HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **CleanLink**

Revision Date: 07-Jan-2015

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: CleanLink
Synonyms: None
Chemical Family: Inorganic Blend
Application: Crosslinker

Manufacturer/Supplier
Halliburton Energy Services, Inc.
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
Inorganic salt	Proprietary	5 - 10%	2 mg/m^3	2 mg/m^3
Sulfuric acid	7664-93-9	1 - 5%	TWA: 0.2 mg/m^3	1 mg/m^3

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye and skin burns. May be harmful if inhaled

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. Get medical attention if irritation persists.

Eyes Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

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.

Notes to Physician Not Applicable

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
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 All standard firefighting media.

Special Exposure Hazards Not applicable.

Special Protective Equipment for Fire-Fighters Not applicable.

NFPA Ratings: Health 1, Flammability 0, Reactivity 0
HMIS Ratings: Health 1, Flammability 0, Physical Hazard 0 , PPE: X

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. Neutralize with lime slurry, limestone, or soda ash. 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 breathing mist.

Storage Information Store in a cool, dry location. Store in a well ventilated area. Keep container closed when not in use. Store locked up. 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.
Not normally needed. But if significant exposures are possible then the following respirator is recommended:
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:	White
Odor:	Odorless
pH:	0.80
Specific Gravity @ 20 C (Water=1):	1.01
Density @ 20 C (lbs./gallon):	8.41
Bulk Density @ 20 C (lbs/ft3):	Not Determined
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
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: Will Not Occur

Conditions to Avoid None anticipated

Incompatibility (Materials to Avoid) Strong alkalis.

Hazardous Decomposition Products Oxides of sulfur.

Additional Guidelines Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure Eye or skin contact, inhalation.

Sympotoms related to exposure

Acute Toxicity

Inhalation	May cause respiratory irritation.
Eye Contact	Causes severe eye irritation. May cause eye burns.
Skin Contact	May cause skin irritation. Causes severe skin irritation.
Ingestion	In large amounts: May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity Contains sulfuric acid, a potential carcinogen.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Inorganic salt	Proprietary	1930 mg/kg (Rat) > 2000 < 5000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	5 mg/L (Rat, aerosol) 4h (Similar substance)
Sulfuric acid	7664-93-9	2140 mg/kg (Rat)	No data available	347 ppm (Rat, 1h) 510 mg/m³ (Rat, 2h) 295 mg/m³ (Rat, 4h) 375 mg/m³ (Rat, 4h) 160 mg/m³ (Mouse, 4h) 15 mg/m³ (Guinea pig, 4h) 9 mg/m³ (Guinea pig, 4h)

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
Inorganic salt	Proprietary	EC50(72h): 14 mg/L (growth rate) (Pseudokirchnerella subcapitata)	LC50: 100 mg/L (Carassius auratus) LC50(96h): 186 mg/L (Danio rerio) LC50(42d): 15 ug/L (dissolved Aluminium) (Salmo trutta) NOEC(60d): 26 ug/L (mortality in Fry) (Salvelinus fontinalis)	EC50(180min): > 1000 mg/L (activated sludge)	EC50(48h): 136 mg/L (Daphnia magna) EC50(48h): > 200 mg/L (Daphnia magna) NOEC(8d): 3.8 mg/L (reproduction) (Ceriodaphnia dubia) (Similar substance)
Sulfuric acid	7664-93-9	EC50(72h): > 100 mg/L (growth rate) (Desmodesmus subspicatus)	LC50: >500 mg/l (Brachydanio rerio) LC50(96h) > 16 and < 28 mg/L (Lepomis macrochirus) NOEC(65d): 0.025 mg/L (fry growth) (Jordanella floridae) NOEC(chronic): 0.31 mg/L (larval development) (Salvelinus fontinalis)	NOEC(21d): 6.61 pH (total bacteria) NOEC(37d): ca. 26 g/L (activated sludge, respiration rate) (Similar substance)	EC50(48h): 29 mg/L (Daphnia magna) EC50(48h): > 100 mg/L (Daphnia magna) NOEL(chronic): 0.15 mg/L (mortality) (Tanytarsus dissimilis)

12.2. Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

Substances	CAS Number	Persistence and Degradability
Inorganic salt	Proprietary	The methods for determining biodegradability are not applicable to inorganic substances.
Sulfuric acid	7664-93-9	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Inorganic salt	Proprietary	No information available
Sulfuric acid	7664-93-9	No information available

12.4. Mobility in soil

No information available

12.5. Results of PBT and vPvB assessment

Substances	PBT and vPvB assessment
Inorganic salt	Not PBT/vPvB
Sulfuric acid	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. 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

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 ul0

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	CAS:7664-93-9//Chemical Name: Sulfuric Acid///TPQ: 1000
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	EPA Reportable Spill Quantity is 5633 Gallons based on Sulfuric acid (CAS: 7664-93-9).
EPA RCRA Hazardous Waste Classification	If product becomes a waste, it does meet the criteria of a hazardous waste as defined by the US EPA, because of: Corrosivity D002
California Proposition 65	The California Proposition 65 regulations apply to this product.
MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
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	D1A Very 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.
Disclaimer Statement	This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

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