



# SAFETY DATA SHEET

## CALCIUM TITRATION SOLUTION I

Product Trade Name:

Revision Date: 08-Oct-2019

Revision Number: 65

### 1. Identification

#### 1.1. Product Identifier

Product Trade Name: CALCIUM TITRATION SOLUTION I  
Synonyms: None  
Chemical Family: Blend  
Internal ID Code: HM003960

#### 1.2 Recommended use and restrictions on use

Application: Titration Solution  
Uses advised against: No information available

#### 1.3 Manufacturer's Name and Contact Details

##### Manufacturer/Supplier

Fann Instrument Company  
A Halliburton Energy Services, Inc. Company  
P.O. Box 4350  
Houston, TX 77210  
Telephone: (281) 871-4482

Halliburton Group Canada  
645 - 7th Ave SW Suite 1800  
Calgary, AB, T2P 4G8, Canada  
Telephone: 1-403-231-9300

##### Prepared By

Chemical Stewardship  
Telephone: 1-281-871-6107  
e-mail: fdunexchem@halliburton.com

#### 1.4. Emergency telephone number:

Emergency Telephone Number: 1-866-519-4752 or 1-760-476-3962 (accessible 24 hours a day / 7 days a week)  
Global Incident Response Access Code: 334305  
Contract Number: 14012

### 2. Hazards Identification

#### 2.1 Classification in accordance with paragraph (d) of §1910.1200

As adopted by the competent authority, this product does not require an SDS or hazard warning label.

Not classified	
Skin Corrosion / Irritation	Category 2 - H315
Serious Eye Damage/Irritation	Category 1 - H318
Skin Sensitization	Category 1 - H317
Specific Target Organ Toxicity - (Repeated Exposure)	Category 2 - H373
Acute Aquatic Toxicity	Category 2 - H401

#### 2.2. Label Elements

**Hazard Pictograms**



**Signal Word:**

Danger

**Hazard Statements**

- H315 - Causes skin irritation
- H317 - May cause an allergic skin reaction
- H318 - Causes serious eye damage
- H373 - May cause damage to organs through prolonged or repeated exposure
- H401 - Toxic to aquatic life

**Precautionary Statements**

**Prevention**

- P234 - Keep only in original packaging.
- P260 - Do not breathe dust/fume/gas/mist/vapors/spray
- P272 - Contaminated work clothing should not be allowed out of the workplace
- P273 - Avoid release to the environment
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P280 - Wear protective gloves
- P264 - Wash face, hands and any exposed skin thoroughly after handling
- P280 - Wear eye protection/face protection

**Response**

- P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
- P302 + P352 - IF ON SKIN: Wash with plenty of water.
- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- P310 - Immediately call a POISON CENTER or doctor/physician
- P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
- P362 + P364 - Take off contaminated clothing and wash before reuse
- P390 - Absorb spillage to prevent material damage
- P332 + P313 - If skin irritation occurs: Get medical advice/attention
- P363 - Wash contaminated clothing before reuse
- P314 - Get medical attention/advice if you feel unwell

**Storage  
Disposal**

- None
- P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

**2.3 Hazards not otherwise classified**

None known

**3. Composition/information on Ingredients**

Substances	CAS Number	PERCENT (w/w)	GHS Classification - US
Hydroxylamine hydrochloride	5470-11-1	10 - 30%	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Skin Irrit. 2 (H315) Eye Corr. 1 (H318) Skin Sens. 1 (H317) STOT RE 2 (H373) Aquatic Acute 1 (H400) Met. Corr. 1 (H290)

The exact percentage (concentration) of the composition has been withheld as proprietary.

## 4. First Aid Measures

### 4.1. Description of first aid measures

<b>Inhalation</b>	If inhaled, move victim to fresh air and seek medical attention.
<b>Eyes</b>	Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.
<b>Skin</b>	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 laundry before reuse.
<b>Ingestion</b>	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

### 4.2 Most important symptoms/effects, acute and delayed

No significant hazards expected.

### 4.3. Indication of any immediate medical attention and special treatment needed

<b>Notes to Physician</b>	Since reversion of methemoglobin to hemoglobin occurs spontaneously after termination of exposure, moderate cyanosis may be treated by supportive measures such as bed rest and oxygen inhalation. Thorough cleansing of the body including scalp and nails is of utmost importance. Treatment should be directed at preventing absorption, administering to symptoms as they occur, and providing supportive therapy.
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## 5. Fire-fighting measures

### 5.1. Extinguishing media

#### Suitable Extinguishing Media

Carbon dioxide, dry chemical, foam.

#### Extinguishing media which must not be used for safety reasons

None known.

### 5.2 Specific hazards arising from the substance or mixture

#### Special exposure hazards in a fire

Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce harmful gases.

### 5.3 Special protective equipment and precautions for fire-fighters

#### Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

## 6. Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Wear self-contained breathing apparatus in enclosed areas. See Section 8 for additional information

### 6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

### 6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

**7. Handling and storage**

**7.1. Precautions for safe handling**

**Handling Precautions**

Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse.

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

**7.2. Conditions for safe storage, including any incompatibilities**

**Storage Information**

Store away from oxidizers. Store in a cool, dry location. Keep container closed when not in use.

**8. Exposure Controls/Personal Protection**

**8.1 Occupational Exposure Limits**

Substances	CAS Number	OSHA PEL-TWA	ACGIH TLV-TWA
Hydroxylamine hydrochloride	5470-11-1	Not applicable	Not applicable

**8.2 Appropriate engineering controls**

**Engineering Controls**

A well ventilated area to control dust levels. Local exhaust ventilation should be used in areas without good cross ventilation.

**8.3 Individual protection measures, such as personal protective equipment**

**Personal Protective Equipment**

If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

**Respiratory Protection**

Positive pressure self-contained breathing apparatus in enclosed areas.

**Hand Protection**

Butyl 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**

**9.1. Information on basic physical and chemical properties**

<b>Physical State:</b> Liquid	<b>Color</b>	Clear colorless
<b>Odor:</b> Odorless	<b>Odor</b>	No information available
	<b>Threshold:</b>	

Property Remarks/ - Method	Values
<b>pH:</b>	3
<b>Freezing Point / Range</b>	-9.6 °C / 14.7 °F
<b>Melting Point / Range</b>	No data available
<b>Pour Point / Range</b>	No data available
<b>Boiling Point / Range</b>	103 °C / 217 °F
<b>Flash Point</b>	No data available
<b>Flammability (solid, gas)</b>	No data available
Upper flammability limit	No data available
Lower flammability limit	No data available
<b>Evaporation rate</b>	No data available
<b>Vapor Pressure</b>	0.3 mmHg
<b>Vapor Density</b>	0.014

<b>Specific Gravity</b>	1.36
<b>Water Solubility</b>	Soluble in water
<b>Solubility in other solvents</b>	No data available
<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	No data available
<b>Decomposition Temperature</b>	No data available
<b>Viscosity</b>	No data available
<b>Explosive Properties</b>	No information available
<b>Oxidizing Properties</b>	No information available

**9.2. Other information**

<b>VOC Content (%)</b>	No data available
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**10. Stability and Reactivity**

**10.1. Reactivity**

Not expected to be reactive.

**10.2. Chemical stability**

Stable

**10.3. Possibility of hazardous reactions**

Will Not Occur

**10.4. Conditions to avoid**

None anticipated

**10.5. Incompatible materials**

Strong acids. Ethers. Aldehydes. Molten alkali metals.

**10.6. Hazardous decomposition products**

Hydrogen chloride. Ammonia. Oxides of nitrogen. Carbon monoxide and carbon dioxide.

**11. Toxicological Information**

**11.1 Information on likely routes of exposure**

**Principle Route of Exposure** Eye or skin contact, inhalation.

**11.2 Symptoms related to the physical, chemical and toxicological characteristics**

**Acute Toxicity**

<b>Inhalation</b>	May cause respiratory irritation. May cause convulsions.
<b>Eye Contact</b>	May cause severe eye irritation.
<b>Skin Contact</b>	May cause severe skin irritation. May cause an allergic skin reaction.
<b>Ingestion</b>	Irritation of the mouth, throat, and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea. May reduce blood's ability to transport oxygen.

**Chronic Effects/Carcinogenicity** May cause damage to organs through prolonged or repeated exposure.

**11.3 Toxicity data**

**Toxicology data for the components**

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydroxylamine hydrochloride	5470-11-1	600 mg/kg bw (rat)	>250 mg/kg-bw (guinea pig)	No data available

Substances	CAS Number	Skin corrosion/irritation

Hydroxylamine hydrochloride	5470-11-1	Skin, rabbit: Causes moderate skin irritation. (80 % solution) Irritating to skin.
<b>Substances</b>	<b>CAS Number</b>	<b>Serious eye damage/irritation</b>
Hydroxylamine hydrochloride	5470-11-1	Eye, rabbit: Causes severe eye irritation Causes severe irritation and or burns
<b>Substances</b>	<b>CAS Number</b>	<b>Skin Sensitization</b>
Hydroxylamine hydrochloride	5470-11-1	Skin sensitizer in guinea pig.
<b>Substances</b>	<b>CAS Number</b>	<b>Respiratory Sensitization</b>
Hydroxylamine hydrochloride	5470-11-1	No information available
<b>Substances</b>	<b>CAS Number</b>	<b>Mutagenic Effects</b>
Hydroxylamine hydrochloride	5470-11-1	No data of sufficient quality are available.
<b>Substances</b>	<b>CAS Number</b>	<b>Carcinogenic Effects</b>
Hydroxylamine hydrochloride	5470-11-1	No data of sufficient quality are available.
<b>Substances</b>	<b>CAS Number</b>	<b>Reproductive toxicity</b>
Hydroxylamine hydrochloride	5470-11-1	Did not show teratogenic effects in animal experiments.
<b>Substances</b>	<b>CAS Number</b>	<b>STOT - single exposure</b>
Hydroxylamine hydrochloride	5470-11-1	No data of sufficient quality are available.
<b>Substances</b>	<b>CAS Number</b>	<b>STOT - repeated exposure</b>
Hydroxylamine hydrochloride	5470-11-1	Causes damage to organs through prolonged or repeated exposure if swallowed: (Blood)
<b>Substances</b>	<b>CAS Number</b>	<b>Aspiration hazard</b>
Hydroxylamine hydrochloride	5470-11-1	Not applicable

**12. Ecological Information**

**12.1. Toxicity**

**Substance Ecotoxicity Data**

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Hydroxylamine hydrochloride	5470-11-1	EC50 (96 h) =0.72 mg/L (Desmodesmus subspicatus)	LC50 (96 h) =7.2 mg/L (Pimephales promelas)	No information available	EC50 (48 h) =1.62 mg/L (Daphnia magna)

**12.2. Persistence and degradability**

Substances	CAS Number	Persistence and Degradability
Hydroxylamine hydrochloride	5470-11-1	The methods for determining biodegradability are not applicable to inorganic substances.

**12.3. Bioaccumulative potential**

Substances	CAS Number	Bioaccumulation
Hydroxylamine hydrochloride	5470-11-1	No information available

**12.4. Mobility in soil**

Substances	CAS Number	Mobility
Hydroxylamine hydrochloride	5470-11-1	No information available

**12.5 Other adverse effects**

No information available

**13. Disposal Considerations**

**13.1. Waste treatment methods**

**Disposal methods** 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  
**Environmental Hazards:** Not applicable

**Canadian TDG**

**UN Number** Not restricted  
**UN proper shipping name:** Not restricted  
**Transport Hazard Class(es):** Not applicable  
**Packing Group:** Not applicable  
**Environmental Hazards:** Not applicable

**IMDG/IMO**

**UN Number** UN2735  
**UN proper shipping name:** Amines, Liquid, Corrosive, N.O.S. (Contains Hydroxylamine hydrochloride)  
**Transport Hazard Class(es):** 8  
**Packing Group:** III  
**Environmental Hazards:** Marine Pollutant

**IATA/ICAO**

**UN Number** UN2735  
**UN proper shipping name:** Amines, Liquid, Corrosive, N.O.S. (Contains Hydroxylamine hydrochloride)  
**Transport Hazard Class(es):** 8  
**Packing Group:** III  
**Environmental Hazards:** Marine Pollutant

**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.

**TSCA Significant New Use Rules - S5A2**

Substances	CAS Number	TSCA Significant New Use Rules - S5A2	TSCA Section 5(E) Consent Orders
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Hydroxylamine hydrochloride	5470-11-1	Not applicable	Not applicable
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**EPA SARA Title III Extremely Hazardous Substances**

Substances	CAS Number	EPA SARA Title III Extremely Hazardous Substances
Hydroxylamine hydrochloride	5470-11-1	Not applicable

**EPA SARA (311,312) Hazard Class**

Skin Corrosion or Irritation  
 Respiratory or Skin Sensitization  
 Serious eye damage or eye irritation  
 Specific target organ toxicity (single or repeated exposure)  
 None

**EPA SARA (313) Chemicals**

Substances	CAS Number	Toxic Release Inventory (TRI) - Group I	Toxic Release Inventory (TRI) - Group II
Hydroxylamine hydrochloride	5470-11-1	Not applicable	Not applicable

**EPA CERCLA/Superfund Reportable Spill Quantity**

Substances	CAS Number	CERCLA RQ
Hydroxylamine hydrochloride	5470-11-1	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**

Substances	CAS Number	California Proposition 65
Hydroxylamine hydrochloride	5470-11-1	Not applicable

**U.S. State Right-to-Know Regulations**

Substances	CAS Number	MA Right-to-Know Law	NJ Right-to-Know Law	PA Right-to-Know Law
Hydroxylamine hydrochloride	5470-11-1	Not applicable	Not applicable	Not applicable

**NFPA Ratings:** Health 2, Flammability 0, Reactivity 0  
**HMIS Ratings:** Health 2, Flammability 0, Reactivity 0

**Canadian Regulations**

**Canadian Domestic Substances List (DSL)** All components listed on inventory or are exempt.

**16. Other information**

**Preparation Information**

**Prepared By** Chemical Stewardship  
 Telephone: 1-281-871-6107  
 e-mail: fdunexchem@halliburton.com

**Revision Date:** 08-Oct-2019

**Reason for Revision** Update to Format  
 SECTION:  
 1  
 2  
 3  
 15



**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 Stewardship at 1-580-251-4335.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

bw – body weight

CAS – Chemical Abstracts Service

d - day

EC50 – Effective Concentration 50%

ErC50 – Effective Concentration growth rate 50%

h - hour

LC50 – Lethal Concentration 50%

LD50 – Lethal Dose 50%

LL50 – Lethal Loading 50%

mg/kg – milligram/kilogram

mg/L – milligram/liter

mg/m<sup>3</sup> - milligram/cubic meter

mm - millimeter

mmHg - millimeter mercury

NIOSH – National Institute for Occupational Safety and Health

NTP – National Toxicology Program

OEL – Occupational Exposure Limit

PEL – Permissible Exposure Limit

ppm – parts per million

STEL – Short Term Exposure Limit

TWA – Time-Weighted Average

UN – United Nations

w/w - weight/weight

**Key literature references and sources for data**

[www.ChemADVISOR.com/](http://www.ChemADVISOR.com/)

OSHA

ECHA C&L

**Disclaimer Statement**

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**End of Safety Data Sheet**