

MATERIAL SAFETY DATA SHEET

Product Trade Name: CleanLink

Revision Date: 31-Oct-2014

Revision Number: 8

SECTION 1. Product and Company Identification

Product Identifier

Product Trade Name: CleanLink
Synonyms: None
Chemical Family: Inorganic Blend
Internal ID Code: HM007082

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: D1A Very Toxic Materials
E Corrosive Material

WHMIS Symbol(s)



Summary of hazards of the product

Hazard Overview May cause eye and skin burns. May be harmful if inhaled. Inhalation exposures to sulfuric acid has caused acute toxicity in animals leading to death.

SECTION 3: Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	HMIRA Registry Number	Decision Granted Date
Inorganic salt	Proprietary	5 - 10%	8929	October 27, 2014
Sulfuric acid	7664-93-9	1 - 5%	Not applicable	Not applicable

SECTION 4. First aid measures

Description of first aid measures

Inhalation

If inhaled, remove to fresh air. If not breathing give artificial respiration (AR), preferably mouth-to-mouth. If breathing is difficult, oxygen should be given by trained personnel. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation (CPR) immediately. Get medical attention immediately.

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 severe eye irritation. May cause skin and respiratory irritation. May be harmful if inhaled

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

All standard fire fighting media

Extinguishing media which must not be used for safety reasons

None known.

Special hazards arising from the substance or mixture

Special Exposure Hazards

Not applicable.

Advice for firefighters

Special Protective Equipment for Fire-Fighters

Not applicable.

Hazardous combustion products

Oxides of sulfur.

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

Conditions for safe storage and Incompatible materials for storage

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.

SECTION 8: Exposure Controls/Personal Protection
Occupational Exposure Limits**Exposure Limits**

Substances	CAS Number	ACGIH TLV-TWA	OSHA PEL-TWA
Inorganic salt	Proprietary	2 mg/m ³	2 mg/m ³
Sulfuric acid	7664-93-9	TWA: 0.2 mg/m ³	1 mg/m ³

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.

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.

SECTION 9. Physical and Chemical Properties
Information on basic physical and chemical properties

Physical State: Liquid
Odor: Odorless

Color: White
Odor Threshold: No information available

Property
Remarks/ - Method

Values

pH:
pH Concentration of Solution:
Freezing Point/Range
Melting Point/Range
Boiling Point/Range (C):
Flash Point/Range (C):
Flash Point Method:
Autoignition Temperature (C):
Flammability Limits in Air - Lower (%):
Flammability Limits in Air - Upper (%):
Evaporation Rate (Butyl Acetate=1):
Vapor Pressure @ 20 C (mmHg):
Vapor Density (Air=1):
Specific Gravity @ 20 C (Water=1):
Solubility in Water (g/100ml):
Solubility in other solvents
Partition Coefficient/n-Octanol/Water:

0.80
No information available.
No information available.
No information available.
No information available.
No information available.
No information available.
No information available.
No information available.
No information available.
No information available.
No information available.
No information available.
1.01
Soluble
No information available.
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	None anticipated
Hazardous Polymerization:	Will Not Occur

Chemical Stability

Stable

Sensitivity to Static Discharge

Not available

Sensitivity to Mechanical Impact

Not available

Incompatible materials

Strong alkalis.

Hazardous Decomposition Products

Oxides of sulfur.

SECTION 11. Toxicological Information
--

Routes of entry

Eye or skin contact, inhalation.

Information on Toxicological Effects**Acute effects from exposure**

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 from exposure

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

Irritancy of product

Irritation	Corrosive to eyes Causes severe skin irritation.
-------------------	--

Sensitization of product

Sensitization	Not confirmed to cause skin or respiratory sensitization.
----------------------	---

Mutagenicity

Mutagenic Effects	Not regarded as mutagenic.
-------------------	----------------------------

Carcinogenicity

Carcinogenic Effects	Contains sulfuric acid, a potential carcinogen.
----------------------	---

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
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/m ³ (Rat, 2h) 295 mg/m ³ (Rat, 4h) 375 mg/m ³ (Rat, 4h) 160 mg/m ³ (Mouse, 4h) 15 mg/m ³ (Guinea pig, 4h) 9 mg/m ³ (Guinea pig, 4h)

SECTION 12. Ecological Information**Toxicity****Ecotoxicity Effects**

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)

Persistence and Degradability

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

Bioaccumulation potential

No information available

Mobility in soil

No information available

Results of PBT and vPvB assessment

Substances	PBT and vPvB assessment
Inorganic salt	Not PBT/vPvB

Sulfuric acid

Not PBT/vPvB

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. 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.

SECTION 14. Transport Information**Canadian TDG u10**

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

IMDG/IMO

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

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

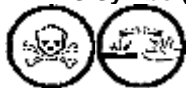
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Canadian Regulations**Canadian DSL Inventory**

All components listed on inventory or are exempt.

WHMIS Hazard Class

D1A Very 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:**

31-Oct-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 datawww.ChemADVISOR.com/
NZ CCID**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*****