

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

Acetic Acid with Inhibitor, Potassium Chloride, and MUSOL

Revision Date: 07-Sep-2015

Revision Number: 3

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Product Name Acetic Acid with Inhibitor, Potassium Chloride, and MUSOL
Internal ID Code HM007987

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

www.halliburton.com

For further information, please contact

E-Mail address: fdunexchem@halliburton.com

1.4. Emergency telephone number

+44 8 08 189 0979 / 1-760-476-3961

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

Skin Corrosion / irritation	Category 2 - H315
Serious Eye Damage / Eye Irritation	Category 2 - H319
Specific Target Organ Toxicity - (Single Exposure)	Category 3 - H335
Substances/mixtures corrosive to metal.	Category 1 - H290

2.2. Label Elements**Hazard Pictograms****Signal Word****Warning****Hazard Statements**

H290 - May be corrosive to metals

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H335 - May cause respiratory irritation

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

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

P304 + P340 - IF INHALED: Remove 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

P312 - Call a POISON CENTER or doctor/physician if you feel unwell

Contains**Substances**

Ethylene glycol monobutyl ether

Acetic acid

Formic acid

Methanol

CAS Number

111-76-2

64-19-7

64-18-6

67-56-1

2.3. Other Hazards

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

SECTION 3: Composition/information on Ingredients**3.2. Mixtures****Mixture**

Substances	EINECS	CAS Number	PERCENT (w/w)	EU - CLP Substance Classification	REACH No.
Ethylene glycol monobutyl ether	203-905-0	111-76-2	5 - 10%	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319)	01-2119475108-36
Acetic acid	200-580-7	64-19-7	10 - 30%	Skin Corr. 1A (H314) Eye Corr. 1 (H318) STOT SE 3 (H335) Flam. Liq. 3 (H226)	01-2119475328-30
Formic acid	200-579-1	64-18-6	0.1 - 1%	Acute Tox. 4 (H302) Acute Tox. 3 (H331) Skin Corr. 1A (H314) Eye Corr. 1 (H318) STOT SE 3 (H335) Flam. Liq. 3 (H226) Met. Corr. 1 (H290)	01-2119491174-37
Methanol	200-659-6	67-56-1	< 0.1%	Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 3 (H331) STOT SE 1 (H370) Flam. Liq. 2 (H225)	01-2119433307-44

For the full text of the 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 from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
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. Give nothing by mouth. Obtain immediate medical attention.

4.2. Most Important symptoms and effects, both acute and delayed

Causes eye, skin, and respiratory irritation. May be harmful if inhaled.

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

Decomposition in fire may produce harmful 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. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Evacuate all persons from the area.

See Section 8 for additional information

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas. Consult local authorities.

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.

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. Ensure adequate ventilation. Use appropriate protective equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Store away from alkalis. Store away from oxidizers. Store in a cool well ventilated area. Keep container closed when not in use.

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
Ethylene glycol monobutyl ether	111-76-2	Not applicable	TWA: 25 ppm TWA: 123 mg/m ³ STEL: 50 ppm STEL: 246 mg/m ³	TWA: 100 mg/m ³ STEL: 246 mg/m ³	2 ppm
Acetic acid	64-19-7	10 ppm	Not applicable	Not applicable	10 ppm
Formic acid	64-18-6	TWA: 5 ppm TWA: 9 mg/m ³	TWA: 5 ppm TWA: 9.6 mg/m ³ STEL: 15 ppm STEL: 28.8 mg/m ³	STEL: 5 mg/m ³	5 ppm
Methanol	67-56-1	TWA: 200 ppm TWA: 260 mg/m ³	TWA: 200 ppm TWA: 266 mg/m ³ STEL: 250 ppm STEL: 333 mg/m ³	TWA: 133 mg/m ³ TWA: 100 ppm	200 ppm

Substances	CAS Number	Germany	Spain	Portugal	Finland
Ethylene glycol monobutyl ether	111-76-2	TWA: 10 ppm TWA: 49 mg/m ³	TWA: 20 ppm TWA: 98 mg/m ³ 50 ppm STEL [VLA-EC]; 245 mg/m ³ STEL [VLA-EC]	TWA: 20 ppm TWA: 98 mg/m ³ STEL: 50 ppm STEL: 246 mg/m ³	TWA: 20 ppm TWA: 98 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³
Acetic acid	64-19-7	TWA: 10 ppm TWA: 25 mg/m ³	TWA: 10 ppm TWA: 25 mg/m ³ 15 ppm STEL [VLA-EC]; 37 mg/m ³ STEL [VLA-EC]	TWA: 10 ppm TWA: 25 mg/m ³ STEL: 15 ppm	TWA: 5 ppm TWA: 13 mg/m ³ STEL: 10 ppm STEL: 25 mg/m ³
Formic acid	64-18-6	TWA: 5 ppm TWA: 9.5 mg/m ³	TWA: 5 ppm TWA: 9 mg/m ³	TWA: 5 ppm TWA: 9 mg/m ³ STEL: 10 ppm	TWA: 3 ppm TWA: 5 mg/m ³ STEL: 10 ppm STEL: 19 mg/m ³
Methanol	67-56-1	TWA: 200 ppm TWA: 270 mg/m ³ Peak: 800 ppm Peak: 1080 mg/m ³	TWA: 200 ppm TWA: 266 mg/m ³	TWA: 200 ppm TWA: 260 mg/m ³ STEL: 250 ppm	TWA: 200 ppm TWA: 270 mg/m ³ STEL: 250 ppm STEL: 330 mg/m ³

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Ethylene glycol monobutyl ether	111-76-2	TWA: 20 ppm TWA: 98 mg/m ³ STEL" 40 ppm STEL" 200 mg/m ³	20 ppm TWA; 98 mg/m ³ TWA 50 ppm STEL; 246 mg/m ³ STEL	TWA: 10 ppm TWA: 49 mg/m ³ STEL: 20 ppm STEL: 98 mg/m ³	TWA: 10 ppm TWA: 50 mg/m ³ STEL: 20 ppm STEL: 75 mg/m ³
Acetic acid	64-19-7	TWA: 10 ppm TWA: 25 mg/m ³ STEL" 20 ppm STEL" 50 mg/m ³	10 ppm TWA; 25 mg/m ³ TWA 15 ppm STEL; 37 mg/m ³ STEL	TWA: 10 ppm TWA: 25 mg/m ³ STEL: 20 ppm STEL: 50 mg/m ³	TWA: 10 ppm TWA: 25 mg/m ³ STEL: 20 ppm STEL: 37.5 mg/m ³
Formic acid	64-18-6	TWA: 5 ppm TWA: 9 mg/m ³ STEL" 5 ppm STEL" 9 mg/m ³	5 ppm TWA; 9 mg/m ³ TWA 15 ppm STEL (calculated); 27 mg/m ³ STEL (calculated)	TWA: 5 ppm TWA: 9.5 mg/m ³ STEL: 10 ppm STEL: 19 mg/m ³	TWA: 5 ppm TWA: 9 mg/m ³ STEL: 10 ppm STEL: 18 mg/m ³
Methanol	67-56-1	TWA: 200 ppm TWA: 260 mg/m ³ STEL" 800 ppm STEL" 1040 mg/m ³	200 ppm TWA; 260 mg/m ³ TWA 600 ppm STEL (calculated); 780 mg/m ³ STEL (calculated)	TWA: 200 ppm TWA: 260 mg/m ³ STEL: 800 ppm STEL: 1040 mg/m ³	TWA: 100 ppm TWA: 130 mg/m ³ STEL: 100 ppm STEL: 130 mg/m ³

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
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Ethylene glycol monobutyl ether	111-76-2	TWA: 20 ppm TWA: 98 mg/m ³ STEL: 50 ppm STEL: 246 mg/m ³	TWA: 98 mg/m ³ STEL: 200 mg/m ³	TWA: 98 mg/m ³ STEL: 246 mg/m ³	TWA: 100 mg/m ³
Acetic acid	64-19-7	10 ppm	TWA: 15 mg/m ³ STEL: 30 mg/m ³	TWA: 25 mg/m ³ STEL: 25 mg/m ³	TWA: 25 mg/m ³
Formic acid	64-18-6	TWA: 5 ppm TWA: 9 mg/m ³	TWA: 5 mg/m ³ STEL: 15 mg/m ³	TWA: 9 mg/m ³	TWA: 9 mg/m ³
Methanol	67-56-1	TWA: 200 ppm TWA: 260 mg/m ³	TWA: 100 mg/m ³ STEL: 300 mg/m ³	TWA: 260 mg/m ³	TWA: 250 mg/m ³

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus
Ethylene glycol monobutyl ether	111-76-2	TWA: 20 ppm TWA: 98 mg/m ³	TWA: 30 ppm TWA: 150 mg/m ³ STEL: 50 ppm STEL: 250 mg/m ³ STEL: 246 mg/m ³	TWA: 20 ppm TWA: 98 mg/m ³ STEL: 50 ppm STEL: 246 mg/m ³	TWA: 20 ppm TWA: 98 mg/m ³ STEL: 50 ppm STEL: 246 mg/m ³
Acetic acid	64-19-7	TWA: 10 ppm TWA: 25 mg/m ³	TWA: 10 ppm TWA: 25 mg/m ³	TWA: 10 ppm TWA: 25 mg/m ³	TWA: 10 ppm TWA: 25 mg/m ³
Formic acid	64-18-6	TWA: 5 ppm TWA: 9 mg/m ³	TWA: 5 ppm TWA: 9 mg/m ³	TWA: 5 ppm TWA: 9 mg/m ³	TWA: 5 ppm TWA: 9 mg/m ³
Methanol	67-56-1	TWA: 200 ppm TWA: 260 mg/m ³	TWA: 200 ppm TWA: 260 mg/m ³ STEL: 5 ppm	TWA: 200 ppm TWA: 260 mg/m ³	TWA: 200 ppm TWA: 260 mg/m ³

Derived No Effect Level (DNEL)

No information available.

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
Ethylene glycol monobutyl ether	98 mg/m ³	663 mg/m ³	Not available	246 mg/m ³	75 mg/kg bw/day	89 mg/kg bw/day	Not available	Not available	Not available
Acetic acid	Not available	Not available	25 mg/m ³	25 mg/m ³	Not available	Not available	Not available	Not available	Not available
Formic acid	Not available	Not available	9.5 mg/m ³	19 mg/m ³	Not available	Not available	Not available	Not available	Not available
Methanol	260 mg/m ³	260 mg/m ³	260 mg/m ³	260 mg/m ³	40 mg/kg bw/day	40 mg/kg bw/day	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)

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
Ethylene glycol monobutyl ether	49 mg/m ³	426 mg/m ³	Not available	123 mg/m ³	38 mg/kg bw/day	44.5 mg/kg bw/day	Not available	Not available	3.2 mg/kg bw/day	13.4 mg/kg bw/day	Not available
Acetic acid	Not available	Not available	25 mg/m ³	25 mg/m ³	Not available	Not available	Not available	Not available	Not available	Not available	Not available
Formic acid	Not available	Not available	3 mg/m ³	9.5 mg/m ³	Not available	Not available	Not available	Not available	Not available	Not available	Not available
Methanol	50 mg/m ³	50 mg/m ³	50 mg/m ³	50 mg/m ³	8 mg/kg bw/day	8 mg/kg bw/day	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Other toxicological threshold	Other toxicological threshold	Low hazard (no threshold derived)

Predicted No Effect Concentration (PNEC)

No information available.

Substances	Freshwater	Marine water	Intermittent release	Sewage treatment plant	Sediment (freshwater)	Sediment (marine water)	Air	Soil	Secondary poisoning
Ethylene glycol monobutyl ether	8.8 mg/L	0.88 kg/L	9.1 mg/L	463 mg/L	34.6 mg/kg	3.46 mg/kg	Not available	3.13 mg/kg soil dw	0.02 g/kg food
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 soil dw	Not available
Formic acid	2 mg/L	0.2 mg/L	1 mg/L	7.2 mg/L	13.4 mg/kg sediment dw	1.34 mg/kg sediment dw	Not available	1.5 mg/kg soil dw	Not available
Methanol	20.8 mg/L	2.08 mg/L	1540 mg/L	100 mg/L	77 mg/kg sediment dw	7.7 mg/kg sediment dw	Not available	3.18 mg/kg soil dw	Not available

8.2. Exposure controls**Engineering Controls**

Use in a well ventilated area.

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

Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure. 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 Do not allow material to contaminate ground water system

SECTION 9: Physical and Chemical Properties**9.1. Information on basic physical and chemical properties****Physical State:** Liquid**Color:** Not determined**Odor:** Vinegar**Odor Threshold:** No information availablePropertyValuesRemarks/ - Method**pH:**

No data available

Freezing Point/Range

No data available

Melting Point/Range

No data available

Boiling Point/Range

No data available

Flash Point

No data available > 60 °C Estimated

Flammability (solid, gas)

No data available

upper flammability limit

lower flammability limit

Evaporation rate

No data available

Vapor Pressure

No data available

Vapor Density

No data available

Specific Gravity

No data available

Water Solubility

Soluble in water

Solubility in other solvents

No data available

Partition coefficient: n-octanol/water

No data available

Autoignition Temperature**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 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. Strong oxidizers.

10.6. Hazardous Decomposition Products

Carbon monoxide and carbon dioxide. Formic acid.

SECTION 11: Toxicological Information**11.1. Information on Toxicological Effects**

Acute Toxicity**Inhalation**

Causes severe respiratory irritation. May be harmful if inhaled. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Eye Contact

Causes eye irritation.

Skin Contact

Causes severe skin irritation.

Ingestion

Irritation of the mouth, throat, and stomach.

Chronic Effects/Carcinogenicity

Prolonged or repeated exposure may cause fetal damage and testicular effects.

Prolonged or repeated exposure may cause kidney, lung and blood effects.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethylene glycol monobutyl ether	111-76-2	470 mg/kg (Rat) 1414 mg/kg (Guinea pig) 1746 mg/kg (Rat) 320 mg/kg (Rabbit) 530 mg/kg (Rat) 560 mg/kg (Rat) 3000 mg/kg (Rat) 2400 mg/kg (Rat)	220 mg/kg (Rabbit) 2270 mg/kg (Rat) 200 mg/kg (Guinea pig) >2000 mg/kg (Rabbit) 841 mg/kg (Rabbit) 435 mg/kg (Rabbit) >2000 mg/kg (Guinea pig) >2000 mg/kg (Rat) 100 mg/kg (Rabbit) 207 mg/kg (Guinea pig) 400-500 mg/kg (Rabbit)	450 mg/L (Rat) 4h 2.174 mg/L (Rat) 4h 2.21 mg/L (Rat) 4h 450-486 mg/L (Rat) 4h 925 mg/L (Rat) 4h >633 mg/L (Guinea pig) 1h
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) 4h
Formic acid	64-18-6	730 mg/kg (Rat)	> 2000 mg/kg (Rat) (Similar substance)	7.4 mg/L (Rat) 4h 15 mg/L (Rat) 15m
Methanol	67-56-1	< 790 mg/kg (rat) mg/kg (mouse) mg/kg (rabbit)	15800 mg/kg (Rabbit) mg/kg bw (primates)	83.2 mg/L (rat) 4h 128.8 mg/L (rat) 4h

Substances	CAS Number	Skin corrosion/irritation
Ethylene glycol monobutyl ether	111-76-2	Causes moderate skin irritation. (Rabbit)
Acetic acid	64-19-7	Corrosive to skin
Formic acid	64-18-6	Corrosive to skin (Rabbit)
Methanol	67-56-1	Non-irritating to the skin (Rabbit)

Substances	CAS Number	Eye damage/irritation
Ethylene glycol monobutyl ether	111-76-2	Causes moderate eye irritation. (Rabbit)
Acetic acid	64-19-7	Corrosive to eyes
Formic acid	64-18-6	Corrosive to eyes (Rabbit)
Methanol	67-56-1	Non-irritating to the eye (Rabbit)

Substances	CAS Number	Skin Sensitization
Ethylene glycol monobutyl ether	111-76-2	Did not cause sensitization on laboratory animals (guinea pig)
Acetic acid	64-19-7	Not regarded as a sensitizer.
Formic acid	64-18-6	Did not cause sensitization on laboratory animals (guinea pig)
Methanol	67-56-1	Did not cause sensitization on laboratory animals (guinea pig)

Substances	CAS Number	Respiratory Sensitization
Ethylene glycol monobutyl ether	111-76-2	No information available
Acetic acid	64-19-7	No information available
Formic acid	64-18-6	No information available
Methanol	67-56-1	No information available

Substances	CAS Number	Mutagenic Effects
Ethylene glycol monobutyl ether	111-76-2	In vivo tests did not show mutagenic effects. In vitro tests did not show mutagenic effects

Acetic acid	64-19-7	In vivo tests did not show mutagenic effects. In vitro tests did not show mutagenic effects
Formic acid	64-18-6	In vitro tests did not show mutagenic effects In vivo tests did not show mutagenic effects.
Methanol	67-56-1	The weight of evidence from available in vitro and in vivo studies indicates that this substance is not expected to be mutagenic.

Substances	CAS Number	Carcinogenic Effects
Ethylene glycol monobutyl ether	111-76-2	Not regarded as carcinogenic.
Acetic acid	64-19-7	Did not show carcinogenic effects in animal experiments
Formic acid	64-18-6	Did not show carcinogenic effects in animal experiments (similar substances)
Methanol	67-56-1	No data of sufficient quality are available.

Substances	CAS Number	Reproductive toxicity
Ethylene glycol monobutyl ether	111-76-2	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
Acetic acid	64-19-7	Did not show teratogenic effects in animal experiments. Animal testing did not show any effects on fertility.
Formic acid	64-18-6	Did not show teratogenic effects in animal experiments. (similar substances) Animal testing did not show any effects on fertility.
Methanol	67-56-1	Experiments have shown reproductive toxicity effects on laboratory animals

Substances	CAS Number	STOT - single exposure
Ethylene glycol monobutyl ether	111-76-2	No data of sufficient quality are available.
Acetic acid	64-19-7	May cause respiratory irritation.
Formic acid	64-18-6	May cause respiratory irritation.
Methanol	67-56-1	May cause disorder and damage to the Central Nervous System (CNS)

Substances	CAS Number	STOT - repeated exposure
Ethylene glycol monobutyl ether	111-76-2	No data of sufficient quality are available.
Acetic acid	64-19-7	Not applicable due to corrosivity of the substance.
Formic acid	64-18-6	No significant toxicity observed in animal studies at concentration requiring classification.
Methanol	67-56-1	No data of sufficient quality are available.

Substances	CAS Number	Aspiration hazard
Ethylene glycol monobutyl ether	111-76-2	No adverse health effects are expected from swallowing.
Acetic acid	64-19-7	Not applicable
Formic acid	64-18-6	Not applicable
Methanol	67-56-1	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
Ethylene glycol monobutyl ether	111-76-2	EC50 839.56 mg/L (Skeletonema costatum) EbC50 (72h) 911 mg/L EC50 > 500 mg/L (Scenedesmus subspicatus) NOEC (72h) 88 mg/L (biomass)(Pseudokirchnerella subcapitata)	LC50 > 1000 mg/L (Scophthalmus maximus, juvenile) LC50 (96h) 1474 mg/L (Oncorhynchus mykiss) NOEC (21d) > 100mg/L (Danio rerio)	TT/EC3 (48h) 463 mg/L (Uronema parduzci) TT/EC3 (72h) 73 mg/L (Entosiphon sulcatum) TT/EC3 (16h) 700 mg/L (Pseudomonas putida)	No information available
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)	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)

			mykiss)		NOEC (21d) 31.4 - 37.9 mg/L (Daphnia magna) (reproduction)
Formic acid	64-18-6	EC50 25 mg/L (Desmodesmus subspicatus) EC50 (72h) 1240 mg/L (growth rate) (Pseudokirchnerella subcapitata) (Similar substance)	LC50 (96h) 175 mg/L (Lepomis Macrochirus) LC50 (96h) 130 mg/L (Danio rerio) (Similar substance) LC50 (96h) 1720 mg/L (Scophthalmus maximus) (Similar substance) LC50 (96h) 3500 mg/L (Oncorhynchus mykiss) (similar substance)	NOEC (13d) 72 mg/L (activated sludge, domestic)	EC50 (48h) 120 mg/L (Daphnia magna) EC50 (48h) 450 mg/L (Daphnia magna) (similar substance) EC50 (48h) 365 mg/L (Daphnia magna) (Similar substance) LC50 (96h) 1308 mg/L (Crangon crangon) (Similar substance) NOEC (21d) >= 100 mg/L (Daphnia magna)
Methanol	67-56-1	ErC50 (96h) 22000 mg/L (Pseudokirchnerella subcapitata)	LC50 28200 mg/L (Pimephales promelas) LC50 (96h) 12700 – 15400 mg/L (Lepomis macrochirus)	IC50 (3h) > 1000 mg/L (activated sludge)	EC50 (96h) 18260 mg/L (Daphnia magna) NOEC (21d) 122 mg/L (Daphnia magna, Reproduction)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Ethylene glycol monobutyl ether	111-76-2	Readily biodegradable (75-88% @ 28d)
Acetic acid	64-19-7	Readily biodegradable (99% @ 7d)
Formic acid	64-18-6	Readily biodegradable (100 @ 14d)
Methanol	67-56-1	(95-97% @ 20d)

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Ethylene glycol monobutyl ether	111-76-2	0.81
Acetic acid	64-19-7	-0.17 BCF = 3.16 (Calculated)
Formic acid	64-18-6	-2.1
Methanol	67-56-1	-0.77 BCF = 1.0 – 4.5 (Cyprinus carpio) BCF < 10 (Leuciscus idus melanotus)

12.4. Mobility in soil

Substances	CAS Number	Mobility
Ethylene glycol monobutyl ether	111-76-2	No information available
Acetic acid	64-19-7	No information available
Formic acid	64-18-6	KOC = 31
Methanol	67-56-1	No information available

12.5. Results of PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

Substances	PBT and vPvB assessment
Ethylene glycol monobutyl ether	Not PBT/vPvB
Acetic acid	Not PBT/vPvB
Formic acid	Not PBT/vPvB
Methanol	Not PBT/vPvB

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****Contaminated Packaging**

Disposal should be made in accordance with federal, state, and local regulations.
Follow all applicable national or local regulations.

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

UN Number: UN2790
UN Proper Shipping Name: Acetic Acid Solution
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Not applicable

RID

UN Number: UN2790
UN Proper Shipping Name: Acetic Acid Solution
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Not applicable

ADR

UN Number: UN2790
UN Proper Shipping Name: Acetic Acid Solution
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Not applicable

IATA/ICAO

UN Number: UN2790
UN Proper Shipping Name: Acetic Acid Solution
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Not applicable

14.1. UN Number: UN2790

14.2. UN Proper Shipping Name: Acetic Acid Solution

14.3. Transport Hazard Class(es): 8

14.4. Packing Group: III

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 1: Low hazard to waters.

15.2. Chemical Safety Assessment

No information available

SECTION 16: Other Information

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

H225 - Highly flammable liquid and vapor
H226 - Flammable liquid and vapor
H290 - May be corrosive to metals
H301 - Toxic if swallowed
H302 - Harmful if swallowed
H311 - Toxic in contact with skin
H312 - Harmful in contact with skin
H314 - Causes severe skin burns and eye damage
H315 - Causes skin irritation
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H331 - Toxic if inhaled
H332 - Harmful if inhaled
H335 - May cause respiratory irritation

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: 07-Sep-2015

Revision Note

SDS sections updated: 1

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

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End of Safety Data Sheet