

MATERIAL SAFETY DATA SHEET

Product Trade Name: **CL-40C™ CROSSLINKER**

Revision Date: 07-Jan-2015

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: CL-40C™ CROSSLINKER
Synonyms: None
Chemical Family: Blend
Application: Crosslinker

Manufacturer/Supplier Halliburton Energy Services
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Emergency Telephone: (281) 575-5000

Prepared By Chemical Compliance
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2. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	ACGIH TLV-TWA	OSHA PEL-TWA
Zirconium complex	Proprietary	60 - 100%	5 mg/m ³	5 mg/m ³
Triisopropanolamine	122-20-3	5 - 10%	Not applicable	Not applicable

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye and skin irritation.

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 Get medical attention if irritation persists. 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 If swallowed, induce vomiting immediately by giving two glasses of water and sticking fingers down throat; never give anything to an unconscious person. Get medical attention.

Notes to Physician Not Applicable

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined Min: > 200
Flash Point/Range (C):	Not Determined Min: > 93
Flash Point Method:	PMCC
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

Fire Extinguishing Media All standard firefighting media.

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
HMS Ratings: Health 1, Flammability 0, 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 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 creating or inhaling dust.

Storage Information Store away from oxidizers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Use in a well ventilated area.

Respiratory Protection Not normally needed. But if significant exposures are possible then the following respirator is recommended:
Organic vapor/acid gas respirator.

Hand Protection Nitrile gloves. Polyvinylchloride 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: Clear to Light straw

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Odor:	Slight Ammonia
pH:	8-9
Specific Gravity @ 20 C (Water=1):	1.14 - 1.24
Density @ 20 C (lbs./gallon):	9.5-10.33
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	242
Boiling Point/Range (C):	117
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):	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):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	May 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.

Symptoms related to exposure

Acute Toxicity

Inhalation

May cause respiratory irritation. Excessive inhalation causes headache, dizziness, nausea and incoordination.

Eye Contact

May cause eye irritation

Skin Contact

Prolonged or repeated contact may cause skin irritation.

Ingestion

May be harmful if swallowed. May cause abdominal pain, vomiting, nausea, and diarrhea.

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
Zirconium complex	Proprietary	No data available	No data available	No data available
Triisopropanolamine	122-20-3	4730 mg/kg (Rat) 4000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	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
Zirconium complex	Proprietary	No information available	No information available	No information available	No information available
Triisopropanolamine	122-20-3	EC50 (72h) 35 mg/L (Scenedesmus subspicatus) EC50 (72h) 50 mg/L (Desmodesmus subspicatus) EC50 (72h) 710 mg/L (Desmodesmus subspicatus) NOEC (72h) 0.64 mg/L (Desmodesmus subspicatus)	LC50 (96h) 3158.48 mg/L (Leuciscus idus) LC50 (96h) > 100 mg/L (Pimephales promelas)	EC20 (30m) > 1995 mg/L (activated sludge, industrial)	EC50 (48h) > 500 mg/L (Daphnia magna) EC50 (48h) 966 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Zirconium complex	Proprietary	No information available
Triisopropanolamine	122-20-3	Not readily biodegradable (0-10% @ 28d)

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Zirconium complex	Proprietary	No information available
Triisopropanolamine	122-20-3	-0.015

12.4. Mobility in soil

No information available

12.5. Results of PBT and vPvB assessment

No information available.

Substances	PBT and vPvB assessment
Triisopropanolamine	Not PBT/vPvB

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.

14. TRANSPORT INFORMATION

US DOT

UN Number: Not restricted

UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable

US DOT Bulk
DOT (Bulk) Not applicable

Canadian TDG u10
UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable

IMDG/IMO
UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable

IATA/ICAO
UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable

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

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 Does not apply.

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 D2B Toxic Materials

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*****