):	58
Flash Point Method:	PMCC
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined
Flammability Limits in Air - Upper (oz./ft3):	Not Determined

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards May be ignited by heat, sparks or flames. Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce toxic gases.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 3, Flammability 2, Reactivity 0
HMIS Ratings: Health 3, Flammability 2, Reactivity 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Wear self-contained breathing apparatus in enclosed areas.

Environmental Precautionary Measures Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption Isolate spill and stop leak where safe. Remove ignition sources and work with non-sparking tools. Contain spill with sand or other inert materials. Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse.

Storage Information Store away from alkalis. Store away from oxidizers. Keep from heat, sparks, and open flames. Keep container closed when not in use. Store at temperatures between 50 and 100 F (10 and 37.8 C). Do not freeze. Product has a shelf life of 24 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Respiratory Protection Organic vapor respirator.

Hand Protection Impervious rubber gloves.

Skin Protection Rubber apron.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Dark amber
Odor:	Solvent
pH:	2
Specific Gravity @ 20 C (Water=1):	1.066
Density @ 20 C (lbs./gallon):	8.88
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	56
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	Keep away from heat, sparks and flame.
Incompatibility (Materials to Avoid)	Strong oxidizers. Strong alkalis.
Hazardous Decomposition Products	Oxides of sulfur. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Acute Toxicity

Inhalation	Causes severe respiratory irritation.
Eye Contact	May cause eye burns.
Skin Contact	Causes severe burns. May cause an allergic skin reaction.
Ingestion	Causes burns of the mouth, throat and stomach.

Chronic Effects/Carcinogenicity

No data available to indicate product or components present at greater than 1% are chronic health hazards.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Dodecylbenzene sulfonic acid	27176-87-0	500 mg/kg (Rat)	No data available	No data available
1-Methoxy-2-propanol	107-98-2	5200 mg/kg (Rat)	13000 mg/kg (Rabbit)	54.6 mg/L (Rat) 4 h 24 mg/L (Rat) 1 h

12. ECOLOGICAL INFORMATION**Ecotoxicological Information****Ecotoxicity Product**

Acute Fish Toxicity:	Not determined
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	Not determined

Ecotoxicity Substance

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Dodecylbenzene sulfonic acid	27176-87-0	EC50: 29 mg/L (Pseudokirchneriella subcapitata)	LC50: 10.8 mg/L (Oncorhynchus mykiss); LC50: 3.5 - 10 mg/L (Brachydanio rerio); LC50: 1 mg/L (Gadus morhua)	LC50: 0.9 mg/L (Microcystis)	EC50: 5.88 mg/L (Daphnia magna)
1-Methoxy-2-propanol	107-98-2	No information available	No information available	No information available	No information available

12.2 Persistence and degradability

No information available

12.3 Bioaccumulative potential

No information available

12.4 Mobility in soil

No information available

12.5 Results of PBT and vPvB assessment

No information available.

12.6 Other adverse effects**13. DISPOSAL CONSIDERATIONS****Disposal Method**

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

Contaminated Packaging

Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION**Land Transportation****DOT**

UN2924, Flammable Liquid, Corrosive, N.O.S. (Contains Dodecylbenzenesulfonic Acid, Methoxypropanol) , 3 , (8) , III , (58.9 C)

Canadian TDG

Flammable Liquid, Corrosive, N.O.S. (Contains Dodecylbenzenesulfonic Acid, Methoxypropanol) , 3 , (8) , UN2924 , III , (58.9 C)

ADR

UN2924, Flammable Liquid, Corrosive, N.O.S (Contains Dodecylbenzenesulfonic Acid, Methoxypropanol) , 3 , (8) , III

Air Transportation

ICAO/IATA

UN2924, Flammable Liquid, Corrosive, N.O.S , 3 , (8) , III (Contains Dodecylbenzenesulfonic Acid, Methoxypropanol)

Sea Transportation

IMDG

UN2924, Flammable Liquid, Corrosive, N.O.S (Contains Dodecylbenzenesulfonic Acid, Methoxypropanol) , 3 , (8) , III , (58.9 C)
EmS F-E, S-C

Other Transportation Information

Labels: Flammable Liquid
Corrosive

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory All components listed on inventory or are exempt.

EPA SARA Title III Extremely Hazardous Substances Not applicable

EPA SARA (311,312) Hazard Class Acute Health Hazard
Fire Hazard

EPA SARA (313) Chemicals This product contains toxic chemical(s) listed below which is(are) subject to the reporting requirements of Section 313 of Title III of SARA and 40 CFR Part 372: Glycol Ethers//107-98-2

EPA CERCLA/Superfund Reportable Spill Quantity EPA Reportable Spill Quantity is 632 Gallons based on Dodecylbenzene sulfonic acid (CAS: 27176-87-0).

EPA RCRA Hazardous Waste Classification If product becomes a waste, it does meet the criteria of a hazardous waste as defined by the US EPA, because of:

Ignitability D001
Corrosivity D002

California Proposition 65 The California Proposition 65 regulations apply to this product.

MA Right-to-Know Law One or more components listed.

NJ Right-to-Know Law One or more components listed.

PA Right-to-Know Law One or more components listed.

Canadian Regulations

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

WHMIS Hazard Class
B3 Combustible Liquids
E Corrosive Material
D2B Toxic Materials

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 Compliance at 1-580-251-4335.

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