

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

DCA-17003

Revision Date: 12-Jan-2015

Revision Number: 4

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product Identifier****Product Name** DCA-17003**1.2. Relevant identified uses of the substance or mixture and uses advised against****Recommended Use** Inhibitor**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
Croatia	Centar za kontrolu otrovanja (CKO): (+385 1) 23-48-342 (Poison Control Center (PCC) - Institute for Medical Research and Occupational Health)
Cyprus	+210 7793777
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
Romania	+40 21 318 36 06
Spain	Poison Information Service (ES): +34 91 562 04 20
United Kingdom	NHS Direct (UK): +44 0845 46 47

SECTION 2: Hazards Identification**2.1. Classification of the substance or mixture****REGULATION (EC) No 1272/2008**

Acute Toxicity - Dermal	Category 3 - H311
Serious Eye Damage / Eye Irritation	Category 2 - H319
Germ Cell Mutagenicity	Category 2 - H341

Carcinogenicity	Category 2 - H351
Flammable liquids.	Category 2 - H225

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

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

Classification	F - Highly Flammable. T - Toxic.
Risk Phrases	R11 Highly flammable. R24 Toxic in contact with skin. R36 Irritating to eyes. R40 Limited evidence of a carcinogenic effect. R68 Possible risk of irreversible effects.

2.2. Label Elements
Hazard Pictograms

Signal Word
Danger
Hazard Statements

H225 - Highly flammable liquid and vapor
H311 - Toxic in contact with skin
H319 - Causes serious eye irritation
H341 - Suspected of causing genetic defects
H351 - Suspected of causing cancer

Precautionary Statements - EU (§28, 1272/2008)

P280 - Wear eye protection/face protection
P281 - Use personal protective equipment as required
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P312 - Call a POISON CENTER or doctor/physician if you feel unwell
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention
P370 + P378 - In case of fire: Use water spray for extinction

Contains
Substances

Aldol
Crotonaldehyde
Acetaldehyde

CAS Number

107-89-1
123-73-9
75-07-0

2.3. Other Hazards

None known

SECTION 3: Composition/information on Ingredients

3.2. Mixtures

Mixture

Substances	EINECS	CAS Number	PERCENT (w/w)	EEC Classification	EU - CLP Substance Classification	REACH No.
Aldol	203-530-2	107-89-1	30 - 60%	T+; R27 Xi; R36	Acute Tox. 2 (H310) Eye Irrit. 2 (H319)	No data available
Crotonaldehyde	204-647-1	123-73-9	1 - 5%	F; R11 T+; R26 T: R24/25 48/25 Muta. Cat. 3; R68 Xi; R37/38-41 N; R50	Flam. Liq. 2 (H225) Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 2 (H330) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Muta. 2 (H341) STOT SE 3 (H335) STOT RE 1 (H372) Aquatic Acute 1 (H400)	No data available
Acetaldehyde	200-836-8	75-07-0	1 - 5%	F+; R12 Carc. Cat. 3; R40 Xn; R68 Xi; R36/37	Flam. Liq. 1 (H224) Acute Tox. 4 (H302) Acute Tox. 4 (H332) Eye Irrit. 2 (H319) Muta. 2 (H341) Carc. 2 (H351) STOT SE 3 (H335)	No data available

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

SECTION 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 irritation May be harmful if swallowed. Potential carcinogen.

4.3. Indication of any immediate medical attention and special treatment needed**Notes to Physician**

Treat symptomatically

SECTION 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**

May be ignited by heat, sparks or flames. Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce toxic gases.

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.

SECTION 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. Remove ignition sources and work with non-sparking tools. Contain spill with sand or other inert materials. Scoop up and remove.

6.4. Reference to other sections

See Section 8 and 13 for additional information.

SECTION 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. Ground and bond containers when transferring from one container to another.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Store away from oxidizers. Keep from heat, sparks, and open flames. Keep container closed when not in use. Product has a shelf life of 36 months.

7.3. Specific End Use(s)

Exposure Scenario	No information available
Other Guidelines	No information available

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Exposure Limits

Substances	CAS Number	EU	UK	Netherlands	France
Aldol	107-89-1	Not applicable	Not applicable	Not applicable	Not applicable
Crotonaldehyde	123-73-9	Not applicable	Not applicable	2 ppm	2 ppm
Acetaldehyde	75-07-0	Not applicable	TWA: 20 ppm TWA: 37 mg/m ³ STEL: 50 ppm STEL: 92 mg/m ³	TWA: 37 mg/m ³ STEL: 92 mg/m ³	100 ppm

Substances	CAS Number	Germany	Spain	Portugal	Finland
Aldol	107-89-1	Not applicable	Not applicable	Not applicable	Not applicable
Crotonaldehyde	123-73-9	0,34 ppm	0.3 ppm STEL [VLA-EC]; 0.87 mg/m ³ STEL [VLA-EC]	Not applicable	TWA: 0.1 ppm TWA: 0.29 mg/m ³ STEL: 0.3 ppm STEL: 0.87 mg/m ³
Acetaldehyde	75-07-0	TWA: 50 ppm TWA: 91 mg/m ³	25 ppm STEL [VLA-EC]; 46 mg/m ³ STEL [VLA-EC]	Not applicable	STEL: 25 ppm STEL: 46 mg/m ³

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Aldol	107-89-1	Not applicable	Not applicable	Not applicable	Not applicable
Crotonaldehyde	123-73-9	STEL: 1.36 ppm STEL: 4 mg/m ³ TWA: 0.34 ppm TWA: 1 mg/m ³	2 ppm TWA; 6 mg/m ³ TWA 18 mg/m ³ STEL; 6 ppm STEL	TWA: 0.34 ppm TWA: 1 mg/m ³	TWA: 2 ppm TWA: 6 mg/m ³ STEL: 4 ppm STEL: 12 mg/m ³
Acetaldehyde	75-07-0	TWA: 50 ppm TWA: 90 mg/m ³ STEL" 50 ppm STEL" 90 mg/m ³	25 ppm TWA; 45 mg/m ³ TWA 25 ppm STEL; 45 mg/m ³ STEL	TWA: 90 mg/m ³ TWA: 50 ppm STEL: 50 ppm STEL: 90 mg/m ³	TWA: 25 ppm TWA: 45 mg/m ³ STEL: 37.5 ppm STEL: 67.5 mg/m ³

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Aldol	107-89-1	Not applicable	Not applicable	Not applicable	Not applicable

Crotonaldehyde	123-73-9	Not applicable	6 mg/m ³	Not applicable	TWA: 1 mg/m ³
Acetaldehyde	75-07-0	Not applicable	TWA: 5 mg/m ³	TWA: 25 mg/m ³ STEL: 25 mg/m ³	TWA: 50 mg/m ³

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus
Aldol	107-89-1	Not applicable	Not applicable	Not applicable	Not applicable
Crotonaldehyde	123-73-9	TWA: 2 ppm TWA: 6 mg/m ³	Not applicable	Not applicable	Not applicable
Acetaldehyde	75-07-0	Not applicable	TWA: 50 ppm TWA: 90 mg/m ³ STEL: 100 ppm STEL: 180 mg/m ³	TWA: 20 ppm TWA: 37 mg/m ³ STEL: 50 ppm STEL: 92 mg/m ³	Not applicable

Derived No Effect Level (DNEL) Worker

No information available.

General Population

Predicted No Effect Concentration (PNEC)

No information 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

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

Organic vapor respirator.

Hand Protection

Impervious 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.

Environmental Exposure Controls No information available

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid
Odor: Pungent

Color: Clear colorless to pale yellow
Odor Threshold: No information available

Property

Remarks/ - Method

Values

pH:

5-7

Freezing Point/Range

-30 °C

Melting Point/Range

No data available

Boiling Point/Range

100 °C

Flash Point

18 °C PMCC

Evaporation rate

No data available

Vapor Pressure

0.1 mmHg

Vapor Density

3.04

Specific Gravity

1.053

Water Solubility

Miscible with water

Solubility in other solvents

No data available

Partition coefficient: n-octanol/water

No data available

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

SECTION 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 oxidizers. Strong alkalis. Strong acids.

10.6. Hazardous Decomposition Products

Oxides of nitrogen. Carbon monoxide and carbon dioxide.

SECTION 11: Toxicological Information**11.1. Information on Toxicological Effects****Acute Toxicity****Inhalation**

May cause respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Eye Contact

Causes eye irritation. May cause corneal injury.

Skin Contact

May be absorbed through the skin and contribute to the symptoms listed under ingestion. May cause skin defatting with prolonged exposure. May cause skin irritation.

Ingestion

Irritation of the mouth, throat, and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea.

Chronic Effects/Carcinogenicity

This product contains a potential carcinogen.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Aldol	107-89-1	2180 mg/kg (Rat)	140 mg/kg (Rabbit)	No data available
Crotonaldehyde	123-73-9	206 mg/kg (Rat) 300 mg/kg (Rat)	380 mg/kg (Rabbit) 380 µL/kg (Rabbit) 128 mg/kg (Rabbit) 324 mg/kg (Rabbit)	85 ppm (Rat) 4 h 0.2 mg/L (Rat) 4 h 300 mg/m ³ (Rat) 4 h 200 mg/m ³ (Rat)
Acetaldehyde	75-07-0	1930 mg/kg (Rat) 660 mg/kg (Rat)	No data available	13300 ppm (Rat, 4h, vapor)

Substances	CAS Number	Skin corrosion/irritation
Aldol	107-89-1	May cause mild skin irritation. (rabbit)
Crotonaldehyde	123-73-9	Causes moderate skin irritation. (rabbit)
Acetaldehyde	75-07-0	Non-irritating to the skin (rabbit)

Substances	CAS Number	Eye damage/irritation
Aldol	107-89-1	Causes moderate eye irritation. (rabbit)
Crotonaldehyde	123-73-9	Causes severe eye irritation which may damage tissue. (rabbit)
Acetaldehyde	75-07-0	Causes moderate eye irritation. (rabbit)

Substances	CAS Number	Skin Sensitization
Aldol	107-89-1	No information available
Crotonaldehyde	123-73-9	Not regarded as a sensitizer.
Acetaldehyde	75-07-0	Did not cause sensitization on laboratory animals (guinea pig) Patch test on human volunteers did not demonstrate sensitization properties

Substances	CAS Number	Respiratory Sensitization
Aldol	107-89-1	No information available
Crotonaldehyde	123-73-9	No information available
Acetaldehyde	75-07-0	No information available

Substances	CAS Number	Mutagenic Effects
Aldol	107-89-1	No information available
Crotonaldehyde	123-73-9	Some in vivo tests have shown mutagenic effects.
Acetaldehyde	75-07-0	Some in vitro tests have shown mutagenic effects. Some in vivo tests have shown mutagenic effects.

Substances	CAS Number	Carcinogenic Effects
Aldol	107-89-1	No information available.
Crotonaldehyde	123-73-9	No data of sufficient quality are available.
Acetaldehyde	75-07-0	This substance is a potential carcinogen.

Substances	CAS Number	Reproductive toxicity
Aldol	107-89-1	No information available
Crotonaldehyde	123-73-9	No data of sufficient quality are available.
Acetaldehyde	75-07-0	No data of sufficient quality are available.

Substances	CAS Number	STOT - single exposure
Aldol	107-89-1	No information available
Crotonaldehyde	123-73-9	May cause respiratory irritation.
Acetaldehyde	75-07-0	May cause respiratory irritation.

Substances	CAS Number	STOT - repeated exposure
Aldol	107-89-1	No information available
Crotonaldehyde	123-73-9	Causes damage to organs through prolonged or repeated exposure if swallowed (Liver)
Acetaldehyde	75-07-0	No significant toxicity observed in animal studies at concentration requiring classification.

Substances	CAS Number	Aspiration hazard
Aldol	107-89-1	Not applicable
Crotonaldehyde	123-73-9	Not applicable
Acetaldehyde	75-07-0	Not applicable

SECTION 12: Ecological Information

12.1. Toxicity Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Aldol	107-89-1	EC50(5d): >237 mg/L (Nitzschia linearis)	No information available	No information available	No information available
Crotonaldehyde	123-73-9	EC50(96h): 0.881 mg/L	LC50(96h): 0.71 mg/L (Oncorhynchus mykiss) LOEC: 0.22 mg/L (Pimephales promelas)	No information available	EC50(48h): 2 mg/L (Daphnia magna) NOEC(28d): > 1.5 (Daphnia magna)
Acetaldehyde	75-07-0	No information available	LC50(95h): 30.8 mg/L (Pimephales promelas)	No information available	EC50(48h): > 4.7 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Aldol	107-89-1	No information available

Crotonaldehyde	123-73-9	(55% @ 28d)
Acetaldehyde	75-07-0	Readily biodegradable (80 @ 14d)

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Aldol	107-89-1	-0.72
Crotonaldehyde	123-73-9	0.63
Acetaldehyde	75-07-0	0.63

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

SECTION 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.

SECTION 14: Transport Information**IMDG/IMO**

UN Number: UN1992
UN Proper Shipping Name: Flammable Liquid, Toxic, N.O.S. (Contains Acetaldehyde, Aldol)
Transport Hazard Class(es): 3
Subsidiary Hazard: (6.1)
Packing Group: II
Environmental Hazards: Not applicable
EMS: EmS F-E, S-D

RID

UN Number: UN1992
UN Proper Shipping Name: Flammable Liquid, Toxic, N.O.S. (Contains Acetaldehyde, Aldol)
Transport Hazard Class(es): 3
Subsidiary Hazard: (6.1)
Packing Group: II
Environmental hazard: Not applicable

ADR

UN Number: UN1992
UN Proper Shipping Name: Flammable Liquid, Toxic, N.O.S. (Contains Acetaldehyde, Aldol)
Transport Hazard Class(es): 3
Subsidiary Hazard: (6.1)
Packing Group: II
Environmental hazard: Not applicable

IATA/ICAO

UN Number: UN1992
UN Proper Shipping Name: Flammable Liquid, Toxic, N.O.S. (Contains Acetaldehyde, Aldol)
Transport Hazard Class(es): 3
Subsidiary Hazard: (6.1)

Packing Group: II
Environmental hazard: Not applicable

14.1. UN Number: UN1992

14.2. UN Proper Shipping Name: Flammable Liquid, Toxic, N.O.S. (Contains Acetaldehyde, Aldol)

14.3. Transport Hazard Class(es): 3 (6.1)

14.4. Packing Group: II

14.5. Environmental Hazards: Not applicable

14.6. Special Precautions for User: None

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

SECTION 15: Regulatory Information

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

International Inventories

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/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

Germany, Water Endangering Classes (WGK) WGK 2: Hazard to waters.

15.2. Chemical Safety Assessment

No information available

SECTION 16: Other Information

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

R11 Highly flammable.
 R12 Extremely flammable.
 R24 Toxic in contact with skin.
 R24/25 Toxic in contact with skin and if swallowed.
 R27 Very toxic in contact with skin.
 R36 - Irritating to eyes
 R36/37 Irritating to eyes and respiratory system.
 R37/38 Irritating to respiratory system and skin.
 R40 Limited evidence of a carcinogenic effect.
 R41 Risk of serious damage to eyes.
 R48/25 Toxic: danger of serious damage to health by prolonged exposure if swallowed.
 R50 Very toxic to aquatic organisms.
 R68 Possible risk of irreversible effects.

Full text of H-Statements referred to under sections 2 and 3

H224 - Extremely flammable liquid and vapor
H225 - Highly flammable liquid and vapor
H301 - Toxic if swallowed
H302 - Harmful if swallowed
H310 - Fatal in contact with skin
H311 - Toxic in contact with skin
H315 - Causes skin irritation
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H330 - Fatal if inhaled
H332 - Harmful if inhaled
H335 - May cause respiratory irritation
H351 - Suspected of causing cancer
H372 - Causes damage to organs through prolonged or repeated exposure if swallowed
H400 - Very toxic to aquatic life

Key or legend to abbreviations and acronyms

bw – body weight
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
ErC50 – Effective Concentration growth rate 50%
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL0 – Lethal Loading 0%
LL50 – Lethal Loading 50%
MARPOL – International Convention for the Prevention of Pollution from Ships
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NOEC – No Observed Effect Concentration
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
PC – Chemical Product category
PEL – Permissible Exposure Limit
ppm – parts per million
PROC – Process category
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
STEL – Short Term Exposure Limit
SU – Sector of Use category

Key literature references and sources for data

www.ChemADVISOR.com/

Revision Date: 12-Jan-2015

Revision Note

Update to Format SECTION: 8

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

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End of Safety Data Sheet