

**MATERIAL SAFETY DATA SHEET****Product Trade Name:** HZ-20**Revision Date:** 09-Sep-2014**Revision Number:** 20**SECTION 1. Product and Company Identification****Product Identifier**

**Product Trade Name:** HZ-20  
**Synonyms:** None  
**Chemical Family:** Polymer  
**Internal ID Code:** HM000926

**Product Use**

**Application:** Crosslinker

**Manufacturer's Name and Contact Details**

**Name and Address** Halliburton Energy Services  
645 - 7th Ave SW Suite 2200  
Calgary, AB  
T2P 4G8  
Canada

**Emergency Telephone Number** (281) 575-5000

**Prepared By**

Chemical Compliance  
Telephone: 1-580-251-4335  
e-mail: fdunexchem@halliburton.com

**SECTION 2. Hazard(s) Identification****WHMIS Classification**

**WHMIS Hazard Class** D2B Toxic Materials  
E Corrosive Material

**WHMIS Symbol(s)****Summary of hazards of the product**

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

**SECTION 3: Composition/information on Ingredients**

Substances	CAS Number	PERCENT (w/w)	HMIRA Registry Number	Decision Granted Date
Polyamine	Proprietary	30 - 60%	8946	August 14, 2014

**SECTION 4. First aid measures**

**Description of first aid measures****Inhalation**

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

**Eyes**

In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 30 minutes while holding eyelids open and get medical attention immediately after flushing.

**Skin**

In case of contact, immediately flush skin with plenty of soap and water for at least 30 minutes and remove contaminated clothing, shoes and leather goods immediately. Get medical attention immediately.

**Ingestion**

Do not induce vomiting. Never give anything by mouth to an unconscious person. If breathing has stopped, trained personnel should begin rescue breathing / artificial respiration (AR) immediately. If the heart has stopped, trained personnel should begin CPR immediately. Obtain medical attention immediately. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration.

**Most important symptoms and effects, both acute and delayed**

May cause eye irritation May be harmful if swallowed.

**Indication of any immediate medical attention and special treatment needed****Notes to Physician**

Treat symptomatically

**SECTION 5. Fire Fighting Measures****Extinguishing media****Suitable Extinguishing Media**

Water fog, carbon dioxide, foam, dry chemical.

**Extinguishing media which must not be used for safety reasons**

None known.

**Special hazards arising from the substance or mixture****Special Exposure Hazards**

Decomposition in fire may produce toxic gases.

**Advice for firefighters****Special Protective Equipment for Fire-Fighters**

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

**Hazardous combustion products**

Oxides of nitrogen. Carbon monoxide and carbon dioxide.

**SECTION 6. Accidental release measures****Personal precautions and emergency procedures****Protective Equipment**

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.

**SECTION 7. Handling and Storage****Precautions for safe handling**

Avoid contact with eyes, skin, or clothing.

**Conditions for safe storage and Incompatible materials for storage**

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.

## SECTION 8: Exposure Controls/Personal Protection

### Occupational Exposure Limits

#### Exposure Limits

Substances	CAS Number	ACGIH TLV-TWA	OSHA PEL-TWA
Polyamine	Proprietary	Not available	Not available

### Appropriate engineering controls

#### Engineering Controls

Use in a well ventilated area.

### Personal Protective Equipment (PPE)

#### 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.

## SECTION 9. Physical and Chemical Properties

### Information on basic physical and chemical properties

**Physical State:** Liquid  
**Odor:** Mild amine

**Color:** Yellow  
**Odor Threshold:** No information available

#### Property

#### Remarks/ - Method

#### Values

#### pH:

12

#### pH Concentration of Solution:

No information available.

#### Freezing Point/Range

-15 °C

#### Melting Point/Range

No information available

#### Boiling Point/Range (C):

100 °C

#### Flash Point/Range (C):

> 100 °C

#### Flash Point Method:

PMCC

#### Autoignition Temperature (C):

No information available.

#### Flammability Limits in Air - Lower (%):

No information available.

#### Flammability Limits in Air - Upper (%):

No information available.

#### Evaporation Rate (Butyl Acetate=1):

No information available.

#### Vapor Pressure @ 20 C (mmHg):

No information available.

#### Vapor Density (Air=1):

No information available.

#### Specific Gravity @ 20 C (Water=1):

1.05

#### Solubility in Water (g/100ml):

Miscible

#### Solubility in other solvents

No information available.

#### Partition Coefficient/n-Octanol/Water:

No information available.

#### Decomposition Temperature (C):

No information available.

#### Viscosity

No information available

#### Explosive Properties

No information available

#### Oxidizing Properties

No information available

### Other Information

#### Molecular Weight (g/mole):

No information available.

VOC Content (%)

No information available

**SECTION 10. Stability and Reactivity****Conditions of Reactivity****Conditions to Avoid****Hazardous Polymerization:**

None anticipated

Will Not Occur

**Chemical Stability**

Stable

**Sensitivity to Static Discharge**

Not available

**Sensitivity to Mechanical Impact**

Not available

**Incompatible materials**

Strong oxidizers.

**Hazardous Decomposition Products**

Oxides of nitrogen. Carbon monoxide and carbon dioxide.

**SECTION 11. Toxicological Information****Routes of entry**

Eye or skin contact, inhalation. Ingestion.

**Information on Toxicological Effects****Acute effects from exposure****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 from exposure****Chronic Effects/Carcinogenicity**

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

**Irritancy of product****Irritation**

Corrosive to eyes Corrosive to skin

**Sensitization of product****Sensitization**

Not confirmed to cause skin or respiratory sensitization.

**Mutagenicity****Mutagenic Effects**

Not regarded as mutagenic.

**Carcinogenicity****Carcinogenic Effects**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, NTP, or OSHA.

**Reproductive toxicity****Reproductive Toxicity**

This product does not contain any known or suspected reproductive hazards

**Teratogenicity/embryotoxicity****Teratogenic**

Not a confirmed teratogen or embryotoxin.

**Toxicologically synergistic material** Not available

#### Acute Toxicity

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

## SECTION 12. Ecological Information

#### Toxicity

##### Ecotoxicity Effects

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)

#### Persistence and Degradability

No information available

#### Bioaccumulation potential

No information available

Substances	Log Pow
Polyamine	2.25

#### Mobility in soil

No information available

#### Results of PBT and vPvB assessment

No information available.

#### Other adverse effects

##### Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

## SECTION 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.

## SECTION 14. Transport Information

#### 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  
**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

**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  
**EMS:** EmS F-A, S-F  
**Environmental Hazards:** , Marine Pollutant

**Special Precautions for User:** None

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:**

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

**SECTION 15: Regulatory Information**

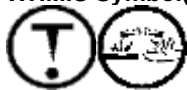
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

**Canadian Regulations**

**Canadian DSL Inventory** All components listed on inventory or are exempt.

**WHMIS Hazard Class**

D2B Toxic Materials  
E Corrosive Material

**WHMIS Symbol(s)****US Regulations**

**US TSCA Inventory** All components listed on inventory or are exempt.

**SECTION 16. Other Information****Preparation Information**

**Prepared By** Chemical Compliance  
Telephone: 1-580-251-4335  
e-mail: fdunexchem@halliburton.com

**Revision Date:** 09-Sep-2014

Update to Format SECTION: 8

**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.

**Key or legend to abbreviations and acronyms**

WHMIS: Workplace Hazardous Materials Information System

**Key literature references and sources for data**

[www.ChemADVISOR.com/](http://www.ChemADVISOR.com/)

NZ CCID

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