

MATERIAL SAFETY DATA SHEET

Product Trade Name: HALLIBURTON WELD A CONVERTER

Revision Date: 06-Dec-2012

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: HALLIBURTON WELD A CONVERTER
Synonyms: None
Chemical Family: Amine
Application: Curing Agent

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 |
|------------------------|------------|-----------|----------------|----------------|
| Tetraethylenepentamine | 112-57-2 | 60 - 100% | Not applicable | Not applicable |
| Triethylenetetraamine | 112-24-3 | 10 - 30% | Not applicable | Not applicable |
| Pentaethylenhexamine | 4067-16-7 | 5 - 10% | Not applicable | Not applicable |

3. HAZARDS IDENTIFICATION

Hazard Overview May cause skin burns. May cause eye and respiratory irritation. May cause headache, dizziness, and other central nervous system effects. May be harmful if swallowed. May be absorbed through the skin. Repeated overexposure may cause liver and kidney effects.

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): | 320 |
| Flash Point/Range (C): | 160 |
| 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 Carbon Dioxide, Dry Chemicals, Foam.

Special Exposure Hazards 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 1, Reactivity 0

HMIS Ratings: Health 2, Flammability 1, 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. 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 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 In high concentrations, supplied air respirator or a self-contained breathing apparatus.

Hand Protection Impervious rubber gloves. Neoprene gloves. Butyl 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: Yellow

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--|----------------|
| Odor: | Mild amine |
| pH: | 11.8 |
| Specific Gravity @ 20 C (Water=1): | 0.99 |
| Density @ 20 C (lbs./gallon): | 8.26 |
| Bulk Density @ 20 C (lbs/ft3): | Not Determined |
| Boiling Point/Range (F): | 606 |
| Boiling Point/Range (C): | 318 |
| Freezing Point/Range (F): | Not Determined |
| Freezing Point/Range (C): | Not Determined |
| Vapor Pressure @ 20 C (mmHg): | 0.01 |
| 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): | Not Determined |
| Viscosity, Kinematic @ 20 C (centistokes): | Not Determined |
| Partition Coefficient/n-Octanol/Water: | Not Determined |
| Molecular Weight (g/mole): | 189.3 |

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 acids. Aldehydes. Epoxides. |
| Hazardous Decomposition Products | Oxides of nitrogen. Carbon monoxide and carbon dioxide. |
| Additional Guidelines | Not Applicable |

11. TOXICOLOGICAL INFORMATION

| | |
|---------------------------------|---|
| Principle Route of Exposure | Eye or skin contact, inhalation. |
| Inhalation | Causes moderate respiratory irritation. May cause allergic respiratory reaction. |
| Skin Contact | May cause skin burns. May be absorbed through the skin and produce effects similar to those caused by inhalation and/or ingestion. May cause an allergic skin reaction. |
| Eye Contact | May cause moderate eye irritation. May cause corneal injury. |
| Ingestion | May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation and central nervous system depression. |
| Aggravated Medical Conditions | Skin disorders. Eye ailments. |
| Chronic Effects/Carcinogenicity | Repeated overexposure may cause liver and kidney effects. |
| Other Information | None known. |
| Toxicity Tests | |
| Oral Toxicity: | LD50: 3990 mg/kg (Rat) |

| | |
|---|--------------------------|
| Dermal Toxicity: | LD50: 660 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 | Resistant |
| 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

UN2320, Tetraethylenepentamine, 8, III, Limited Quantity
NAERG 153

Canadian TDG

Tetraethylenepentamine, 8, UN2320, III, Limited Quantity

ADR

UN2320, Tetraethylenepentamine, 8, III, Limited Quantity

Air Transportation

ICAO/IATA

UN2320, Tetraethylenepentamine, 8, III, Limited Quantity

Sea Transportation

IMDG

UN2320, Tetraethylenepentamine, 8, III
, Limited Quantity
EmS F-A, S-B

Other Transportation Information

Labels: 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 |
| 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 | All components listed on inventory or are exempt. |
| WHMIS Hazard Class | E Corrosive Material 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

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*****