

## MATERIAL SAFETY DATA SHEET

Product Trade Name: CL-37 CROSSLINKER

Revision Date: 15-May-2014

Revision Number: 12

## 1. Product and Company Identification

**Product Identifier**

Product Trade Name: CL-37 CROSSLINKER  
Synonyms: None  
Chemical Family: Blend  
Internal ID Code: HM003929

**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

## 2. Hazard(s) Identification

**WHMIS Classification**

WHMIS Hazard Class: B2 Flammable Liquids  
D2B Toxic Materials

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

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

## 3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	HMIRA Registry Number	Filing Date
Triethanolamine zirconate	101033-44-7	60 - 100%	Not applicable	Not applicable
Propanol	71-23-8	10 - 30%	Not applicable	Not applicable

Glycerine	56-81-5	10 - 30%	Not applicable	Not applicable
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#### 4. First aid measures

##### Description of 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.

##### **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.

##### **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.

##### **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.

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

May cause eye and skin irritation. May be harmful if swallowed. May cause headache, dizziness, and other central nervous system effects.

##### **Indication of any immediate medical attention and special treatment needed**

##### **Notes to Physician**

Treat symptomatically

#### 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**

May be ignited by heat, sparks or flames. Fight fire from a safe distance and from a protected location. Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. 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

Olefins. Oxides of nitrogen. Other organic materials. Carbon monoxide and carbon dioxide.

#### 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. Remove ignition sources and work with non-sparking tools. Contain spill with sand or other inert materials. Scoop up and remove.

#### 7. Handling and Storage

##### Precautions for safe handling

Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse. Ground and bond containers when transferring from one container to another.

#### Conditions for safe storage and Incompatible materials for storage

Store away from oxidizers. Store away from acids. Keep from heat, sparks, and open flames. Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 12 months.

## 8. Exposure Controls/Personal Protection

### Occupational Exposure Limits

#### Exposure Limits

Substances	CAS Number	ACGIH TLV-TWA	OSHA PEL-TWA
Triethanolamine zirconate	101033-44-7	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
Propanol	71-23-8	TWA: 100 ppm	200 ppm
Glycerine	56-81-5	TWA: 10 mg/m <sup>3</sup>	15 mg/M3

### Appropriate engineering controls

#### Engineering Controls

Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

### Personal Protective Equipment (PPE)

#### Respiratory Protection

Organic vapor respirator.

#### Hand Protection

Impervious 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

### Information on basic physical and chemical properties

**Physical State:** Liquid

**Color:** Yellow

**Odor:** Alcohol

**Odor Threshold:** No information available

#### Property

#### Values

Remarks/ - Method

#### pH:

7-9

#### pH Concentration of Solution:

No information available.

#### Freezing Point/Range

No information available.

#### Melting Point/Range

No information available

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

98 °C

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

28 °C

#### Flash Point Method:

No information available.

#### 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):

1.091

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

Soluble

#### 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):**  
**VOC Content (%)**

No information available.  
No information available

## 10. Stability and Reactivity

### Conditions of Reactivity

#### **Conditions to Avoid**

#### **Hazardous Polymerization:**

Keep away from heat, sparks and flame.  
Will Not Occur

### Chemical Stability

Stable

### Sensitivity to Static Discharge

Not available

### Sensitivity to Mechanical Impact

Not available

### Incompatible materials

Strong oxidizers. Strong acids.

### Hazardous Decomposition Products

Olefins. Oxides of nitrogen. Other organic materials. Carbon monoxide and carbon dioxide.

## 11. Toxicological Information

### Routes of entry

Eye or skin contact, inhalation.

### Information on Toxicological Effects

#### Acute effects from exposure

##### **Inhalation**

May cause respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

##### **Eye Contact**

May cause moderate eye irritation.

##### **Skin Contact**

May cause skin irritation. May be absorbed through the skin and produce effects similar to those caused by inhalation and/or ingestion. May cause an allergic skin reaction.

##### **Ingestion**

May be harmful if swallowed. May cause abdominal pain, vomiting, nausea, and diarrhea. May cause central nervous system depression including headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue blurred vision, slurred speech, giddiness, tremors and convulsions.

### Chronic effects from exposure

#### **Chronic Effects/Carcinogenicity**

Repeated overexposure may cause liver and kidney effects.

### Irritancy of product

#### **Irritation**

Irritating to eyes and 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
Triethanolamine zirconate	101033-44-7	No data available	No data available	No data available
Propanol	71-23-8	1870 mg/kg ( Rat )	No data available	13548 ppm ( Rat ) 4 h
Glycerine	56-81-5	12600 mg/kg ( Rat )	21900 mg/kg ( Rat )	No data available

## 12. Ecological Information

**Toxicity****Ecotoxicity Effects**

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Triethanolamine zirconate	101033-44-7	No information available	No information available	No information available	No information available
Propanol	71-23-8	No information available	No information available	No information available	No information available
Glycerine	56-81-5	No information available	LC50: 51 - 57 mL/L (Oncorhynchus mykiss)	No information available	EC50: >500 mg/L (Daphnia magna); TLM48: > 2000 mg/l (Acartia tonsa)

**Persistence and Degradability**

No information available

**Bioaccumulation potential**

No information available

**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

## 13. Disposal Considerations

**Disposal Method**

Disposal should be made in accordance with federal, state, and local regulations. Incineration recommended in approved incinerator according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

**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

### Canadian TDG ul0

UN Number: UN1274  
UN Proper Shipping Name: n-Propanol Solution  
Transport Hazard Class(es): 3  
Packing Group: III  
EMS: EmS F-E, S-D

### IATA/ICAO

UN Number: UN1274  
UN Proper Shipping Name: n-Propanol Solution  
Transport Hazard Class(es): 3  
Packing Group: III

### IMDG/IMO

UN Number: UN1274  
UN Proper Shipping Name: n-Propanol Solution  
Transport Hazard Class(es): 3  
Packing Group: III  
EMS: EmS F-E, S-D

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

## 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 Product contains one or more components not listed on the inventory.

### WHMIS Hazard Class

B2 Flammable Liquids  
D2B Toxic Materials

### WHMIS Symbol(s)



### US Regulations

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

## 16. Other Information

### Preparation Information

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

Revision Date: 15-May-2014

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.

**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\*\*\*