

## SAFETY DATA SHEET

**Product Trade Name:** 10% FE ACID - DOUBLE STRENGTH

**Revision Date:** 29-Apr-2015

**Revision Number:** 6

### 1. Identification

#### 1.1. Product Identifier

**Product Trade Name:** 10% FE ACID - DOUBLE STRENGTH  
**Synonyms:** None  
**Chemical Family:** Acid  
**Internal ID Code:** HM005787

#### 1.2 Recommended use and restrictions on use

**Application:** Acid  
**Uses advised against:** No information available

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

##### Manufacturer/Supplier

Halliburton Energy Services, Inc.  
P.O. Box 1431  
Duncan, Oklahoma 73536-0431  
Telephone: 1-281-871-6107

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

Skin Corrosion / Irritation	Category 1 B - H314
Serious Eye Damage/Irritation	Category 1 - H318
Corrosive to Metals.	Category 1 -H290
Substances/mixtures corrosive to metal	Category 1 - H290

#### 2.2. Label Elements

##### Hazard Pictograms



**Signal Word:** Danger

**Hazard Statements**  
 H290 - May be corrosive to metals  
 H314 - Causes severe skin burns and eye damage  
 H318 - Causes serious eye damage

**Precautionary Statements**

**Prevention**  
 P234 - Keep only in original packaging.  
 P260 - Do not breathe dust/fume/gas/mist/vapors/spray  
 P264 - Wash face, hands and any exposed skin thoroughly after handling  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection  
 P280 - Wear protective gloves/protective clothing  
 P280 - Wear eye protection/face protection

**Response**  
 P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
 P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
 P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 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  
 P363 - Wash contaminated clothing before reuse  
 P390 - Absorb spillage to prevent material damage  
 P405 - Store locked up

**Storage**  
 P406 - Store in corrosive resistant container with a resistant inner liner.

**Disposal**  
 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
Hydrochloric acid	7647-01-0	10 - 30%	Skin Corr. 1A (H314) Eye Corr. 1 (H318) STOT SE 3 (H335) Met. Corr. 1 (H290)
Acetic anhydride	108-24-7	1 - 5%	Acute Tox. 4 (H302) Acute Tox. 3 (H331) Skin Corr. 1B (H314) Eye Corr. 1 (H318) STOT SE 3 (H335) Flam. Liq. 3 (H226)

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, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
<b>Eyes</b>	In case of contact, immediately flush eyes with plenty of water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Seek immediate medical attention/advice. Suitable emergency eye wash facility should be immediately available
<b>Skin</b>	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.
<b>Ingestion</b>	Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

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

Causes severe skin irritation with tissue destruction. Causes severe eye irritation which may damage tissue.

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

**Notes to Physician** Treat symptomatically.

## 5. Fire-fighting measures

### 5.1. Extinguishing media

#### Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

#### 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

Decomposition in fire may produce harmful gases. Reaction with steel and certain other metals generates flammable hydrogen gas. Do not allow runoff to enter waterways.

### 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.  
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. Neutralize to pH of 6-8. 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 alkalis. Store in a cool well ventilated area. 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
Hydrochloric acid	7647-01-0	Not applicable	Ceiling: 2 ppm
Acetic anhydride	108-24-7	TWA: 5 ppm TWA: 20 mg/m <sup>3</sup>	TWA: 1 ppm STEL: 3 ppm

### 8.2 Appropriate engineering controls

#### Engineering Controls

Use in a well ventilated area. 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

Acid gas respirator.

#### Hand Protection

Impervious rubber gloves.

#### Skin Protection

Full protective chemical resistant clothing.

#### 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

**Physical State:** Liquid

**Color**

Clear colorless

**Odor:** Pungent acrid

**Odor**

No information available

**Threshold:**

Property

Values

Remarks/ - Method

**pH:**

1

**Freezing Point / Range**

No data available

**Melting Point / Range**

No data available

**Pour Point / Range**

No data available

**Boiling Point / Range**

110 °C / 230 °F

**Flash Point**

No data available

**Flammability (solid, gas)**

No data available

Upper flammability limit

19%

Lower flammability limit

3%

**Evaporation rate**

No data available

**Vapor Pressure**

No data available

**Vapor Density**

No data available

**Specific Gravity**

1.07

<b>Water Solubility</b>	Miscible with water
<b>Solubility in other solvents</b>	No data available
<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	332 °C / 630 °F
<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**

**VOC Content (%)** No data available

**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 alkalis.

**10.6. Hazardous decomposition products**

Flammable hydrogen gas. Chlorine. Hydrogen sulfide.

**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>	Causes severe respiratory irritation.
<b>Eye Contact</b>	Causes severe eye irritation May cause eye burns.
<b>Skin Contact</b>	Causes severe skin irritation. May cause skin burns on prolonged contact.
<b>Ingestion</b>	Causes burns of the mouth, throat and stomach.

**Chronic Effects/Carcinogenicity** Prolonged, excessive exposure may cause erosion of the teeth.

**11.3 Toxicity data****Toxicology data for the components**

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrochloric acid	7647-01-0	No data available	No data available	No data available
Acetic anhydride	108-24-7	630 mg/kg bw (rat)	4000 mg/kg bw (rabbit)	4.1 mg/L (rat, vapor, 4h)

Substances	CAS Number	Skin corrosion/irritation
Hydrochloric acid	7647-01-0	Causes severe burns
Acetic anhydride	108-24-7	Corrosive to skin

Substances	CAS Number	Serious eye damage/irritation
Hydrochloric acid	7647-01-0	Causes severe burns
Acetic anhydride	108-24-7	Causes severe eye burns
Substances	CAS Number	Skin Sensitization
Hydrochloric acid	7647-01-0	Did not cause sensitization on laboratory animals (guinea pig)
Acetic anhydride	108-24-7	Not regarded as a sensitizer.
Substances	CAS Number	Respiratory Sensitization
Hydrochloric acid	7647-01-0	No information available
Acetic anhydride	108-24-7	No information available
Substances	CAS Number	Mutagenic Effects
Hydrochloric acid	7647-01-0	In vitro tests did not show mutagenic effects.
Acetic anhydride	108-24-7	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects.
Substances	CAS Number	Carcinogenic Effects
Hydrochloric acid	7647-01-0	No data of sufficient quality are available.
Acetic anhydride	108-24-7	No information available
Substances	CAS Number	Reproductive toxicity
Hydrochloric acid	7647-01-0	Embryo and fetotoxicity has been observed in female rats exposed to maternally toxic levels of hydrogen chloride (450 mg/m <sup>3</sup> , 1hr.). When tested at maternally toxic doses, no adverse effects on fertility, teratogenicity, or development were observed.
Acetic anhydride	108-24-7	Not a confirmed teratogen or embryotoxin.
Substances	CAS Number	STOT - single exposure
Hydrochloric acid	7647-01-0	May cause respiratory irritation.
Acetic anhydride	108-24-7	May cause respiratory irritation.
Substances	CAS Number	STOT - repeated exposure
Hydrochloric acid	7647-01-0	No significant toxicity observed in animal studies at concentration requiring classification.
Acetic anhydride	108-24-7	Not applicable due to corrosivity of the substance.
Substances	CAS Number	Aspiration hazard
Hydrochloric acid	7647-01-0	Not applicable
Acetic anhydride	108-24-7	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
Hydrochloric acid	7647-01-0	No information available	LC50 282 mg/L (Gambusia affinis) LC50 20.5 mg/L (Lepomis macrochirus) LC50 (96h) 3.25 – 3.5 (pH) (Lepomis macrochirus)	EC50 (3h) >= 5 and <= 5.5 (pH) (Activated sludge, domestic)	EC50 (48 h) 4.92 mg/L (Daphnia magna)
Acetic anhydride	108-24-7	EC50 (72 h) >300.82 mg/L (Skeletonema costatum) EC50 (72 h) >300.82 mg/L (Skeletonema costatum)	LC50 (96 h) >300.82 mg/L (Danio rerio)	NOEC (16h) 1150 mg/L (Pseudomonas putida) (similar substance)	LC50 (24) 55 mg/L (Daphnia magna)

### 12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
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Hydrochloric acid	7647-01-0	The methods for determining biodegradability are not applicable to inorganic substances.
Acetic anhydride	108-24-7	Readily biodegradable (96% @ 20d)

### 12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Hydrochloric acid	7647-01-0	-2.65
Acetic anhydride	108-24-7	LogPow -0.5774

### 12.4. Mobility in soil

Substances	CAS Number	Mobility
Hydrochloric acid	7647-01-0	No information available
Acetic anhydride	108-24-7	KOC = 1.339 (Calculated)

### 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** UN3264  
**UN proper shipping name:** Corrosive Liquid, Acidic, Inorganic, N.O.S. (Contains Hydrochloric Acid, Acetic Anhydride)  
**Transport Hazard Class(es):** 8  
**Packing Group:** II  
**Environmental Hazards:** Not applicable  
**Reportable Quantity:** RQ (Hydrochloric Acid - 2273 kg.)  
**NAERG:** NAERG 154

### Canadian TDG

**UN Number** UN3264  
**UN proper shipping name:** Corrosive Liquid, Acidic, Inorganic, N.O.S. (Contains Hydrochloric Acid, Acetic Anhydride)  
**Transport Hazard Class(es):** 8  
**Packing Group:** II  
**Environmental Hazards:** Not applicable

### IMDG/IMO

**UN Number** UN3264  
**UN proper shipping name:** Corrosive Liquid, Acidic, Inorganic, N.O.S. (Contains Hydrochloric Acid, Acetic Anhydride)  
**Transport Hazard Class(es):** 8  
**Packing Group:** II  
**Environmental Hazards:** Not applicable  
**Reportable Quantity:** RQ (Hydrochloric Acid - 2273 kg.)

### IATA/ICAO

**UN Number** UN3264

**UN proper shipping name:** Corrosive Liquid, Acidic, Inorganic, N.O.S. (Contains Hydrochloric Acid, Acetic Anhydride)  
**Transport Hazard Class(es):** 8  
**Packing Group:** II  
**Environmental Hazards:** Not applicable  
**Reportable Quantity:** RQ (Hydrochloric Acid - 2273 kg.)

**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
Hydrochloric acid	7647-01-0	Not applicable	Not applicable
Acetic anhydride	108-24-7	Not applicable	Not applicable

**EPA SARA Title III Extremely Hazardous Substances**

Substances	CAS Number	EPA SARA Title III Extremely Hazardous Substances
Hydrochloric acid	7647-01-0	5000 lb
Acetic anhydride	108-24-7	Not applicable

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

Corrosive to metal  
 Skin Corrosion or Irritation  
 Serious eye damage or eye irritation

**EPA SARA (313) Chemicals**

Substances	CAS Number	Toxic Release Inventory (TRI) - Group I	Toxic Release Inventory (TRI) - Group II
Hydrochloric acid	7647-01-0	1.0%	Not applicable
Acetic anhydride	108-24-7	Not applicable	Not applicable

**EPA CERCLA/Superfund Reportable Spill Quantity**

Substances	CAS Number	CERCLA RQ
Hydrochloric acid	7647-01-0	5000 lb 2270 kg
Acetic anhydride	108-24-7	5000 lb 2270 kg

**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**

Substances	CAS Number	California Proposition 65
Hydrochloric acid	7647-01-0	Not applicable
Acetic anhydride	108-24-7	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



Hydrochloric acid	7647-01-0	Extraordinarily hazardous	Present	Environmental hazard
Acetic anhydride	108-24-7	Present	Present	Environmental hazard

**NFPA Ratings:** Health 3, Flammability 0, Reactivity 1

**HMIS Ratings:** Health 3, Flammability 0, Reactivity 1

## 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:** 29-Apr-2015

**Reason for Revision** Update to Format  
SECTION:  
2

### 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

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**End of Safety Data Sheet**