HALLIBURTON

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

DCA-17001

Revision Date: 14-Sep-2015 **Revision Number:** 11

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

1.1. Product Identifier

Product Name DCA-17001
Internal ID Code HM007659

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

Recommended Use Corrosion Inhibitor
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

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

Acute Oral Toxicity	Category 4 - H302
Skin Corrosion / irritation	Category 2 - H315
Serious Eye Damage / Eye Irritation	Category 1 - H318
Skin Sensitization	Category 1 - H317
Specific Target Organ Toxicity - (Single Exposure)	Category 1 - H370
Specific Target Organ Toxicity - (Repeated Exposure)	Category 2 - H373

Flammable liquids.	Category 3 - H226

2.2. Label Elements

Hazard Pictograms

Signal Word **Danger**

Hazard Statements
H226 - Flammable liquid and vapor
H302 - Harmful if swallowed
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H370 - Causes damage to organs
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary Statements - EU (§28, 1272/2008)
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P280 - Wear protective gloves/eye protection/face protection
P301+ P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
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

Contains

Substances	**CAS Number**
Diethylene glycol	111-46-6
Cinnamaldehyde	104-55-2
Amine oxides, cocoalkyldimethyl	61788-90-7
Methanol	67-56-1
Benzaldehyde	100-52-7
Alcohols, C12-16, ethoxylated	68551-12-2
Sodium iodide	7681-82-5

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.**
Diethylene glycol	203-872-2	111-46-6	30 - 60%	Acute Tox. 4 (H302) STOT RE 2 (H373)	No data available
Cinnamaldehyde	203-213-9	104-55-2	30 - 60%	Acute Tox. 4 (H312) Skin Irrit. 2 (H315) Skin Sens. 1 (H317)	No data available
Amine oxides, cocoalkyldimethyl	263-016-9	61788-90-7	10 - 30%	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Corr. 1 (H318) Aquatic Acute 1 (H400)	No data available
Methanol	200-659-6	67-56-1	10 - 30%	Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 3 (H331) STOT SE 1 (H370) Flam. Liq. 2 (H225)	01-2119433307-44

Benzaldehyde	202-860-4	100-52-7	5 - 10%	Acute Tox. 4 (H302) Acute Tox. 4 (H332)	No data available
Alcohols, C12-16, ethoxylated	500-221-7	68551-12-2	1 - 5%	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Corr. 1 (H318) Aquatic Acute 1 (H400) Aquatic Chronic 3 (H412)	No data available
Sodium iodide	231-679-3	7681-82-5	1 - 5%	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335) STOT RE 1 (H372)	No data available

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, move victim to fresh air and seek 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 Get immediate medical attention. Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

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

Causes severe eye irritation which may damage tissue. Causes skin irritation. May cause allergic skin reaction. Harmful if swallowed. May cause damage to internal organs. Prolonged or repeated exposure may cause damage to organs.

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

Carbon dioxide, dry chemical, foam.

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 harmful gases. Runoff to sewer may cause fire or explosion hazard.

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

Remove sources of ignition. Use appropriate protective equipment. Wear self-contained breathing apparatus in enclosed areas. Avoid breathing vapors. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation.
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

Remove sources of ignition. Ensure adequate ventilation. Avoid breathing vapors. Avoid contact with eyes, skin, or clothing. Wash hands after use. Launder contaminated clothing before reuse. Ground and bond containers when transferring from one container to another. 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 oxidizers. Keep from heat, sparks, and open flames. Store in a well ventilated area. Store locked up. Keep container closed when not in use. Product has a shelf life of 60 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

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Exposure Limits

Substances	CAS Number	EU	UK	Netherlands	France
Diethylene glycol	111-46-6	Not applicable	TWA: 23 ppm TWA: 101 mg/m³ STEL: 69 ppm STEL: 303 mg/m³	Not applicable	Not applicable
Cinnamaldehyde	104-55-2	Not applicable	Not applicable	Not applicable	Not applicable
Amine oxides, cocoalkyldimethyl	61788-90-7	Not applicable	Not applicable	Not applicable	Not applicable
Methanol	67-56-1	TWA: 200 ppm TWA: 260 mg/m³	TWA: 200 ppm TWA: 266 mg/m³ STEL: 250 ppm STEL: 333 mg/m³	TWA: 133 mg/m³ TWA: 100 ppm	200 ppm
Benzaldehyde	100-52-7	Not applicable	Not applicable	Not applicable	Not applicable
Alcohols, C12-16, ethoxylated	68551-12-2	Not applicable	Not applicable	Not applicable	Not applicable
Sodium iodide	7681-82-5	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Germany	Spain	Portugal	Finland
Diethylene glycol	111-46-6	TWA: 10 ppm TWA: 44 mg/m³	Not applicable	Not applicable	Not applicable
Cinnamaldehyde	104-55-2	Not applicable	Not applicable	Not applicable	Not applicable
Amine oxides, cocoalkyldimethyl	61788-90-7	Not applicable	Not applicable	Not applicable	Not applicable
Methanol	67-56-1	TWA: 200 ppm TWA: 270 mg/m³ Peak: 800 ppm Peak: 1080 mg/m³	TWA: 200 ppm TWA: 266 mg/m³	TWA: 200 ppm TWA: 260 mg/m³ STEL: 250 ppm	TWA: 200 ppm TWA: 270 mg/m³ STEL: 250 ppm STEL: 330 mg/m³
Benzaldehyde	100-52-7	Not applicable	Not applicable	Not applicable	TWA: 1 ppm TWA: 4.4 mg/m³ STEL: 4 ppm STEL: 17.4 mg/m³
Alcohols, C12-16, ethoxylated	68551-12-2	Not applicable	Not applicable	Not applicable	Not applicable
Sodium iodide	7681-82-5	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Diethylene glycol	111-46-6	TWA: 10 ppm TWA: 44 mg/m³ STEL" 40 ppm STEL" 176 mg/m³	23 ppm TWA; 100 mg/m³ TWA 69 ppm STEL (calculated); 300	TWA: 10 ppm TWA: 44 mg/m³ STEL: 40 ppm STEL: 176 mg/m³	Not applicable

			mg/m³ STEL (calculated)		
Cinnamaldehyde	104-55-2	Not applicable	Not applicable	Not applicable	Not applicable
Amine oxides, cocoalkyldimethyl	61788-90-7	Not applicable	Not applicable	Not applicable	Not applicable
Methanol	67-56-1	TWA: 200 ppm TWA: 260 mg/m³ STEL" 800 ppm STEL" 1040 mg/m³	200 ppm TWA; 260 mg/m³ TWA 600 ppm STEL (calculated); 780 mg/m³ STEL (calculated)	TWA: 200 ppm TWA: 260 mg/m³ STEL: 800 ppm STEL: 1040 mg/m³	TWA: 100 ppm TWA: 130 mg/m³ STEL: 100 ppm STEL: 130 mg/m³
Benzaldehyde	100-52-7	Not applicable	Not applicable	Not applicable	Not applicable
Alcohols, C12-16, ethoxylated	68551-12-2	Not applicable	Not applicable	Not applicable	Not applicable
Sodium iodide	7681-82-5	Not applicable	Not applicable	Not applicable	Not applicable

Substances	**CAS Number**	**Italy**	**Poland**	**Hungary**	**Czech Republic**
Diethylene glycol	111-46-6	Not applicable	TWA: 10 mg/m³	Not applicable	Not applicable
Cinnamaldehyde	104-55-2	Not applicable	Not applicable	Not applicable	Not applicable
Amine oxides, cocoalkyldimethyl	61788-90-7	Not applicable	Not applicable	Not applicable	Not applicable
Methanol	67-56-1	TWA: 200 ppm TWA: 260 mg/m³	TWA: 100 mg/m³ STEL: 300 mg/m³	TWA: 260 mg/m³	TWA: 250 mg/m³
Benzaldehyde	100-52-7	Not applicable	TWA: 10 mg/m³ STEL: 40 mg/m³	TWA: 5 mg/m³ STEL: 10 mg/m³	Not applicable
Alcohols, C12-16, ethoxylated	68551-12-2	Not applicable	Not applicable	Not applicable	Not applicable
Sodium iodide	7681-82-5	Not applicable	Not applicable	Not applicable	Not applicable

Substances	**CAS Number**	**Denmark**	**Romania**	**Croatia**	**Cyprus**
Diethylene glycol	111-46-6	TWA: 2.5 ppm TWA: 11 mg/m³	TWA: 115 ppm TWA: 500 mg/m³ STEL: 184 ppm STEL: 800 mg/m³	TWA: 23 ppm TWA: 101 mg/m³	Not applicable
Cinnamaldehyde	104-55-2	Not applicable	Not applicable	Not applicable	Not applicable
Amine oxides, cocoalkyldimethyl	61788-90-7	Not applicable	Not applicable	Not applicable	Not applicable
Methanol	67-56-1	TWA: 200 ppm TWA: 260 mg/m³	TWA: 200 ppm TWA: 260 mg/m³ STEL: 5 ppm	TWA: 200 ppm TWA: 260 mg/m³	TWA: 200 ppm TWA: 260 mg/m³
Benzaldehyde	100-52-7	Not applicable	Not applicable	Not applicable	Not applicable
Alcohols, C12-16, ethoxylated	68551-12-2	Not applicable	Not applicable	Not applicable	Not applicable
Sodium iodide	7681-82-5	Not applicable	Not applicable	Not applicable	Not applicable

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
Diethylene glycol	Not available	Not available	60 mg/m³	Not available	106 mg/kg bw/day	Not available	Not available	Not available	Not available
Methanol	260 mg/m³	260 mg/m³	260 mg/m³	260 mg/m³	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
Diethylene glycol	Not available	Not available	12 mg/m³	Not available	53 mg/kg bw/day	Not available	Not available	Not available	Not available	Not available	Not available
Methanol	50 mg/m³	50 mg/m³	50 mg/m³	50 mg/m³	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)

Substances	Freshwater	Marine water	Intermittent release	Sewage treatment plant	Sediment (freshwater)	Sediment (marine water)	Air	Soil	Secondary poisoning
Diethylene glycol	10 mg/L	1 mg/L	10 mg/L	199.5 mg/L	20.9 mg/kg sediment dw	2.09 mg/kg sediment dw	Not available	1.53 mg/kg soil dw	No potential for bioaccumulation
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. 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 If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Positive pressure self-contained breathing apparatus if methanol is released.

Hand Protection Chemical-resistant protective gloves (EN 374) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Butyl rubber gloves. (>= 0.7 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.

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: Yellow-orange
Odor: Cinnamon
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	6.85 (10%)
Freezing Point/Range	-21 °C
Melting Point/Range	No data available
Boiling Point/Range	No data available
Flash Point	28.9 °C / 84 °F PMCC
Flammability (solid, gas)	No data available
upper flammability limit	No data available
lower flammability limit	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.015
Water Solubility	Soluble in 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 expected to be reactive.
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.
10.6. Hazardous Decomposition Products
Ammonia. Oxides of nitrogen. Hydrocarbons. 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 severe eye irritation which may damage tissue.
Skin Contact	Causes skin irritation. May cause an allergic skin reaction.
Ingestion	Harmful if swallowed. May cause central nervous system depression including headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue blurred vision, slurred speech, giddiness, tremors and convulsions. May cause liver and kidney damage.
Chronic Effects/Carcinogenicity	Prolonged or repeated exposure may cause eye, blood, lung, liver, kidney, heart, central nervous system and spleen damage.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Diethylene glycol	111-46-6	12565 - 19600 mg/kg (Rat)	11890 - 13300 mg/kg (Rabbit)	> 4.6 mg/L (Rat) 4h
Cinnamaldehyde	104-55-2	2200 mg/kg (Rat) 340 mg/kg (Guinea pig) 1160 ng/kg (Rat) 1600 mg/kg (Rat)	2000 mg/kg (Rabbit) 2000 mg/kg (Rat) 1260 mg/kg (Rabbit)	QSAR: 68.86 ppm (Rat) 4h 68.88 ppm (Rat) 4h (QSAR)
Amine oxides, cocoalkyldimethyl	61788-90-7	846 - 3873 mg/kg (Rat) 1000-1250 mg/kg (Rat)	4290 mg/kg (Rabbit)	No data available
Methanol	67-56-1	< 790 mg/kg (rat) mg/kg (mouse) mg/kg (rabbit) mg/kg (Human) 6200 mg/kg (Rat)	15800 mg/kg (Rabbit) mg/kg bw (primates) mg/kg (Human) 15800 mg/kg (Rabbit)	10 mg/L (Human) 4h (vapor) 22,500 ppm (Rat) 8h 64,000 ppm (Rat) 4h mg/L (rat) 4h 128.8 mg/L (rat) 4h
Benzaldehyde	100-52-7	800 mg/kg (Rat) 1375 mg/kg (Rat)	>1250 mg/kg (Rabbit) >20000 mL/kg (Guinea Pig)	1 - 5 mg/L (Rat) 4h
Alcohols, C12-16, ethoxylated	68551-12-2	1400 mg/kg (Rat)	2000 - 5000 mg/kg (Rabbit) (similar substances) 1.78 mL/kg (Rabbit) 2.14 mL/kg (1990 mg/kg) (Rabbit)	No data available
Sodium iodide	7681-82-5	4340 mg/kg (Rat) 3118 mg/kg (Rats) (Similar substance)	No data available	LCLo: 50000 mg/m³ (Mouse) 2h

Substances	CAS	Skin corrosion/irritation

	Number	
Diethylene glycol	111-46-6	Non-irritating to the skin (Rabbit)
Cinnamaldehyde	104-55-2	Causes severe irritation and or burns (human)
Amine oxides, cocoalkyldimethyl	61788-90-7	Skin, rabbit: Causes moderate skin irritation.
Methanol	67-56-1	Non-irritating to the skin (Rabbit)
Benzaldehyde	100-52-7	Non-irritating to the skin (Rabbit)
Alcohols, C12-16, ethoxylated	68551-12-2	Irritating to skin. (Rabbit) (similar substances)
Sodium iodide	7681-82-5	Moderate dermal irritant (Rabbit)

Substances	CAS Number	Eye damage/irritation
Diethylene glycol	111-46-6	Non-irritating to the eye (Rabbit)
Cinnamaldehyde	104-55-2	Mild eye irritant. (human) (8 % solution)
Amine oxides, cocoalkyldimethyl	61788-90-7	Corrosive to eyes
Methanol	67-56-1	Non-irritating to the eye (Rabbit)
Benzaldehyde	100-52-7	Non-irritating to the eye (Rabbit)
Alcohols, C12-16, ethoxylated	68551-12-2	Severe eye irritant (Rabbit) (similar substances)
Sodium iodide	7681-82-5	Moderately irritating to the eyes (Rabbit)

Substances	CAS Number	Skin Sensitization
Diethylene glycol	111-46-6	Did not cause sensitization on laboratory animals (guinea pig)
Cinnamaldehyde	104-55-2	Skin sensitizer in guinea pig.
Amine oxides, cocoalkyldimethyl	61788-90-7	No information available
Methanol	67-56-1	Did not cause sensitization on laboratory animals (guinea pig)
Benzaldehyde	100-52-7	Not sensitizing in Guinea Pigs (Guinea Pig Maximisation Test and Open Epicutaneous Test, Sensitizing in Draize Test and Freund's Complete Adjuvant Test)
Alcohols, C12-16, ethoxylated	68551-12-2	Did not cause sensitization on laboratory animals (guinea pig) (similar substances)
Sodium iodide	7681-82-5	Patch test on human volunteers did not demonstrate sensitization properties

Substances	CAS Number	Respiratory Sensitization
Diethylene glycol	111-46-6	No information available
Cinnamaldehyde	104-55-2	No information available
Amine oxides, cocoalkyldimethyl	61788-90-7	No information available
Methanol	67-56-1	No information available
Benzaldehyde	100-52-7	No information available
Alcohols, C12-16, ethoxylated	68551-12-2	No information available
Sodium iodide	7681-82-5	No information available

Substances	CAS Number	Mutagenic Effects
Diethylene glycol	111-46-6	In vitro tests did not show mutagenic effects In vivo tests did not show mutagenic effects.
Cinnamaldehyde	104-55-2	In vitro tests did not show mutagenic effects
Amine oxides, cocoalkyldimethyl	61788-90-7	In vitro tests did not show mutagenic effects In vivo tests did not show mutagenic effects. (similar substances)
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.
Benzaldehyde	100-52-7	Not mutagenic in AMES Test. Negative in the chromosomal aberration assay In vitro tests have shown mutagenic effects In vivo tests did not show mutagenic effects.
Alcohols, C12-16, ethoxylated	68551-12-2	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects. (similar substances)
Sodium iodide	7681-82-5	In vitro tests did not show mutagenic effects (similar substances)

Substances	CAS Number	Carcinogenic Effects
Diethylene glycol	111-46-6	Did not show carcinogenic effects in animal experiments (Rat)
Cinnamaldehyde	104-55-2	No information available.
Amine oxides, cocoalkyldimethyl	61788-90-7	No information available.
Methanol	67-56-1	No data of sufficient quality are available.
Benzaldehyde	100-52-7	Did not show carcinogenic effects in animal experiments (Rat) There was some evidence of carcinogenic activity in the forestomachs of mice.
Alcohols, C12-16, ethoxylated	68551-12-2	Did not show carcinogenic effects in animal experiments (similar substances)

Sodium iodide	7681-82-5	No information available.

Substances	CAS Number	Reproductive toxicity
Diethylene glycol	111-46-6	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
Cinnamaldehyde	104-55-2	Did not show teratogenic effects in animal experiments.
Amine oxides, cocoalkyldimethyl	61788-90-7	Did not show teratogenic effects in animal experiments. When tested at maternally toxic doses, no adverse effects on teratogenicity or development were observed.
Methanol	67-56-1	Experiments have shown reproductive toxicity effects on laboratory animals
Benzaldehyde	100-52-7	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)
Alcohols, C12-16, ethoxylated	68551-12-2	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)
Sodium iodide	7681-82-5	Animal testing did not show any effects on fertility.

Substances	CAS Number	STOT - single exposure
Diethylene glycol	111-46-6	No significant toxicity observed in animal studies at concentration requiring classification.
Cinnamaldehyde	104-55-2	No information available
Amine oxides, cocoalkyldimethyl	61788-90-7	May cause respiratory irritation.
Methanol	67-56-1	May cause disorder and damage to the Central Nervous System (CNS)
Benzaldehyde	100-52-7	May cause respiratory irritation.
Alcohols, C12-16, ethoxylated	68551-12-2	No information available
Sodium iodide	7681-82-5	No information available

Substances	CAS Number	STOT - repeated exposure
Diethylene glycol	111-46-6	Causes damage to organs through prolonged or repeated exposure: (Kidney)
Cinnamaldehyde	104-55-2	No significant toxicity observed in animal studies at concentration requiring classification.
Amine oxides, cocoalkyldimethyl	61788-90-7	No data of sufficient quality are available.
Methanol	67-56-1	No data of sufficient quality are available.
Benzaldehyde	100-52-7	No significant toxicity observed in animal studies at concentration requiring classification.
Alcohols, C12-16, ethoxylated	68551-12-2	No significant toxicity observed in animal studies at concentration requiring classification.
Sodium iodide	7681-82-5	Causes damage to organs through prolonged or repeated exposure: (Thyroid)

Substances	CAS Number	Aspiration hazard
Diethylene glycol	111-46-6	No information available
Cinnamaldehyde	104-55-2	Not applicable
Amine oxides, cocoalkyldimethyl	61788-90-7	No information available
Methanol	67-56-1	Not applicable
Benzaldehyde	100-52-7	Not applicable
Alcohols, C12-16, ethoxylated	68551-12-2	Not applicable
Sodium iodide	7681-82-5	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
Diethylene glycol	111-46-6	TGK (8d) 2700 mg/L (Scenedesmus quadricauda)	LC50 75200 mg/L (Pimephales promelas)	EC20 (30m) > 1995 mg/L (domestic activated sludge)	EC50 84000 mg/L (Daphnia magna) EC50 >10000 mg/L (Daphnia magna)
Cinnamaldehyde	104-55-2	EC50 0.13 mg/L (Chlorella vulgaris)	LC50 (47h) 122 mg/L (Cyprinus carpio)	IC50 (48h) 131.2 mg/L (Tetrahymena pyriformis)	LC50 (48h) 107 mg/L (Daphnia magna)
Amine oxides, cocoalkyldimethyl	61788-90-7	ErC50 (72h) 0.29 mg/L (Selenastrum capricornutum) ErC50 (72h) 0.0235	LC50 (96h) 1.0–3.4 mg/L (Brachydanio rerio) LC50 (96h) 13.0 (Salmo gairdneri)	EC50 (3h) 240 mg/L (Pseudomonas putida) EC50 (3h) 13 mg/L (Activated sludge)	EC50 (48h) 2.9 mg/L (Daphnia magna) EC50 (48h) 0.083 mg/L (Daphnia magna)

		mg/L (Scendesmus subspicatus) (similar substance)	LC50 (96h) 0.1-1 mg/L (Brachydanio rerio)		(similar substance)
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)
Benzaldehyde	100-52-7	NOEC (8d) 20 mg/L (Microcystis aeruginosa) NOEC (8d) 132 mg/L	LC50: 10.6 - 11.8 mg/L (Oncorhynchus mykiss) LC50 (96h) 12.4 mg/L (Pimephales promelas) LC50 (96h) 11.2 mg/L (Salmo gairdneri) LC50 (96h) 13.8 mg/L (Carassius auratus) LC50 (96h) 5.39 mg/L (Ictalurus punctatus) LC50 (96h) 1.07 mg/L (Lepomis macrochirus)	IC50 (3h) 740 mg/L	EC50: 50 mg/L (Daphnia magna)
Alcohols, C12-16, ethoxylated	68551-12-2	EC50 (72h) 0.5 mg/L (Scenedesmus subspicatus) (similar substance) EC50 (72h) 0.85 mg/L (Selenastrum capricornutum) (similar substance)	LC50 (96h) 1.2 – 6.4 (Brachydanio rerio) (similar substance)	EC50 (30m) >10000 mg/L (Pseudomonas putida) (similar substance)	EC50 (48h) 0.5 – 1.9 mg/L (similar substance)
Sodium iodide	7681-82-5	7 d Tox threshold: 2370 mg/L (Scenedesmus quadricauda, biomass) EC50(72h): 2588.7 mg/L (Skeletonema costatum)	LC50(96h): 3780 mg/L (Oncorhynchus mykiss) LC50(96h): > 100 mg/L (Scopthalmus maximus)	No information available	EC50(48h): 1.27 mg/L (Daphnia magna) EC50(48h): 575 mg/L (Acartia tonsa)

12.2. Persistence and degradability

No data is available on the product itself

Substances	CAS Number	Persistence and Degradability
Diethylene glycol	111-46-6	Readily biodegradable (90-100% @ 28d)
Cinnamaldehyde	104-55-2	Predicted to be readily biodegradable.
Amine oxides, cocoalkyldimethyl	61788-90-7	Readily biodegradable (81% @ 28d)
Methanol	67-56-1	(95-97% @ 20d)
Benzaldehyde	100-52-7	Readily biodegradable (>=95% @ 28d)
Alcohols, C12-16, ethoxylated	68551-12-2	Expected to be readily biodegradable (similar substances)
Sodium iodide	7681-82-5	Not applicable

12.3. Bioaccumulative potential

No data is available on the product itself

Substances	CAS Number	Log Pow
Diethylene glycol	111-46-6	BCF: 100 (Leuciscus idus melanotus)
Cinnamaldehyde	104-55-2	1.83 BCF = 8 (Calculated)
Amine oxides, cocoalkyldimethyl	61788-90-7	Log Kow = 7.5
Methanol	67-56-1	-0.77 BCF = 1.0 – 4.5 (Cyprinus carpio) BCF < 10 (Leuciscus idus melanotus)
Benzaldehyde	100-52-7	No information available
Alcohols, C12-16, ethoxylated	68551-12-2	No information available
Sodium iodide	7681-82-5	-1.301

12.4. Mobility in soil

Substances	CAS Number	Mobility
Diethylene glycol	111-46-6	No information available
Cinnamaldehyde	104-55-2	No information available
Amine oxides, cocoalkyldimethyl	61788-90-7	No information available
Methanol	67-56-1	No information available
Benzaldehyde	100-52-7	No information available
Alcohols, C12-16, ethoxylated	68551-12-2	No information available
Sodium iodide	7681-82-5	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
Diethylene glycol	Not PBT/vPvB
Cinnamaldehyde	Not PBT/vPvB
Amine oxides, cocoalkyldimethyl	Not PBT/vPvB
Methanol	Not PBT/vPvB
Benzaldehyde	Not PBT/vPvB
Alcohols, C12-16, ethoxylated	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 Incineration recommended in approved incinerator according to federal, state, and local regulations. Substance should NOT be deposited into a sewage facility.

Contaminated Packaging Follow all applicable national or local regulations. Contaminated packaging may be disposed of by: rendering packaging incapable of containing any substance, or treating packaging to remove residual contents, or treating packaging to make sure the residual contents are no longer hazardous, or by disposing of packaging into commercial waste collection.

SECTION 14: Transport Information

IMDG/IMO

UN Number: UN1993
UN Proper Shipping Name: Flammable Liquid, N.O.S. (Contains Methanol, Aldehydes)
Transport Hazard Class(es): 3
Packing Group: III
Environmental Hazards: Not applicable

RID

UN Number: UN1993
UN Proper Shipping Name: Flammable Liquid, N.O.S. (Contains Methanol, Aldehydes)
Transport Hazard Class(es): 3
Packing Group: III
Environmental Hazards: Not applicable

ADR

UN Number: UN1993
UN Proper Shipping Name: Flammable Liquid, N.O.S. (Contains Methanol, Aldehydes)
Transport Hazard Class(es): 3
Packing Group: III
Environmental Hazards: Not applicable

IATA/ICAO

UN Number: UN1993
UN Proper Shipping Name: Flammable Liquid, N.O.S. (Contains Methanol, Aldehydes)
Transport Hazard Class(es): 3
Packing Group: III
Environmental Hazards: Not applicable

14.1. UN Number: UN1993

14.2. UN Proper Shipping Name: Flammable Liquid, N.O.S. (Contains Methanol, Aldehydes)

14.3. Transport Hazard Class(es): 3

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/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

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

List of the carcinogenic, mutagenic and toxic for reproduction substances SZW
Methanol

15.2. Chemical Safety Assessment
Yes

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
H301 - Toxic if swallowed
H302 - Harmful if swallowed
H311 - Toxic in contact with skin
H312 - Harmful in contact with skin
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H331 - Toxic if inhaled
H335 - May cause respiratory irritation
H370 - Causes damage to organs
H372 - Causes damage to organs through prolonged or repeated exposure
H373 - May cause damage to organs through prolonged or repeated exposure
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/
NZ CCID

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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