

MATERIAL SAFETY DATA SHEET**Product Trade Name:** **HZ-20****Revision Date:** 25-Aug-2014**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

Product Trade Name: HZ-20
Synonyms: None
Chemical Family: Polymer
Application: Crosslinker

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 (w/w)	ACGIH TLV-TWA	OSHA PEL-TWA
Polyamine	Proprietary	30 - 60%	Not applicable	Not applicable

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye irritation May be harmful if swallowed.

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.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Notes to Physician Not Applicable

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined	Min: > 212
Flash Point/Range (C):	> 100	Min: > 100
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.	
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 0, Reactivity 0	
HMIS Ratings:	Health 1, Flammability 0, Physical Hazard 0 , PPE: B	

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.
Storage Information	Store in a dry location. Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 24 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Use in a well ventilated area.
Respiratory Protection	If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Dust/mist respirator. (N95, P2/P3)
Hand Protection	Impervious rubber gloves.
Skin Protection	Normal work coveralls.
Eye Protection	Wear safety glasses or goggles to protect against exposure.
Other Precautions	None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Yellow
Odor:	Mild amine
pH:	12
Specific Gravity @ 20 C (Water=1):	1.05
Density @ 20 C (lbs./gallon):	8.75
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	212
Boiling Point/Range (C):	100
Freezing Point/Range (F):	5
Freezing Point/Range (C):	-15
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):	Miscible
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):	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. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation. Ingestion.
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Symptoms related to exposure

Acute Toxicity

Product Information

Inhalation

Eye Contact

Skin Contact

Ingestion

Under certain conditions of use, some of the product ingredients may cause the following:

May cause respiratory irritation.

May cause eye irritation

May cause skin irritation.

Harmful if swallowed. Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity

No data available to indicate product or components present at greater than 1% are chronic health hazards.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Polyamine	Proprietary	1,350 - 2,300 mg/kg (Rat)	No data available	No data available

12. ECOLOGICAL INFORMATION**Ecotoxicological Information****Ecotoxicity Product**

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

Ecotoxicity Substance

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Polyamine	Proprietary	EC50(72h): 2.1 mg/L (Skeletonema costatum)	LC50(96h): < 1 mg/L (Oryzias latipes) LC50(96h): > 1 mg/L (Scophthalmus maximus) LC50(48h): 0.38 mg/L (Oncorhynchus mykiss)	No information available	EC50(48h): < 100 mg/L (Daphnia magna) LC50(10d): 7581.91 mg/kg (Corophium volutator)

12.2. Persistence and degradability

No information available

Substances	CAS Number	Persistence and Degradability
Polyamine	Proprietary	(0.1% @ 28d)

12.3. Bioaccumulative potential

No information available

Substances	CAS Number	Log Pow
Polyamine	Proprietary	2.25

12.4. Mobility in soil

No information available

12.5. Results of PBT and vPvB assessment

No information available.

12.6. Other adverse effects**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. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

14. TRANSPORT INFORMATION**US DOT**

UN Number:	UN3082
UN Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Contains Polyethyleneimine)
Transport Hazard Class(es):	9

Packing Group: III
Environmental Hazards: , Marine Pollutant

US DOT Bulk
DOT (Bulk) Not Applicable

Canadian TDG ul0
UN Number: UN3082
UN Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Contains Polyethyleneimine)
Transport Hazard Class(es): 9
Packing Group: III
Environmental Hazards: , Marine Pollutant

IMDG/IMO
UN Number: UN3082
UN Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Contains Polyethyleneimine)
Transport Hazard Class(es): 9
Packing Group: III
Environmental Hazards: , Marine Pollutant
EMS: EmS F-A, S-F

IATA/ICAO
UN Number: UN3082
UN Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Contains Polyethyleneimine)
Transport Hazard Class(es): 9
Packing Group: III
Environmental Hazards: , Marine Pollutant

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable
Special Precautions for User: None

Labels: Miscellaneous - Class 9
Marine Pollutant

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 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 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	Does not apply.
NJ Right-to-Know Law	Does not apply.
PA Right-to-Know Law	Does not apply.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory or are exempt.
WHMIS Hazard Class	D2B Toxic Materials E Corrosive Material

16. OTHER INFORMATION

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

Not applicable

Additional information For additional information on the use of this product, contact your local Halliburton representative.

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

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