

## MATERIAL SAFETY DATA SHEET

Product Trade Name: **BD-3**

Revision Date: 02-Jan-2013

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: BD-3  
Synonyms: None  
Chemical Family: Organophosphorous  
Application: Extractor

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   |
|-------------------|------------|-----------|----------------|----------------|
| Phosphine mixture |            | 60 - 100% | Not applicable | Not applicable |

### 3. HAZARDS IDENTIFICATION

Hazard Overview: May cause eye, skin, and respiratory irritation. Airborne dust may be explosive.

### 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**: 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):                  | Not Determined |
| Flash Point/Range (C):                  | Not Determined |
| 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.

**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 contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Wash hands after use. Launder contaminated clothing before reuse.

**Storage Information** Store away from oxidizers. Store in a cool, dry location.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls** Use in a well ventilated area. Localized ventilation should be used to control dust levels.

**Respiratory Protection** Dust/mist respirator. (N95, P2/P3)

**Hand Protection** Impervious rubber gloves.

**Skin Protection** Rubber apron.

**Eye Protection** Dust proof goggles.

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

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|                 |            |
|-----------------|------------|
| Physical State: | Solid      |
| Color:          | White      |
| Odor:           | Mild sweet |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|  |                |
|--|----------------|
| pH:  | Not Determined |
| Specific Gravity @ 20 C (Water=1):         | 0.88           |
| Density @ 20 C (lbs./gallon):              | Not Determined |
| Bulk Density @ 20 C (lbs/ft3):             | Not Determined |
| Boiling Point/Range (F):                   | 415            |
| Boiling Point/Range (C):                   | 212            |
| 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:                         | Not Determined |
| Evaporation Rate (Butyl Acetate=1):        | Not Determined |
| Solubility in Water (g/100ml):             | Insoluble      |
| 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):                 | 386            |

## 10. STABILITY AND REACTIVITY

|                                      |   |
|--------------------------------------|---|
| Stability Data:                      | Stable  |
| Hazardous Polymerization:            | Will Not Occur  |
| Conditions to Avoid                  | None anticipated  |
| Incompatibility (Materials to Avoid) | Strong oxidizers. Avoid halogens.                         |
| Hazardous Decomposition Products     | Oxides of phosphorus. 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.  |
| Skin Contact                    | May cause moderate skin irritation.  |
| Eye Contact                     | May cause moderate eye irritation.   |
| Ingestion                       | None known   |
| Aggravated Medical Conditions   | Not determined   |
| 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: > 10000 mg/kg (Rat)  |
| Dermal Toxicity:                | LD50: 2830 mg/kg (Rabbit)  |

**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**  
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

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

