

# MATERIAL SAFETY DATA SHEET

**Product Trade Name:** **EFS-3**

**Revision Date:** 21-Dec-2012

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Trade Name:** EFS-3  
**Synonyms:** None  
**Chemical Family:** Amine  
**Application:** Emulsifier

**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  
e-mail: fdunexchem@halliburton.com

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

| Substances | CAS Number | PERCENT  | ACGIH TLV-TWA  | OSHA PEL-TWA   |
|------------|------------|----------|----------------|----------------|
| Amine      |            | 30 - 60% | Not applicable | Not applicable |

## 3. HAZARDS IDENTIFICATION

**Hazard Overview** May cause eye, skin, and respiratory irritation.

## 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** Wash with soap and water. Get medical attention if irritation persists. 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):                  | > 201          |
| Flash Point/Range (C):                  | > 93.9         |
| 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 |

**Fire Extinguishing Media** Carbon Dioxide, Dry Chemicals, Foam.

**Special Exposure Hazards** Use water spray to cool fire exposed surfaces. Decomposition in fire may produce toxic gases. Do not allow runoff to enter waterways.

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

**NFPA Ratings:** Health 2, Flammability 1, Reactivity 0

**HMIS Ratings:** Health 2, Flammability 1, Reactivity 0

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautionary Measures** Use appropriate protective equipment. Spills of this product are very slippery.

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

**Procedure for Cleaning / Absorption** Isolate spill and stop leak where safe. 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. Wash hands after use. Launder contaminated clothing before reuse.

**Storage Information** Store in a cool, dry location. Keep container closed when not in use.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls** Use in a well ventilated area.

**Respiratory Protection** Not normally needed. But if significant exposures are possible then the following respirator is recommended:  
Ammonia respirator.

**Hand Protection** Impervious rubber gloves. Use Viton or 4H gloves.

**Skin Protection** Normal work coveralls.

**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: | Gel            |
| Color:          | Brown          |
| Odor:           | Characteristic |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|                                            |                |
|--------------------------------------------|----------------|
| pH:                                        | 8 (10%)        |
| Specific Gravity @ 20 C (Water=1):         | 0.959          |
| Density @ 20 C (lbs./gallon):              | 7.979          |
| Bulk Density @ 20 C (lbs/ft3):             | Not Determined |
| Boiling Point/Range (F):                   | 212            |
| Boiling Point/Range (C):                   | 100            |
| Freezing Point/Range (F):                  | 50             |
| Freezing Point/Range (C):                  | 10             |
| Vapor Pressure @ 20 C (mmHg):              | Not Determined |
| Vapor Density (Air=1):                     | < 1            |
| Percent Volatiles:                         | 65 - 70        |
| Evaporation Rate (Butyl Acetate=1):        | < 1            |
| Solubility in Water (g/100ml):             | Soluble        |
| Solubility in Solvents (g/100ml):          | Not Determined |
| VOCs (lbs./gallon):                        | Not Determined |
| Viscosity, Dynamic @ 20 C (centipoise):    | 5098 @25C      |
| 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                  | None anticipated                                          |
| Incompatibility (Materials to Avoid) | Strong oxidizers.                                         |
| Hazardous Decomposition Products     | Ammonia. Toxic fumes. Carbon monoxide and carbon dioxide. |
| Additional Guidelines                | Not Applicable                                            |

## 11. TOXICOLOGICAL INFORMATION

|                                 |                                                                                                            |
|---------------------------------|------------------------------------------------------------------------------------------------------------|
| Principle Route of Exposure     | Eye or skin contact, inhalation.                                                                           |
| Inhalation                      | Inhalation of mist or heated vapors may cause respiratory irritation.                                      |
| Skin Contact                    | May cause skin irritation.                                                                                 |
| Eye Contact                     | Causes moderate eye irritation.                                                                            |
| Ingestion                       | Large doses may cause nausea, vomiting and diarrhea.                                                       |
| Aggravated Medical Conditions   | Skin disorders.                                                                                            |
| Chronic Effects/Carcinogenicity | No data available to indicate product or components present at greater than 1% are chronic health hazards. |
| Other Information               | None known.                                                                                                |
| Toxicity Tests                  |                                                                                                            |
| Oral Toxicity:                  | LD50: > 5000 mg/kg (Rat)                                                                                   |
| Dermal Toxicity:                | Not determined                                                                                             |

|                                               |                |
|-----------------------------------------------|----------------|
| <b>Inhalation Toxicity:</b>                   | Not determined |
| <b>Primary Irritation Effect:</b>             | Not determined |
| <b>Carcinogenicity</b>                        | Not determined |
| <b>Genotoxicity:</b>                          | Not determined |
| <b>Reproductive / Developmental Toxicity:</b> | Not determined |

## 12. ECOLOGICAL INFORMATION

|                                  |                       |
|----------------------------------|-----------------------|
| <b>Mobility (Water/Soil/Air)</b> | Not determined        |
| <b>Persistence/Degradability</b> | Readily biodegradable |
| <b>Bio-accumulation</b>          | Not determined        |

### Ecotoxicological Information

|                                    |                |
|------------------------------------|----------------|
| <b>Acute Fish Toxicity:</b>        | Not determined |
| <b>Acute Crustaceans Toxicity:</b> | Not determined |
| <b>Acute Algae Toxicity:</b>       | Not determined |

|                                  |                |
|----------------------------------|----------------|
| <b>Chemical Fate Information</b> | Not determined |
| <b>Other Information</b>         | Not applicable |

## 13. DISPOSAL CONSIDERATIONS

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| <b>Disposal Method</b>        | Disposal should be made in accordance with federal, state, and local regulations. |
| <b>Contaminated Packaging</b> | Follow all applicable national or local regulations.                              |

## 14. TRANSPORT INFORMATION

### Land Transportation

**DOT**  
Not restricted

**Canadian TDG**  
Not restricted

**ADR**  
Not restricted

### Air Transportation

**ICAO/IATA**  
Not restricted

### Sea Transportation

**IMDG**  
Not restricted

## Other Transportation Information

Labels: None

### 15. REGULATORY INFORMATION

#### US Regulations

|                                                   |                                                                                                                                      |
|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| US TSCA Inventory                                 | Product contains one or more components not listed on the inventory.                                                                 |
| EPA SARA Title III Extremely Hazardous Substances | Not applicable                                                                                                                       |
| EPA SARA (311,312) Hazard Class                   | Acute Health Hazard                                                                                                                  |
| EPA SARA (313) Chemicals                          | This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372). |
| EPA CERCLA/Superfund Reportable Spill Quantity    | Not applicable.                                                                                                                      |
| EPA RCRA Hazardous Waste Classification           | If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.                             |
| California Proposition 65                         | All components listed do not apply to the California Proposition 65 Regulation.                                                      |
| 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     | D2B Toxic Materials                                                  |

### 16. OTHER INFORMATION

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

Not applicable

|                        |                                                                                                                                                                                                                                                        |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Additional Information | For additional information on the use of this product, contact your local Halliburton representative.<br><br>For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335. |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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\*\*\*END OF MSDS\*\*\*

