HALLIBURTON

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

FE-1-60

Revision Date: 03-Feb-2014 **Revision Number:** 8

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Product Name FE-1-60

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Acid

Sector of use Refer to the Annex for a listing of uses.

1.3 Details of the supplier of the safety data sheet

Halliburton Energy Services
Halliburton House, Howemoss Place
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GN
United Kingdom

Emergency Phone Number: +44 1224 795277 or +1 281 575 5000

www.halliburton.com

For further information, please contact

E-Mail address: fdunexchem@halliburton.com

1.4 Emergency telephone number

+44 1224 795277 or +1 281 575 5000

Emergency telephone - §45 - (EC)1272/2008	
Europe	**112**
Denmark	Poison Control Hotline (DK): +45 82 12 12 12
France	ORFILA (FR): + 01 45 42 59 59
Germany	Poison Center Berlin (DE): +49 030 30686 790
Italy	Poison Center, Milan (IT): +39 02 6610 1029
Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
Norway	Poisons Information (NO):+ 47 22 591300
Poland	Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97
Spain	Poison Information Service (ES): +34 91 562 04 20
United Kingdom	NHS Direct (UK): +44 0845 46 47

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Skin Corrosion / irritation	Category 1 - (H314)
Serious Eye Damage / Eye Irritation	Category 1 - (H318)
Flammable liquids.	Category 3 - (H226)

Classification according to EU Directives 67/548/EEC or 1999/45/EC

For the full text of the R-phrases mentioned in this Section, see Section 16

Classification C - Corrosive.

Risk Phrases R34 Causes burns.

2.2 Label Elements

Hazard Pictograms

Signal Word **Danger**

Hazard Statements
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H226 - Flammable liquid and vapor

Precautionary Statements - EU (§28, 1272/2008)
P280 - Wear protective gloves/eye protection/face protection
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 to fresh air and keep at rest in a position comfortable for breathing
P310 - Immediately call a POISON CENTER or doctor/physician
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P370 + P378 - In case of fire: Use water spray for extinction

Contains

Substances	**CAS Number**
Acetic acid	64-19-7

2.3 Other Hazards
None known

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	EINECS	CAS Number	PERCENT (w/w)	EEC Classification	EU - CLP Substance Classification	REACH No.
Acetic acid	200-580-7	64-19-7	60 - 100%	R10 C; R35	Skin Corr. 1A (H314) Flam. Liq. 3 (H226)	01-2119475328-30

For the full text of the R-phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

Eyes	In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Skin	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 launder before reuse.
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.

4.2 Most Important symptoms and effects, both acute and delayed

May cause eye, skin, and respiratory burns.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

5. FIREFIGHTING 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 Special hazards arising from the substance or mixture

Special Exposure Hazards

Use water spray to cool fire exposed surfaces. Decomposition in fire may produce toxic gases. Do not allow runoff to enter waterways.

5.3 Advice for firefighters

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.

6.4 Reference to other sections

See Section 8 and 13 for additional information.

7. HANDLING AND STORAGE

7.1 Precautions for Safe Handling

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

Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 24 months.

7.3 Specific End Use(s)

Exposure Scenario	Please refer to the attached Annex for a listing of exposure scenarios.
Other Guidelines	No information available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Exposure Limits

Substances	CAS Number	EU	UK OEL	Netherlands	France OEL
Acetic acid	64-19-7	10 ppm	Not applicable	Not applicable	10 ppm

Substances	CAS Number	Germany MAK/TRK	Spain	Portugal	Finland
Acetic acid	64-19-7	TWA: 10 ppm TWA: 25 mg/m³ MAK: 10 ppm MAK: 25 mg/m³	15 ppm VLA-EC; 37 mg/m³ VLA-EC VLA-ED: 10 ppm VLA-ED: 25 mg/m³	STEL: 15 ppm TWA: 10 ppm	STEL: 10 ppm STEL: 25 mg/m³ TWA: 5 ppm TWA: 13 mg/m³

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Acetic acid	64-19-7	Not applicable	Not applicable	Not applicable	STEL: 20 ppm STEL: 37.5 mg/m³ TWA: 10 ppm TWA: 25 mg/m³

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Acetic acid	64-19-7	10 ppm	NDSCh: 30 mg/m³ NDS: 15 mg/m³	TWA: 25 mg/m³ STEL: 25 mg/m³	TWA: 25 mg/m³

Substances	CAS Number	Denmark
Acetic acid	64-19-7	TWA: 10 ppm TWA: 25 mg/m³

Derived No Effect Level (DNEL)

Worker

Substances	Long-term exposure - systemic effects, Inhalation	Acute / short term exposure - systemic effects, Inhalation	Long-term exposure - local effects, Inhalation	Acute / short term exposure - local effects, Inhalation	Long-term exposure - systemic effects, Dermal	Acute / short term exposure - systemic effects, Dermal	Long-term exposure - local effects, Dermal	Acute / short term exposure - local effects, Dermal	Hazards for the eyes - local effects
Acetic acid	Not available	Not available	25 mg/m³	25 mg/m³	Not available	Not available	Not available	Not available	Not available

General Population

Substances	Long-term exposure - systemic effects, Inhalation	Acute / short term exposure - systemic effects, Inhalation	Long-term exposure - local effects, Inhalation	Acute / short term exposure - local effects, Inhalation	Long-term exposure - systemic effects, Dermal	Acute / short term exposure - systemic effects, Dermal	Long-term exposure - local effects, Dermal	Acute / short term exposure - local effects, Dermal	Long-term exposure - systemic effects, Oral	Acute / short term exposure - local effects, Oral	Hazards for the eyes - local effects
Acetic acid	Not available	Not available	25 mg/m³	25 mg/m³	Not available	Not available	Not available	Not available	Not available	Not available	Not available

Predicted No Effect Concentration (PNEC)

Substances	Freshwater	Marine water	Intermittent release	Sewage treatment plant	Sediment (freshwater)	Sediment (marine water)	Air	Soil	Secondary poisoning
Acetic acid	3.06 mg/l	0.306 mg/l	30.58 mg/l	85 mg/l	11.4 mg/kg	1.14 mg/kg	Not available	0.478 mg/kg	Not available

8.2 Exposure controls

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal protective equipment

Respiratory Protection Organic vapor/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.

Environmental Exposure Controls No information available

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical State: Liquid **Color:** Clear

Odor: Acrid **Odor Threshold:** No information available

Property Remarks/ - Method	Values
pH:	1.38
Freezing Point/Range	16 °C
Melting Point/Range	No data available
Boiling Point/Range	117 °C
Flash Point	55 °C PMCC
upper flammability limit	16%
lower flammability limit	5.4%
Evaporation rate	No data available
Vapor Pressure	11.7 mmHg
Vapor Density	No data available
Specific Gravity	1.05
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	-0.17
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2 Other information

VOC Content (%) No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

Not applicable

10.2 Chemical Stability

Stable

10.3 Possibility of Hazardous Reactions

Will Not Occur

10.4 Conditions to Avoid

Keep away from heat, sparks and flame.

10.5 Incompatible Materials

Strong alkalis.

10.6 Hazardous Decomposition Products

Carbon monoxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute Toxicity

Inhalation	Causes severe respiratory irritation.
Eye Contact	May cause eye burns.
Skin Contact	Causes severe burns.
Ingestion	Causes burns of the mouth, throat and stomach.

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

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Acetic acid	64-19-7	3310 mg/kg (Rat) 600 mg/kg (Rabbit) 4960 mg/kg (Mouse)	1060 mg/kg (Rabbit)	11.4 mg/L (Rat) 4 h

Substances	CAS Number	Skin corrosion/irritation
Acetic acid	64-19-7	Corrosive to skin

Substances	CAS Number	Eye damage/irritation
Acetic acid	64-19-7	Corrosive to eyes

Substances	CAS Number	Skin Sensitization
Acetic acid	64-19-7	No information available

Substances	CAS Number	Respiratory Sensitization
Acetic acid	64-19-7	No information available

Substances	CAS Number	Mutagenic Effects
Acetic acid	64-19-7	In vivo tests did not show mutagenic effects In vitro tests did not show mutagenic effects

Substances	CAS Number	Carcinogenic Effects
Acetic acid	64-19-7	Did not show carcinogenic effects in animal experiments

Substances	CAS Number	Reproductive Toxicity
Acetic acid	64-19-7	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - single exposure
Acetic acid	64-19-7	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	STOT - repeated exposure
Acetic acid	64-19-7	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Acetic acid	64-19-7	Not applicable

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Acetic acid	64-19-7	EC50: 90 mg/L (Microcystis aeruginosa) EC50(72h): > 1000 mg/L (>300.82 mg/L – acetate ion) (Skeletonema costatum)	LC50: 79 mg/l (Pimephales promelas) LC50: 75 mg/l (Pimephales promelas) LC50(96h) > 1000 mg/L (>300.82 mg/L – acetate ion) (Oncorhynchus mykiss)	NOEC(16h): 1150 mg/L (Pseudomonas putida)	EC50: 47 mg/l (Daphnia magna) LC50: 32 mg/L (Artemia salina) EC50(48h) > 1000 mg/L (>300.82 mg/L – acetate ion) (Daphnia magna) NOEC(21d): 31.4 - 37.9 mg/L (Daphnia magna) (reproduction)

12.2 Persistence and degradability

Substances	Persistence and Degradability
Acetic acid	Readily biodegradable (>95%% @ 28d)

12.3 Bioaccumulative potential

Substances	Log Pow
Acetic acid	-0.17 BCF 3.16 (Calculated)

12.4 Mobility in soil
No information available

12.5 Results of PBT and vPvB assessment
No information available.

12.6 Other adverse effects
Endocrine Disruptor Information
This product does not contain any known or suspected endocrine disruptors

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

IMDG/IMO
UN Number: UN2790,
UN Proper Shipping Name: Acetic Acid Solution
Transport Hazard Class(es): , 8
Packing Group: , II
Environmental Hazards: Not applicable
EMS: EmS F-A, S-B

RID
UN Number: UN2790,
UN Proper Shipping Name: Acetic Acid Solution
Transport Hazard Class(es): , 8
Packing Group: , II
Environmental hazard: Not applicable

ADR
UN Number: UN2790,
UN Proper Shipping Name: Acetic Acid Solution
Transport Hazard Class(es): , 8
Packing Group: , II
Environmental hazard: Not applicable

IATA/ICAO
UN Number: UN2790,
UN Proper Shipping Name: Acetic Acid Solution
Transport Hazard Class(es): , 8
Packing Group: , II
Environmental hazard: Not applicable

Special Precautions for User None
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories
All of the components in the product are on the following Inventory lists: All of the components in the product are on the following Inventory lists:.
EINECS Inventory This product, and all its components, complies with EINECS
US TSCA Inventory All components listed on inventory or are exempt.
Canadian DSL Inventory All components listed on inventory or are exempt.

Legend
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

Germany, Water Endangering Classes (WGK) WGK 1: Low hazard to waters.

15.2 Chemical Safety Assessment
Yes

16. OTHER INFORMATION

Full text of R-phrases referred to under Sections 2 and 3

R34 Causes burns.

Key literature references and sources for data
www.ChemADVISOR.com/

Revision Date: 03-Feb-2014
Revision Note
Not applicable

This safety data sheet complies with the requirements of Regulation (EC) No. 453/2010

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End of Safety Data Sheet