

# MATERIAL SAFETY DATA SHEET

**Product Trade Name:** Hexadecanephosphonic Acid, Dimethyl Ester

**Revision Date:** 03-Jan-2012

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Trade Name:** Hexadecanephosphonic Acid, Dimethyl Ester

**Synonyms:** None

**Chemical Family:** Ester

**Application:** This product can only be used under the TSCA 5(h)(3) Research Exemption.

**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   |
|---|------------|-----------|----------------|----------------|
| Hexadecanephosphonic Acid, Dimethyl Ester | 33447-06-2 | 60 - 100% | Not applicable | Not applicable |

## 3. HAZARDS IDENTIFICATION

**Hazard Overview** May cause eye, skin, and respiratory irritation. Airborne dust may be explosive. May be harmful if inhaled.

## 4. FIRST AID MEASURES

**Inhalation** If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

**Skin** Wash with soap and water. Get medical attention if irritation persists.

**Eyes** Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

**Ingestion** If swallowed, give at least 3-4 glasses of water, but do not induce vomiting. Do not give anything by mouth to an unconscious or convulsing person. Get medical attention.

**Notes to Physician** Not Applicable

## 5. FIRE FIGHTING MEASURES

|   |                |
|---|----------------|
| Flash Point/Range (F):                  | Not Determined |
| Flash Point/Range (C):                  | 214.7±40.4 °C  |
| Flash Point Method:                     | Not Determined |
| 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. Do NOT spray pool fires directly with water. A solid stream of water directed into hot burning liquid can cause splattering.

**Special Exposure Hazards** Decomposition in fire may produce toxic gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

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

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

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautionary Measures** Use appropriate protective equipment. Avoid creating and breathing dust.

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

**Procedure for Cleaning / Absorption** Scoop up and remove.

## 7. HANDLING AND STORAGE

**Handling Precautions** Avoid creating or inhaling dust. Slippery when wet. Avoid dust accumulations. Wash hands after use.

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

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls** A well ventilated area to control dust levels.

**Respiratory Protection** Not normally needed. But if significant exposures are possible then the following respirator is recommended:  
Dust/mist respirator. (95%)

**Hand Protection** Nitrile gloves.

**Skin Protection** Normal work coveralls.

**Eye Protection** Wear safety glasses or goggles to protect against exposure.

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

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|   |                  |
|---|------------------|
| Physical State:                             | Powder           |
| Color:                                      | Off white        |
| Odor:                                       | Odorless         |
| pH:   | Not Determined   |
| Specific Gravity @ 20 C (Water=1):          | 0.922            |
| Density @ 20 C (lbs./gallon):               | Not Determined   |
| Bulk Density @ 20 C (lbs/ft3):              | Not Determined   |
| Boiling Point/Range (F):                    | Not Determined   |
| Boiling Point/Range (C):                    | 409.1±14.0 °C    |
| Freezing Point/Range (F):                   | Not Determined   |
| Freezing Point/Range (C):                   | Not Determined   |
| Vapor Pressure @ 20 C (mmHg):               | 1.58E-6          |
| Vapor Density (Air=1):                      | Not Determined   |
| Percent Volatiles:                          | Not Determined   |
| Evaporation Rate (Butyl Acetate=1):         | Not Determined   |
| Solubility in Water (g/100ml):              | Slightly soluble |
| Solubility in Solvents (g/100ml):           | Not Determined   |
| VOCs (lbs./gallon):                         | Not Determined   |
| Viscosity, Dynamic @ 20 C (centipoise):     | Not Determined   |
| Viscosity, Kinematic @ 20 C (centistrokes): | Not Determined   |
| Partition Coefficient/n-Octanol/Water:      | Not Determined   |
| Molecular Weight (g/mole):                  | 334.47           |

## 10. STABILITY AND REACTIVITY

|                                      |   |
|--------------------------------------|---|
| Stability Data:                      | Stable  |
| Hazardous Polymerization:            | Will Not Occur  |
| Conditions to Avoid                  | None known.   |
| Incompatibility (Materials to Avoid) | Strong oxidizers.   |
| Hazardous Decomposition Products     | Carbon monoxide and carbon dioxide. Oxides of phosphorus. |
| Additional Guidelines                | Not Applicable  |

## 11. TOXICOLOGICAL INFORMATION

|                                 |  |
|---------------------------------|--|
| Principle Route of Exposure     | Eye or skin contact, inhalation.   |
| Inhalation                      | May cause mild respiratory irritation.   |
| Skin Contact                    | May cause mild skin irritation.  |
| Eye Contact                     | May cause mild eye irritation.   |
| Ingestion                       | None known   |
| Aggravated Medical Conditions   | None known.  |
| 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

|   |                |
|---|----------------|
| <b>Oral Toxicity:</b>                             | Not determined |
| <b>Dermal Toxicity:</b>                           | 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 /<br/>Developmental Toxicity:</b> | Not determined |

## 12. ECOLOGICAL INFORMATION

|                                  |                |
|----------------------------------|----------------|
| <b>Mobility (Water/Soil/Air)</b> | Not determined |
| <b>Persistence/Degradability</b> | Not determined |
| <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>        | Bury in a licensed landfill according to 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                   | None   |
| 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    | The EPA Reportable Spill Quantity is well above quantities required for any expected use of this product.                            |
| 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                              | Does not apply.  |
| NJ Right-to-Know Law                              | Does not apply.  |
| PA Right-to-Know Law                              | Does not apply.  |

### Canadian Regulations

|                        |  |
|------------------------|--|
| Canadian DSL Inventory | Product contains one or more components not listed on the inventory. |
| WHMIS Hazard Class     | Un-Controlled  |

## 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. |
|------------------------|--|

**Disclaimer Statement**

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

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