



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material Name ZXL-4
Revision Date 12/21/2011
Version # 2
Product Use Crosslinker.
Manufacturer / Supplier FRAC TECH SERVICES LLC
2500 HWY 62 West
Chickasha, OK 73018
US
General information: 1-405-222-2300
Emergency 24 Hour Emergency: INFOTRAC: 1-800-535-5053

2. Hazards Identification

Physical State Liquid.
Appearance Clear to light straw colored liquid.
Emergency Overview Non hazardous in accordance with OSHA's Hazard Communication Statement.
OSHA regulatory status Not available.
Routes of exposure
Eyes May cause irritation on prolonged or repeated contact.
Skin Repeated to prolonged contact may result in defatting of skin, irritation, and dermatitis.
Inhalation High vapor concentrations may cause headache, dizziness, nausea, and unconsciousness. May cause mild mucous membrane irritation of nose and throat.
Ingestion May be harmful by ingestion. Large doses may cause nausea, vomiting, and diarrhea.
Potential environmental effects Not available.

3. Composition / Information on Ingredients

Components	CAS #	Percent
No Hazardous Materials	Not available.	Not available.

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures

First aid procedures

Eye Contact In case of contact, immediately flush eyes with plenty of water for at least 15 minutes using an eyewash fountain, if available. Lift upper and lower lids and rinse well under them. Get medical attention, preferably an ophthalmologist if irritation occurs.
Skin Contact Flush all affected areas with plenty of water for several minutes. Remove and wash any contaminated clothing and shoes. Get medical attention if skin irritation occurs.
Inhalation Remove to fresh air. If breathing has stopped, administer artificial respiration, oxygen or CPR if needed. Consult a physician.
Ingestion If victim is conscious and alert, give two or more glasses of milk or water to drink. If available, give one tablespoon of syrup of Ipecac to induce vomiting. If vomiting has not occurred in 10 minutes, the same amount of Syrup of Ipecac may be repeated one additional time. Alternatively, induce vomiting by touching the back of the throat with a finger. If victim is unconscious contact a physician or call the Poison Control Center (800) 441- 0040.
Notes to physician Not available.

5. Fire Fighting Measures

Flammable Properties	Not available.
Extinguishing media	
Suitable extinguishing media	This material is not combustible. Use media suitable for the surrounding fires. Use water spray to cool exposed containers.
Unsuitable extinguishing media	Not available.
Specific Hazards arising from the Chemical	Not available.
Firefighting equipment / instructions	Self-contained breathing apparatus, eye protection and protective clothing.
Specific Methods	Evacuate area of all unnecessary personnel. Shut off source, if possible approach fire from upwind. Avoid breathing smoke, fumes, mists, or vapors on the downwind side.
Hazardous combustion products	Not available.

6. Accidental Release Measures

Personal precautions	Confine spill or leak. Prevent material from entering storm sewers or open waterways. Use absorbent to dry spill. Dispose of according to local, state, and federal regulations.
Methods for cleaning up	Not available.

7. Handling and Storage

Handling	Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of the materials from eyes, skin, and clothing. Avoid prolonged or repeated breathing of the dust. Wash thoroughly after handling product.
Storage	Store away from incompatible materials. (See section 10).

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
No Hazardous Materials	Not available.	Not available.	Not available.	Not available.

US. OSHA Table Z-1 Limits for Air Contaminates (29 CFR 1910.1000)

Components	PEL	
	ppm	mg/m3
No Hazardous Materials	Not available.	Not available.

Canada. Alberta OELs (Occupational Health Safety Code, Schedule 1, Table 2)

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
No Hazardous Materials	Not available.	Not available.	Not available.	Not available.

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
No Hazardous Materials	Not available.	Not available.	Not available.	Not available.

Canada. Ontario OELs. (Ministry of Labor - Control of Exposure to Biological or Chemical Agents) Components

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
No Hazardous Materials	Not available.	Not available.	Not available.	Not available.

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) Components

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
No Hazardous Materials	Not available.	Not available.	Not available.	Not available.

Mexico. Occupational Exposure Limit Values

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
No Hazardous Materials	Not available.	Not available.	Not available.	Not available.

Engineering controls

Provide adequate ventilation. Use local exhaust as needed to maintain airborne exposure below control limits.

Personal protective equipment

Eye / face protection

Safety glasses or goggles.

Skin protection	PVC or Nitrile gloves and chemical apron.
Respiratory protection	Not generally required unless needed to prevent respiratory irritation. If concentrations exist at levels greater than the permissible exposure level, use a NIOSH approved organic vapor cartridge respirator, as a minimum. Follow guidelines contained in 29 CFR 1910.134. OSHA's respiratory protection standard.
General hygiene consideration	Avoid contact with skin, eyes, and clothing. After handling this product, wash hands before eating, drinking, or smoking. If contact occurs, remove contaminated clothing. If needed, take first aid action shown in Section 4. Launder contaminated clothing before reuse.

9. Physical and Chemical Properties

Appearance:	Clear to light straw colored liquid
Color	Light straw color
Odor	Slight ammonia
Odor threshold	Not available.
Physical State	Liquid
Form	Liquid
pH	8.0 – 8.5
Melting point	Not available.
Freezing point	Not available.
Boiling point	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Specific Gravity	1.16 -1.20
Solubility (water)	Complete
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Bulk Density	9.84 lb/gal
VOC	Not available.
Viscosity	Not available.
Percent volatile	Not available.

10. Chemical Stability Reactivity Information

Chemical Stability	Stable
Conditions to avoid	Avoid incompatible materials.
Incompatible material	Oxidizing chemicals.
Hazardous decomposition products	Fumes of NH3 and NOx.

Possibility of hazardous reaction None

11. Toxicology Information

Toxicological Data

Components	Test Results
No Hazardous Materials	None available.

Sensitization Not available.

Carcinogenicity
No Hazardous Materials Not available.

Epidemiology Not available.

Mutagenicity Not available.

Reproductive effects Not available.

Teratogenicity Not available.

Further Information This product contains Zirconium. Poisoning may occur due to excessive exposure to zirconium salts. Zirconium compounds in common use are considered inert.

12. Ecological Information

Ecotoxicological data

Components	Test Results
No Hazardous Materials	None available.

Ecotoxicity Not available.

Persistence and degradability Not available.

Bioaccumulation / Accumulation Not available.

Mobility in environmental media Not available.

Partition coefficient (n-octanol/water) Not available.

13. Disposal Considerations

Waste codes Not available.

Disposal instructions Dispose of in accordance with local, state, and federal regulations.

Contaminated packaging Not available.

14. Transport Information

DOT

UN number
Proper shipping name Not regulated.
Hazard class
Packing Group
Labels required
DOT reportable quantity Not available.
Additional information
Special provisions
Packaging exceptions
Packaging non bulk
Packaging bulk
ERG number

IATA

UN number
Proper shipping name Not available.
Hazard class
Packing group
Additional information
ERG code

IMDG

UN number
Proper shipping name Not available.
Hazard class
Packing group
EmS No
IMDG Additional information:

15. Regulatory Information

US federal regulation

CERCLA (Superfund) Reportable Quantity: None

Superfund amendments and Reauthorization Act of 1986 (SARA)

Hazard Categories	Immediate Hazard:	Yes
	Delayed Hazard:	No
	Fire Hazard:	No
	Pressure Hazard:	No
	Reactivity Hazard:	No

Section 302 extremely hazardous substance: None

Section 311 hazardous chemical: None

Inventory Status

Country	Inventory Name	On Inventory *
Australia	AICS	No

Canada	DSL	No
Canada	NDSL	No
China	IECSC	No
Europe	EINECS	No
Europe	ELINCS	No
Japan	ENCS	No
Korea	ECL	No
New Zealand	NZI	No
United States / Puerto Rico	TSCA	Yes
Phillipines	PICCS	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).

WHMIS Information Not available.

State Regulation Not available.

16. Other Information

Further Information HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings
 Health: 1
 Flammability: 0
 Physical Hazard: 0
 A HMIS® rating including an * indicates a chronic hazard.

NFPA ratings
 Health: 1
 Flammability: 0
 Instability: 0

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