

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

INVERT EMULSION COMPLETION FLUID

Revision Date: 08-Sep-2015

Revision Number: 2

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

1.1. Product Identifier

Product Name INVERT EMULSION COMPLETION FLUID
Internal ID Code HM008013

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

Recommended Use Completion/Workover Fluid
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

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

Aspiration Category	Category 1 - H304
Serious Eye Damage / Eye Irritation	Category 1 - H318

Skin Sensitization	Category 1 - H317
Specific Target Organ Toxicity - (Single Exposure)	Category 3 - H336

2.2. Label Elements

Hazard Pictograms



Signal Word

Danger

Hazard Statements

H304 - May be fatal if swallowed and enters airways
 H317 - May cause an allergic skin reaction
 H318 - Causes serious eye damage
 H336 - May cause drowsiness or dizziness

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

P280 - Wear protective gloves/eye protection/face protection
 P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
 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
 P310 - Immediately call a POISON CENTER or doctor/physician

Contains

Substances

	CAS Number
Hydrotreated light petroleum distillate	64742-47-8
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenyl]-	57635-48-0
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6
Calcium bromide	7789-41-5

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.
Hydrotreated light petroleum distillate	265-149-8	64742-47-8	30 - 60%	STOT SE 3 (H336) Asp. Tox. 1 (H304)	01-2119484819-18
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenyl]-	611-563-2	57635-48-0	1 - 5%	Skin Irrit. 2 (H315) Eye Corr. 1 (H318)	No data available
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	273-601-0	68990-47-6	1 - 5%	Skin Sens. 1 (H317)	01-2119496070-42
Calcium bromide	232-164-6	7789-41-5	10 - 30%	Eye Corr. 1 (H318)	01-2119490040-51

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, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
Skin	Wash with soap and water. Get medical attention if irritation persists.
Ingestion	Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration. Rinse mouth. Never give anything by mouth to an unconscious person.

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

Causes serious eye damage. May cause allergic skin reaction. May cause drowsiness and dizziness. Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

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. Decomposition in fire may produce harmful gases. Do not allow runoff to enter waterways.

5.3. Advice for firefighters

Special Protective Equipment for Fire-Fighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. 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. 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. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. 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 in a cool, dry location. Keep container closed when not in use. Do not reuse empty container. Store in a well ventilated area. Store locked up.

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
Hydrotreated light petroleum distillate	64742-47-8	Not applicable	Not applicable	Not applicable	Not applicable
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	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
Calcium bromide	7789-41-5	Not applicable	10 mg/m ³	Not applicable	Not applicable

Substances	CAS Number	Germany	Spain	Portugal	Finland
Hydrotreated light petroleum distillate	64742-47-8	TWA: 20 ppm TWA: 140 mg/m ³	Not applicable	Not applicable	Not applicable
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	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
Calcium bromide	7789-41-5	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Hydrotreated light petroleum distillate	64742-47-8	Not applicable	Not applicable	Not applicable	Not applicable
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	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
Calcium bromide	7789-41-5	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Hydrotreated light petroleum distillate	64742-47-8	Not applicable	Not applicable	Not applicable	Not applicable
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	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
Calcium bromide	7789-41-5	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus
Hydrotreated light petroleum distillate	64742-47-8	Not applicable	Not applicable	Not applicable	Not applicable
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	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
Calcium bromide	7789-41-5	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
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	14693 µg/m ³	29386 µg/m ³	14693 µg/m ³	14693 µg/m ³	16666 µg/kg bw/day	33332 µg/kg bw/day	1388 µg/cm ²	1388 µg/cm ²	Not available
Calcium bromide	1.4 mg/m ³	Not available	Not available	500 mg/m ³	0.2 mg/kg bw/d	Not available	Not available	Not available	Not available

General Population

Substances	Long-term exposure - systemic effects, Inhalation	Acute / short term exposure - systemic effects, Inhalation	Long-term exposure - local effects, Inhalation	Acute / short term exposure - local effects, Inhalation	Long-term exposure - systemic effects, Dermal	Acute / short term exposure - systemic effects, Dermal	Long-term exposure - local effects, Dermal	Acute / short term exposure - local effects, Dermal	Long-term exposure - systemic effects, Oral	Acute / short term exposure - local effects, Oral	Hazards for the eyes - local effects
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	3623 µg/m ³	7246 µg/m ³	3623 µg/m ³	3623 µg/m ³	8333 µg/kg bw/day	16666 µg/kg bw/day	694 µg/cm ²	694 µg/cm ²	8333 µg/kg bw/day	16666 µg/kg bw/day	Not available
Calcium bromide	0.25 mg/m ³	Not available	Not available	Not available	0.073 mg/kg bw/d	Not available	Not available	Not available	0.073 mg/kg bw/d	Not available	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
Calcium bromide	0.117 mg/L	0.058 mg/L	0.208 mg/L	77.7 mg/L	0.433 mg/kg sediment dw	0.215 mg/kg sediment dw	Not available	0.2 mg/kg soil dw	No potential for bioaccumulation

8.2. Exposure controls**Engineering Controls**

Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.

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

Wear a NIOSH certified, European Standard EN 149 (FFP2/FFP3), AS/NZS 1715, or equivalent respirator when using this product.

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: Light brown

Odor: Mild hydrocarbon

Odor Threshold: No information available

Property

Remarks/ - Method

pH:

Freezing Point/Range

Values

No data available

Melting Point/Range

No data available

Boiling Point/Range

No data available

Flash Point

No data available

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

No data available

Water Solubility

Insoluble 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

None anticipated

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

Eye Contact

Causes serious eye damage.

Skin Contact

May cause an allergic skin reaction. Prolonged or repeated contact may cause slight 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.

Chronic Effects/Carcinogenicity

Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as "Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2). There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrotreated light petroleum distillate	64742-47-8	> 5000 mg/kg (Rat) (similar substance)	> 2000 mg/kg (Rabbit) (similar substance)	> 5.28 mg/L (Rat) 4h (similar substance)
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	> 2000 mg/kg (Rat)	> 10000 mg/kg (Rabbit) (similar substance)	No data available
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
Calcium bromide	7789-41-5	2447 mg/kg (Rat) 2210 mg/kg (Rat)	>2000 mg/kg (Rabbit)	> 203 mg/L (Rat, aerosol, 1h) > 204 mg/L (Rat, dust, 1h)

Substances	CAS Number	Skin corrosion/irritation
Hydrotreated light petroleum distillate	64742-47-8	Non-irritating to the skin (similar substances)
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	Causes skin irritation.
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Non-irritating to the skin

Calcium bromide	7789-41-5	Non-irritating to the skin (Rabbit)
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Substances	CAS Number	Eye damage/irritation
Hydrotreated light petroleum distillate	64742-47-8	Non-irritating to rabbit's eye
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	Corrosive to eyes
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Non-irritating to the eye
Calcium bromide	7789-41-5	Causes severe eye irritation. (Rabbit)

Substances	CAS Number	Skin Sensitization
Hydrotreated light petroleum distillate	64742-47-8	Did not cause sensitization on laboratory animals (guinea pig) (similar substances)
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	Did not cause sensitization on laboratory animals (similar substances)
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Skin sensitizer in guinea pig.
Calcium bromide	7789-41-5	Did not cause sensitization on laboratory animals (guinea pig)

Substances	CAS Number	Respiratory Sensitization
Hydrotreated light petroleum distillate	64742-47-8	No information available
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	No information available
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	No information available
Calcium bromide	7789-41-5	No information available

Substances	CAS Number	Mutagenic Effects
Hydrotreated light petroleum distillate	64742-47-8	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects. (similar substances)
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects. (similar substances)
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	In vivo tests did not show mutagenic effects.
Calcium bromide	7789-41-5	In vitro tests did not show mutagenic effects

Substances	CAS Number	Carcinogenic Effects
Hydrotreated light petroleum distillate	64742-47-8	Did not show carcinogenic effects in animal experiments
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	No information available.
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	No information available.

Calcium bromide	7789-41-5	Did not show carcinogenic effects in animal experiments (similar substances)
Substances	CAS Number	Reproductive toxicity
Hydrotreated light petroleum distillate	64742-47-8	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	No data of sufficient quality are available.
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.
Calcium bromide	7789-41-5	Animal testing did not show any effects on fertility. Adverse developmental effects were only observed at maternally toxic doses. (similar substances)
Substances	CAS Number	STOT - single exposure
Hydrotreated light petroleum distillate	64742-47-8	May cause disorder and damage to the Central Nervous System (CNS) (similar substances)
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	No information available
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	No information available
Calcium bromide	7789-41-5	No significant toxicity observed in animal studies at concentration requiring classification.
Substances	CAS Number	STOT - repeated exposure
Hydrotreated light petroleum distillate	64742-47-8	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	No significant toxicity observed in animal studies at concentration requiring classification. (similar substances)
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	No data of sufficient quality are available.
Calcium bromide	7789-41-5	No information available
Substances	CAS Number	Aspiration hazard
Hydrotreated light petroleum distillate	64742-47-8	Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	Not applicable
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Not applicable
Calcium bromide	7789-41-5	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
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Hydrotreated light petroleum distillate	64742-47-8	EC50 (72h) > 1,000 mg/L (<i>Skeletonema costatum</i>) ErL50 (72h) > 1000 mg/L (<i>Pseudokirchneriella subcapitata</i>) EbL50 (72h) > 1000 mg/L (<i>Pseudokirchneriella subcapitata</i>) NOELR (72h) 1000 mg/L (<i>Pseudokirchneriella subcapitata</i>)	LC50 (96h) > 10,000 mg/L (<i>Scophthalmus maximus</i>) LL50 (96h) > 1000 mg/L (<i>Oncorhynchus mykiss</i>)	No information available	LC50 (48h) > 10,000 mg/L (<i>Acartia tonsa</i>) EC50 (48h) 1100 mg/L (<i>Daphnia pulex</i>) LC50 (48h) 0.12 mg/L (<i>Daphnia magna</i>) EL50 (48h) > 1000 mg/L (<i>Daphnia magna</i>)
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	EC50 (72h): 25.21 mg/L (<i>Skeletonema costatum</i>)	EC50 (96h): 29.25 mg/L (<i>Scophthalmus maximus</i>) NOEC(10d): 416.78 mg/kg (<i>Corophium volutator</i>)	No information available	EC50 (48h): 597.37 mg/L (<i>Acartia tonsa</i>)
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	EC50 (72h) > 100 mg/L (growth rate) (<i>Pseudokirchneriella subcapitata</i>)	LC50 (96h) > 100 mg/L (<i>Danio rerio</i>)	EC50 (3h) > 100 mg/L (Activated sludge) (respiration rate)	IC50 (48h) > 100 mg/L (<i>Daphnia magna</i>)
Calcium bromide	7789-41-5	EC50 (48h) > 440 mg/L (Growth rate) (<i>Skeletonema costatum</i>) (similar substance)	LC50 (96h) > 440 mg/L (<i>Scophthalmus maximus</i>) (similar substance) LC50 (96h) > 1000 mg/L (<i>Lepomis macrochirus</i>) (similar substance) NOEC (124d) 10 mg/L (<i>Poecilia reticulata</i>) (similar substance)	EC50 (3h) > 1000 mg/L (activated sludge, domestic) (similar substance)	EC50 (48h) > 100 mg/L (<i>Daphnia magna</i>) NOEC (21d) 7.5 mg/L (Reproduction) (<i>Daphnia magna</i>) (similar substance)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Hydrotreated light petroleum distillate	64742-47-8	Readily biodegradable (40% @ 28d)
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	Readily biodegradable (83% @ 28d)
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	Readily biodegradable (71% @ 28d)
Calcium bromide	7789-41-5	The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Does not bioaccumulate

Substances	CAS Number	Log Pow
Hydrotreated light petroleum distillate	64742-47-8	No information available
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	4.91
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	2.4
Calcium bromide	7789-41-5	No information available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Hydrotreated light petroleum distillate	64742-47-8	No information available
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	57635-48-0	No information available
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	68990-47-6	No information available
Calcium bromide	7789-41-5	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
Hydrotreated light petroleum distillate	Not PBT/vPvB
Poly(oxy-1,2-ethanediyl), a-(carboxymethyl)-w-[(9Z)-9-octadecenoxy]-	Not PBT/vPvB
Fatty acid, tall-oil, reaction product with diethylenetriamine, maleic anhydride, tetraethylenepentamine, and triethylenetetramine	Not PBT/vPvB
Calcium bromide	Not applicable

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	Bury in a licensed landfill according to 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 Hazards:	Not applicable

ADR

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

Product contains one or more components not listed on the inventory.

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 0: Generally not water endangering.**List of the carcinogenic, mutagenic and toxic for reproduction substances SZW**

Crystalline silica, quartz

Crystalline silcia, cristobilite

Crystalline silcia, trydimite

15.2. Chemical Safety Assessment

No information available

SECTION 16: Other Information**Full text of H-Statements referred to under sections 2 and 3**

H304 - May be fatal if swallowed and enters airways

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H318 - Causes serious eye damage

H336 - May cause drowsiness or dizziness

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: 08-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