HALLIBURTON

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

INVERMUL®

Revision Date: 05-Jan-2015 **Revision Number:** 12

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

1.1. Product Identifier

Product Name INVERMUL®

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

Recommended Use	Emulsifier
Sector of use	SU2 - Mining, (including offshore industries)
Product category	PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific
Process categories	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises

1.3. Details of the supplier of the safety data sheet

Halliburton Manufacturing Services, Ltd.
Halliburton House, Howemoss Crescent
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 Inhalation Toxicity - Vapors	Category 4 - H332
Skin Corrosion / irritation	Category 2 - H315
Serious Eye Damage / Eye Irritation	Category 2 - H319
Skin Sensitization	Category 1 - H317
Carcinogenicity	Category 2 - H351
Specific Target Organ Toxicity - (Repeated Exposure)	Category 2 - H373
Chronic Aquatic Toxicity	Chronic 2 - H411

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
Xn - Harmful.
Carc. Cat. 3

Risk Phrases
R40 Limited evidence of a carcinogenic effect.
R20 Harmful by inhalation.
R43 May cause sensitization by skin contact.
R36/38 Irritating to eyes and skin.
R48/21 Harmful: danger of serious damage to health by prolonged exposure in contact with skin.

2.2. Label Elements

Hazard Pictograms

Signal Word **Warning**

Hazard Statements
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H351 - Suspected of causing cancer
H373 - May cause damage to organs through prolonged or repeated exposure
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements - EU (§28, 1272/2008)
P202 - Do not handle until all safety precautions have been read and understood
P280 - Wear protective gloves/eye protection/face protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
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
P337 + P313 - If eye irritation persists: Get medical advice/attention

Contains

Substances	**CAS Number**
Diesel	68476-34-6
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6
Diethylene glycol monobutyl ether	112-34-5
Ethylene glycol monobutyl ether	111-76-2

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.
Diesel	270-676-1	68476-34-6	10 - 30%	Xn; R20 R48/21 R65 Carc.Cat.3; R40 Xi; R38 R53	Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Carc. 2 (H351) STOT-RE 2 (H373) Asp. Tox. 1 (H304) Aquatic Chronic 2 (H411)	No data available
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	273-601-0	68990-47-6	10 - 30%	Xi; R43	Skin Sens. 1 (H317)	01-2119496070-42
Diethylene glycol monobutyl ether	203-961-6	112-34-5	1 - 5%	Xi; R36	Eye Irrit. 2 (H319)	01-2119475104-44
Ethylene glycol monobutyl ether	203-905-0	111-76-2	1 - 5%	Xn; R20/21/22 Xi; R36/38	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319)	01-2119475108-36

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.

Ingestion Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration.

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

May cause eye and skin irritation. May cause allergic skin reaction. May be absorbed through the skin. Potential carcinogen. 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

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.
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.

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 12 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
Diesel	68476-34-6	Not applicable	Not applicable	Not applicable	Not applicable
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Not applicable	Not applicable	Not applicable	Not applicable
Diethylene glycol monobutyl ether	112-34-5	TWA: 10 ppm TWA: 67.5 mg/m³ STEL: 15 ppm STEL: 101.2 mg/m³	TWA: 10 ppm TWA: 67.5 mg/m³ STEL: 15 ppm STEL: 101.2 mg/m³	TWA: 50 mg/m³ STEL: 100 mg/m³	TWA: 10 ppm TWA: 67.5 mg/m³ STEL: 15 ppm STEL: 101.2 mg/m³
Ethylene glycol monobutyl ether	111-76-2	Not applicable	TWA: 25 ppm TWA: 123 mg/m³ STEL: 50 ppm STEL: 246 mg/m³	TWA: 100 mg/m³ STEL: 246 mg/m³	2 ppm

Substances	CAS Number	Germany	Spain	Portugal	Finland
Diesel	68476-34-6	Not applicable	Not applicable	TWA: 100 mg/m³	Not applicable
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Not applicable	Not applicable	Not applicable	Not applicable

Diethylene glycol monobutyl ether	112-34-5	TWA: 10 ppm TWA: 67 mg/m³	TWA: 10 ppm TWA: 67.5 mg/m³ 15 ppm STEL [VLA-EC]; 101.2 mg/m³ STEL [VLA-EC]	TWA: 10 ppm TWA: 67.5 mg/m³ STEL: 15 ppm STEL: 101.2 mg/m³	TWA: 10 ppm TWA: 68 mg/m³
Ethylene glycol monobutyl ether	111-76-2	TWA: 10 ppm TWA: 49 mg/m³	TWA: 20 ppm TWA: 98 mg/m³ 50 ppm STEL [VLA-EC]; 245 mg/m³ STEL [VLA-EC]	TWA: 20 ppm TWA: 98 mg/m³ STEL: 50 ppm STEL: 246 mg/m³	TWA: 20 ppm TWA: 98 mg/m³ STEL: 50 ppm STEL: 250 mg/m³

Substances	**CAS Number**	**Austria**	**Ireland**	**Switzerland**	**Norway**
Diesel	68476-34-6	Not applicable	Not applicable	Not applicable	Not applicable
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Not applicable	Not applicable	Not applicable	Not applicable
Diethylene glycol monobutyl ether	112-34-5	TWA: 10 ppm TWA: 67.5 mg/m³ STEL" 15 ppm STEL" 101.2 mg/m³	10 ppm TWA; 67.5 mg/m³ TWA 15 ppm STEL; 101.2 mg/m³ STEL	TWA: 10 ppm TWA: 67 mg/m³ STEL: 15 ppm STEL: 101 mg/m³	TWA: 10 ppm TWA: 68 mg/m³ STEL: 20 ppm STEL: 102 mg/m³
Ethylene glycol monobutyl ether	111-76-2	TWA: 20 ppm TWA: 98 mg/m³ STEL" 40 ppm STEL" 200 mg/m³	20 ppm TWA; 98 mg/m³ TWA 50 ppm STEL; 246 mg/m³ STEL	TWA: 10 ppm TWA: 49 mg/m³ STEL: 20 ppm STEL: 98 mg/m³	TWA: 10 ppm TWA: 50 mg/m³ STEL: 20 ppm STEL: 75 mg/m³

Substances	**CAS Number**	**Italy**	**Poland**	**Hungary**	**Czech Republic**
Diesel	68476-34-6	Not applicable	Not applicable	Not applicable	Not applicable
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Not applicable	Not applicable	Not applicable	Not applicable
Diethylene glycol monobutyl ether	112-34-5	TWA: 10 ppm TWA: 67.5 mg/m³ STEL: 15 ppm STEL: 101.2 mg/m³	TWA: 67 mg/m³ STEL: 100 mg/m³	TWA: 67.5 mg/m³ STEL: 101.2 mg/m³	TWA: 100 mg/m³
Ethylene glycol monobutyl ether	111-76-2	TWA: 20 ppm TWA: 98 mg/m³ STEL: 50 ppm STEL: 246 mg/m³	TWA: 98 mg/m³ STEL: 200 mg/m³	TWA: 98 mg/m³ STEL: 246 mg/m³	TWA: 100 mg/m³

Substances	**CAS Number**	**Denmark**	**Romania**	**Croatia**	**Cyprus**
Diesel	68476-34-6	Not applicable	Not applicable	Not applicable	Not applicable
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Not applicable	Not applicable	Not applicable	Not applicable
Diethylene glycol monobutyl ether	112-34-5	TWA: 10 ppm TWA: 68 mg/m³	TWA: 150 mg/m³ STEL: 250 mg/m³	TWA: 10 ppm TWA: 67.5 mg/m³ STEL: 15 ppm STEL: 101.2 mg/m³	TWA: 10 ppm TWA: 67.5 mg/m³ STEL: 15 ppm STEL: 101.2 mg/m³
Ethylene glycol monobutyl ether	111-76-2	TWA: 20 ppm TWA: 98 mg/m³	TWA: 30 ppm TWA: 150 mg/m³ STEL: 50 ppm STEL: 250 mg/m³ STEL: 246 mg/m³	TWA: 20 ppm TWA: 98 mg/m³ STEL: 50 ppm STEL: 246 mg/m³	TWA: 20 ppm TWA: 98 mg/m³ STEL: 50 ppm STEL: 246 mg/m³

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
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	14693 µg/m³	29386 µg/m³	14693 µg/m³	14693 µg/m³	16666 µg/kg bw/day	33332 µg/kg bw/day	1388 µg/cm²	1388 µg/cm²	Not available
Diethylene glycol monobutyl ether	67.5 mg/m³	Not available	67.5 mg/m³	101.2 mg/m³	20 mg/kg bw/day	Not available	Not available	Not available	Not available
Ethylene glycol monobutyl ether	98 mg/m³	663 mg/m³	Not available	246 mg/m³	75 mg/kg bw/day	89 mg/kg bw/day	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
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	3623 µg/m³	7246 µg/m³	3623 µg/m³	3623 µg/m³	8333 µg/kg bw/day	16666 µg/kg bw/day	694 µg/cm²	694 µg/cm²	8333 µg/kg bw/day	16666 µg/kg bw/day	Not available
Diethylene glycol monobutyl ether	34 mg/m³	Not available	34 mg/m³	50.6 mg/m³	10 mg/kg bw/day	Not available	Not available	Not available	1.25 mg/kg bw/day	Not available	Not available
Ethylene glycol monobutyl ether	49 mg/m³	426 mg/m³	Not available	123 mg/m³	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

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
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	0.00217 mg/L	0.000217 mg/L	0.0217 mg/L	1 mg/L	180 mg/kg sediment dw	18 mg/kg sediment dw	Not available	146 mg/kg soil dw	33.34 mg/kg food
Diethylene glycol monobutyl ether	1.0 mg/L	0.1 mg/L	3.9 mg/L	200 mg/L	4.0 mg/kg	0.4 mg/kg	Not available	0.4 mg/kg	56 mg/kg food
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

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. Organic vapor respirator with a dust/mist filter. (A2P2/P3) In high concentrations, supplied air respirator or a self-contained breathing apparatus.
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): Nitrile gloves. (>= 0.4 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 No information available

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: Liquid
Color: Black
Odor: Fatty acid
Odor Threshold: No information available

Property	Values	Remarks/ - Method
pH:	4-7	
Freezing Point/Range	No data available	
Melting Point/Range	No data available	
Boiling Point/Range	No data available	
Flash Point	69 °C PMCC	
Evaporation rate	No data available	
Vapor Pressure	No data available	
Vapor Density	No data available	
Specific Gravity	0.92 - 0.95	
Water Solubility	Slightly soluble	
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.
10.6. Hazardous Decomposition Products
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 May cause severe eye irritation.

Skin Contact May cause skin irritation.

Ingestion Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal. 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.

Chronic Effects/Carcinogenicity Contains petroleum distillates which have been shown to cause skin cancer in laboratory animals.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Diesel	68476-34-6	7,600 mg/kg (Rat)	> 4300 mg/kg (Rabbit)	4.1 mg/L (Rat, vapour, 4h)
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	> 2020 mg/kg (Rat)	> 2000 mg/kg (Rat)	No data available
Diethylene glycol monobutyl ether	112-34-5	3384 mg/kg (Rat) 6560 mg/kg (Rat) 5660 mg/kg (Rat) 2406 mg/kg (Mouse) 2000 mg/kg (Guinea pig)	2700 mg/kg (Rabbit) 2764 mg/kg (Rabbit)	No data available
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 ppm (Rat) 4h 2.174 mg/L (Rat) 4h 2.21 mg/L (Rat) 4h 450-486 ppm (Rat) 4h 925 ppm (Rat) 4h >633 ppm (Guinea pig) 1h

Substances	CAS Number	Skin corrosion/irritation
Diesel	68476-34-6	Irritating to skin. (rabbit)
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Non-irritating to the skin
Diethylene glycol monobutyl ether	112-34-5	Mild skin irritation (rabbit)
Ethylene glycol monobutyl ether	111-76-2	Causes moderate skin irritation. (rabbit)

Substances	CAS Number	Eye damage/irritation
Diesel	68476-34-6	Non-irritating to the eye (rabbit)

Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Non-irritating to the eye
Diethylene glycol monobutyl ether	112-34-5	Causes moderate eye irritation. (rabbit)
Ethylene glycol monobutyl ether	111-76-2	Causes moderate eye irritation. (rabbit)

Substances	**CAS Number**	**Skin Sensitization**
Diesel	68476-34-6	Did not cause sensitization on laboratory animals (guinea pig)
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Skin sensitizer in guinea pig.
Diethylene glycol monobutyl ether	112-34-5	Did not cause sensitization on laboratory animals (guinea pig)
Ethylene glycol monobutyl ether	111-76-2	Did not cause sensitization on laboratory animals (guinea pig)

Substances	**CAS Number**	**Respiratory Sensitization**
Diesel	68476-34-6	No information available
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	No information available
Diethylene glycol monobutyl ether	112-34-5	No information available
Ethylene glycol monobutyl ether	111-76-2	No information available

Substances	**CAS Number**	**Mutagenic Effects**
Diesel	68476-34-6	Some in vitro tests have shown mutagenic effects. In vivo tests did not show mutagenic effects.
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	In vivo tests did not show mutagenic effects.
Diethylene glycol monobutyl ether	112-34-5	In vivo tests did not show mutagenic effects. In vitro tests did not show 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

Substances	**CAS Number**	**Carcinogenic Effects**
Diesel	68476-34-6	Contains petroleum distillates which have been shown to cause skin cancer in laboratory animals.
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Did not show carcinogenic effects in animal experiments
Diethylene glycol monobutyl ether	112-34-5	No information available.
Ethylene glycol monobutyl ether	111-76-2	Not regarded as carcinogenic.

Substances	**CAS Number**	**Reproductive toxicity**
Diesel	68476-34-6	Animal testing did not show any effects on fertility. (fetotoxic and teratogenic effects).

Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Animal testing did not show any effects on fertility.
Diethylene glycol monobutyl ether	112-34-5	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
Ethylene glycol monobutyl ether	111-76-2	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.

Substances	CAS Number	STOT - single exposure
Diesel	68476-34-6	No significant toxicity observed in animal studies at concentration requiring classification.
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	No significant toxicity observed in animal studies at concentration requiring classification.
Diethylene glycol monobutyl ether	112-34-5	No significant toxicity observed in animal studies at concentration requiring classification.
Ethylene glycol monobutyl ether	111-76-2	No data of sufficient quality are available.

Substances	CAS Number	STOT - repeated exposure
Diesel	68476-34-6	Causes damage to organs through prolonged or repeated exposure in contact with skin (Liver) thymus bone marrow
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	No significant toxicity observed in animal studies at concentration requiring classification.
Diethylene glycol monobutyl ether	112-34-5	No significant toxicity observed in animal studies at concentration requiring classification.
Ethylene glycol monobutyl ether	111-76-2	None under normal use conditions

Substances	CAS Number	Aspiration hazard
Diesel	68476-34-6	Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Not applicable
Diethylene glycol monobutyl ether	112-34-5	Not applicable
Ethylene glycol monobutyl ether	111-76-2	No adverse health effects are expected from swallowing.

SECTION 12: Ecological Information

12.1. Toxicity

Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Diesel	68476-34-6	EL50(72h): 10 mg/L (Pseudokirchnerella subcapitata) NOEL(72h): 1 mg/L (Pseudokirchnerella subcapitata)	LC50: 35 mg/l (Pimephales promelas) LL50(96h): 21 mg/L (Oncorhynchus mykiss)	No information available	EL50(48h): 210 mg/L (Daphnia magna) NOEL(48h): 46 mg/L (Daphnia magna)

Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	EC50(72h): > 100 mg/L (growth rate) (Pseudokirchnerella subcapitata)	LC50(96h): > 100 mg/L (Danio rerio)	EC50(3h): > 100 mg/L (respiration rate) (Activated sludge)	IC50(48h): > 100 mg/L (Daphnia magna)
Diethylene glycol monobutyl ether	112-34-5	EC50: > 100 mg/L (Desmodesmus subspicatus)	LC50: 1300 mg/L (Lepomis macrochirus)	EC10: >1995 mg/L (Activated sludge, industrial)	EC50: > 100 mg/L (Daphnia magna)
Ethylene glycol monobutyl ether	111-76-2	EC50: 839.56 mg/l (Skeletonema costatum) EC50(72h): 911 mg/L (biomass) 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)	EC50: >1000 mg/L (Daphnia magna) EC50 (48h): 1800 mg/L (Daphnia magna) EC50: 1875 mg/l (Daphnia magna) NOEC(21d)(reproduction): 100 mg/L (Daphnia magna)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Diesel	68476-34-6	(57.5% @ 28d)
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Readily biodegradable (71% @ 28d)
Diethylene glycol monobutyl ether	112-34-5	Readily biodegradable (71% @ 28d)
Ethylene glycol monobutyl ether	111-76-2	Readily biodegradable (75-88% @ 28d)

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Diesel	68476-34-6	No information available
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	2.4
Diethylene glycol monobutyl ether	112-34-5	1.0
Ethylene glycol monobutyl ether	111-76-2	0.81

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: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable

Environmental Hazards: Not applicable

RID

UN Number:	Not restricted
UN Proper Shipping Name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental hazard:	Not applicable

ADR

UN Number:	Not restricted
UN Proper Shipping Name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental hazard:	Not applicable

IATA/ICAO

UN Number:	Not restricted
UN Proper Shipping Name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental hazard:	Not applicable

14.1. UN Number: Not restricted

14.2. UN Proper Shipping Name: Not restricted

14.3. Transport Hazard Class(es): Not applicable

14.4. Packing Group: Not applicable

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 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

R20 Harmful by inhalation.
R20/21/22 Harmful by inhalation, by contact with skin and if swallowed.
R36 - Irritating to eyes
R36/38 Irritating to eyes and skin.
R40 Limited evidence of a carcinogenic effect.
R43 May cause sensitization by skin contact.
R48/21 Harmful: danger of serious damage to health by prolonged exposure in contact with skin.
R53 May cause long-term adverse effects in the aquatic environment.
R65 Harmful: may cause lung damage if swallowed.

Full text of H-Statements referred to under sections 2 and 3
None

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/

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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