

MATERIAL SAFETY DATA SHEET**Product Trade Name:** **AKTAFLO® E****Revision Date:** 03-Feb-2012**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

Product Trade Name: AKTAFLO® E
Synonyms: None
Chemical Family: Blend
Application: Surfactant
Manufacturer/Supplier: Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
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 |
|-------------|------------|---------|---------------|--------------|
| Isopropanol | 67-63-0 | 1 - 5% | 200 ppm | 400 ppm |

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye, skin, and respiratory irritation. May cause headache, dizziness, and other central nervous system effects. 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): | 119 |
| Flash Point/Range (C): | 48.5 |
| 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 Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards 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 2, Flammability 2, Reactivity 0

HMIS Ratings: Health 2, Flammability 2, Reactivity 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment.

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.

Storage Information Store away from oxidizers. Store in a cool well ventilated area. Keep container closed when not in use.

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: Light yellow

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---------------------------------------------|----------------|
| Odor: | Characteristic |
| pH: | 8-10 |
| Specific Gravity @ 20 C (Water=1): | 1.05 |
| Density @ 20 C (lbs./gallon): | 8.74 |
| Bulk Density @ 20 C (lbs/ft3): | Not Determined |
| Boiling Point/Range (F): | 212 |
| Boiling Point/Range (C): | 100 |
| Freezing Point/Range (F): | 10 |
| Freezing Point/Range (C): | -12 |
| Vapor Pressure @ 20 C (mmHg): | Not Determined |
| Vapor Density (Air=1): | Not Determined |
| Percent Volatiles: | Not Determined |
| 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): | 200-300 |
| Viscosity, Kinematic @ 20 C (centistrokes): | 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 | Oxides of nitrogen. Oxides of sulfur. Carbon monoxide and carbon dioxide. |
| Additional Guidelines | Not Applicable |

11. TOXICOLOGICAL INFORMATION

| | |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Principle Route of Exposure | Eye or skin contact, inhalation. |
| Inhalation | May cause respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness. |
| Skin Contact | May cause severe skin irritation. May be absorbed through the skin and contribute to the symptoms listed under ingestion. |
| Eye Contact | May cause severe eye irritation. May cause corneal injury. |
| Ingestion | May cause abdominal pain, vomiting, nausea, and diarrhea. Irritation of the mouth, throat, and stomach. |
| Aggravated Medical Conditions | Skin disorders. Lung disorders. |
| Chronic Effects/Carcinogenicity | Repeated overexposure may cause liver and kidney effects. |
| Other Information | None known. |
| Toxicity Tests | |

| | |
|---------------------------------------------------|----------------|
| Oral Toxicity: | Not determined |
| Dermal Toxicity: | Not determined |
| Inhalation Toxicity: | Not determined |
| Primary Irritation Effect: | Not determined |
| Carcinogenicity | Not determined |
| Genotoxicity: | Not determined |
| Reproductive / Developmental Toxicity: | Not determined |

12. ECOLOGICAL INFORMATION

| | |
|----------------------------------|----------------|
| Mobility (Water/Soil/Air) | Not determined |
| Persistence/Degradability | Not determined |
| Bio-accumulation | Not determined |

Ecotoxicological Information

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

| | |
|----------------------------------|----------------|
| Chemical Fate Information | Not determined |
| Other Information | Not applicable |

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

UN1993, Flammable Liquid, N.O.S. (Contains Isopropanol), 3, III, (48.5 C)
NAERG 128

Canadian TDG

Flammable Liquid, N.O.S. (Contains Isopropanol), 3, UN1993, III, (48.5 C)

ADR

UN1993, Flammable Liquid, N.O.S. (Contains Isopropanol), 3, III

Air Transportation

ICAO/IATA

UN1993, Flammable Liquid, N.O.S., 3, III
(Contains Isopropanol)

Sea Transportation

IMDG

UN1993, Flammable Liquid, N.O.S. (Contains Isopropanol), 3, III, (48.5 C)
EmS F-E, S-E

Other Transportation Information

Labels: Flammable Liquid

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 Chronic 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: Isopropanol//67-63-0 |
| EPA CERCLA/Superfund Reportable Spill Quantity | Not applicable. |
| 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 |
| 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 | All components listed on inventory or are exempt. |
| WHMIS Hazard Class | B3 Combustible Liquids 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.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

Disclaimer Statement

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