

## 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  
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Stewardship  
Telephone: 1-580-251-4335  
e-mail: fdunexchem@halliburton.com

#### 1.4. Emergency telephone number

Emergency Telephone Number: (281) 575-5000

### 2. Hazard(s) Identification

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

Skin Corrosion / Irritation	Category 1 B - H314
Serious Eye Damage / Eye Irritation	Category 1 - H318
Corrosive to Metals.	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 container  
 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

**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/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

**Storage** P405 - Store locked up  
 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

### Contains

#### Substances

Hydrochloric acid  
 Acetic anhydride

#### CAS Number

7647-01-0  
 108-24-7

### 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. 1B (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**

Decomposition in fire may produce toxic 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 Fire-Fighters**

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	TWA: 5 ppm	TWA: 2 ppm
Acetic anhydride	108-24-7	TWA: 5 ppm	TWA: 5 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**

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

Property	Values
Remarks/ - Method	
<b>pH:</b>	1
<b>Freezing Point/Range</b>	No information available.
<b>Melting Point/Range</b>	No data available
<b>Boiling Point/Range</b>	110 °C / 230 °F
<b>Flash Point</b>	No data available
<b>Flammability (solid, gas)</b>	No data available
upper flammability limit	19%
lower flammability limit	3%
<b>Evaporation rate</b>	No data available
<b>Vapor Pressure</b>	No data available
<b>Vapor Density</b>	No data available
<b>Specific Gravity</b>	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**

<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 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	5010 mg/kg (Rabbit) > 5010 mg/kg (Rabbit) 1449 mg/kg (Mouse)	3124 mg/L (Rat) 1h 3.2 mg/L (Mouse) 8.3 mg/L (Rat) 1405 mg/L (Rat) 554 mg/L (Mouse)
Acetic anhydride	108-24-7	630 mg/kg (Rat)	4000 mg/kg (Rabbit)	4.1 mg/L (Rat) 4h 4.2 mg/L (Rat) 4h 1000 mg/L (Rat) 4h

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

Substances	CAS Number	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	Not regarded as mutagenic.
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.).
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

#### Ecotoxicity Effects

#### Product Ecotoxicity Data

No data available

#### 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 (48h) 4.9 (pH) (Daphnia magna)

Acetic anhydride	108-24-7	EC50 (72h) >1000 mg/L (>300.82 mg/L acetate ion) (growth rate) (Skeletonema costatum) (similar substance)	LC50 265 mg/L (Leuciscus idus) LC50 (96h) >1000 mg/L (>300.82 mg/L acetate ion) (Oncorhynchus mykiss) (similar substance)	NOEC (16h) 1150 mg/L (Pseudomonas putida) (similar substance)	EC50 (24h) 55 mg/L (Daphnia magna) EC50 (48h) >1000 mg/L (>300.82 mg/L acetate ion) (Daphnia magna) (similar substance) NOEC (21d) 31.4-37.9 mg/L (Daphnia magna) (reproduction) (similar substance) EC50 (24h) 3200 mg/L (Daphnia magna) (buffered acetate ion)
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## 12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
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	Log Pow
Hydrochloric acid	7647-01-0	0.25
Acetic anhydride	108-24-7	-0.58 BCF 3.16 (Calculated)

## 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 Method** 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

### US DOT Bulk

**DOT (Bulk)** Not applicable

**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

<b>15. Regulatory Information</b>
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**US Regulations**

**US TSCA Inventory** All components listed on inventory or are exempt.

**EPA SARA Title III Extremely Hazardous Substances** Not applicable

**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 5175 Gallons based on Hydrochloric acid (CAS: 7647-01-0).

**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** All components listed do not apply to the California Proposition 65 Regulation.

**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.

## 16. Other information

### Preparation Information

**Prepared By** Chemical Stewardship  
Telephone: 1-580-251-4335  
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

bw – body weight  
CAS – Chemical Abstracts Service  
EC50 – Effective Concentration 50%  
ErC50 – Effective Concentration growth rate 50%  
LC50 – Lethal Concentration 50%  
LD50 – Lethal Dose 50%  
LL50 – Lethal Loading 50%  
mg/kg – milligram/kilogram  
mg/L – milligram/liter  
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  
h - hour  
mg/m<sup>3</sup> - milligram/cubic meter  
mm - millimeter  
mmHg - millimeter mercury  
w/w - weight/weight  
d - day

**Key literature references and sources for data**

www.ChemADVISOR.com/  
OSHA  
ECHA C&L

**Disclaimer Statement**

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**End of Safety Data Sheet**