Brake Fluid DOT 4

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10.0	02.12.2025	9773099-00010	Date of first issue: 29.06.2020

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

1.1 Product identifier

Trade name : Brake Fluid DOT 4

Product code : 0892009025

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

Use of the Sub-stance/Mixture : Brake fluid
Professional use product

Recommended restrictions on use : Not applicable

1.3 Details of the supplier of the safety data sheet

Company : Wurth UK Ltd
1 Centurion Way
Erith, Kent

Telephone : +44 (0)3300 555 444

Telefax : +44 (0)3300 555 666

E-mail address of person responsible for the SDS : prodsafe@wuerth.com

1.4 Emergency telephone number

+44 (0)870 190 6777

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Not a hazardous substance or mixture.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

No hazard pictogram, no signal word, no hazard statement(s), no precautionary statement(s) required.

EUH210 Safety data sheet available on request.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol	Not Assigned 01-2119531322-53	Eye Dam. 1; H318 ——————— specific concentration limit Eye Dam. 1; H318 >= 30 % Eye Irrit. 2; H319 20 - < 30 % Eye Dam. 1; H318 >= 30 % Eye Irrit. 2; H319 20 - < 30 %	>= 10 - < 20
3,6,9,12-Tetraoxahexadecan-1-ol	1559-34-8 216-322-1	Eye Irrit. 2; H319	>= 1 - < 10
Diethylene glycol	111-46-6 203-872-2 603-140-00-6 01-2119457857-21	Acute Tox. 4; H302	>= 1 - < 10
2-(2-Methoxyethoxy)ethanol	111-77-3 203-906-6 603-107-00-6 01-2119475100-52	Repr. 1B; H360D ——————— specific concentration limit Repr. 1B; H360D >= 3 %	>= 0.3 - < 1
Methyl-1H-benzotriazole	29385-43-1 249-596-6 613-351-00-5	Acute Tox. 4; H302 Repr. 2; H361d Aquatic Chronic 2; H411	>= 0.1 - < 0.25

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.

Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

If inhaled : If inhaled, remove to fresh air.
Get medical attention.

In case of skin contact : In case of contact, immediately flush skin with soap and plenty of water.
Remove contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.

In case of eye contact : Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists.

If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention.
Rinse mouth thoroughly with water.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire- : Exposure to combustion products may be a hazard to health.

fighting

Hazardous combustion products	:	Carbon oxides

5.3 Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

6.2 Environmental precautions

Environmental precautions	:	Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. If spillage enters rivers or watercourses, inform the Environment Agency (emergency telephone number 0800 807060).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	:	Soak up with inert absorbent material. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures	:	See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
Local/Total ventilation	:	Use only with adequate ventilation.
Advice on safe handling	:	Avoid inhalation of vapour or mist. Do not swallow. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment Take care to prevent spills, waste and minimize release to the environment.
Hygiene measures	:	If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep in properly labelled containers. Store in accordance with the particular national regulations.
Advice on common storage	:	Do not store with the following product types: Strong oxidizing agents Gases

7.3 Specific end use(s)

Specific use(s)	:	No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol	Not Assigned	TWA	10 ppm 67.5 mg/m3	GB EH40
		STEL	15 ppm 101.2 mg/m3	GB EH40
		TWA	10 ppm 67.5 mg/m3	2006/15/EC

	Further information: Indicative			
		STEL	15 ppm 101.2 mg/m3	2006/15/EC
	Further information: Indicative			
Diethylene glycol	111-46-6	TWA	23 ppm 101 mg/m3	GB EH40
2-(2-Methoxyeth-oxy)ethanol	111-77-3	TWA	10 ppm 50.1 mg/m3	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
		TWA	10 ppm 50.1 mg/m3	2006/15/EC
	Further information: Indicative, Identifies the possibility of significant uptake through the skin			

Derived No Effect Level (DNEL)

Substance name	End Use	Exposure routes	Potential health effects	Value
2,2'-(Ethylenedi-oxy)diethanol	Workers	Inhalation	Acute local effects	50 mg/m3
	Workers	Skin contact	Long-term systemic effects	40 mg/kg bw/day
	Consumers	Inhalation	Acute local effects	25 mg/m3
	Consumers	Skin contact	Long-term systemic effects	20 mg/kg bw/day
Methyl-1H-benzotriazole	Workers	Inhalation	Long-term systemic effects	21.2 mg/m3
	Workers	Skin contact	Long-term systemic effects	0.3 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	350 µg/m3
	Consumers	Skin contact	Long-term systemic effects	0.01 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	0.01 mg/kg bw/day
Triethylene glycol monomethyl ether	Workers	Inhalation	Long-term systemic effects	156 mg/m3
	Workers	Skin contact	Long-term systemic effects	40 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	93 mg/m3
	Consumers	Skin contact	Long-term systemic effects	20 mg/kg bw/day
	Consumers	Skin contact	Long-term systemic effects	2 mg/kg bw/day
2-(2-Methoxyeth-oxy)ethanol	Workers	Inhalation	Long-term systemic effects	50.1 mg/m3

	Workers	Skin contact	Long-term systemic effects	2.22 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	30.1 mg/m3
	Consumers	Skin contact	Long-term systemic effects	1.33 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	7.5 mg/kg bw/day
Diethylene glycol	Workers	Inhalation	Long-term systemic effects	44 mg/m3
	Workers	Inhalation	Long-term local effects	60 mg/m3
	Workers	Skin contact	Long-term systemic effects	43 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	12 mg/m3
	Consumers	Inhalation	Long-term local effects	12 mg/m3
	Consumers	Skin contact	Long-term systemic effects	21 mg/kg bw/day
Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol	Workers	Inhalation	Long-term systemic effects	195 mg/m3
	Workers	Skin contact	Long-term systemic effects	50 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	117 mg/m3
	Consumers	Skin contact	Long-term systemic effects	25 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	2.5 mg/kg bw/day
2-(2-(2-Ethoxyethoxy)ethoxy)ethanol	Workers	Inhalation	Long-term systemic effects	169 mg/m3
	Workers	Skin contact	Long-term systemic effects	181 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	114 mg/m3
	Consumers	Skin contact	Long-term systemic effects	85 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	8.5 mg/kg bw/day

Predicted No Effect Concentration (PNEC)

Substance name	Environmental Compartment	Value
Sebacic acid	Fresh water	0.018 mg/l
	Marine water	0.0018 mg/l
	Intermittent use/release	0.18 mg/l

	Sewage treatment plant	10 mg/l
	Fresh water sediment	0.547 mg/kg
	Marine sediment	0.0547 mg/kg
	Soil	0.0986 mg/kg dry weight (d.w.)
2,2'-(Ethylenedioxy)diethanol	Fresh water	10 mg/l
	Freshwater - intermittent	10 mg/l
	Marine water	1 mg/l
	Sewage treatment plant	10 mg/l
	Fresh water sediment	46 mg/kg dry weight (d.w.)
	Marine sediment	4.6 mg/kg dry weight (d.w.)
	Soil	3.32 mg/kg dry weight (d.w.)
Methyl-1H-benzotriazole	Fresh water	8 µg/l
	Freshwater - intermittent	85.8 µg/l
	Marine water	8 µg/l
	Marine water - intermittent	53 µg/l
	Sewage treatment plant	0.218 mg/l
	Fresh water sediment	0.117 mg/kg dry weight (d.w.)
	Marine sediment	0.117 mg/kg dry weight (d.w.)
	Soil	0.045 mg/kg dry weight (d.w.)
Triethylene glycol monomethyl ether	Fresh water	10 mg/l
	Marine water	1 mg/l
	Intermittent use/release	50 mg/l
	Sewage treatment plant	200 mg/l
	Fresh water sediment	36.6 mg/kg
	Marine sediment	0.8 mg/kg
	Soil	1.73 mg/kg
	Oral (Secondary Poisoning)	89 mg/kg food
2-(2-Methoxyethoxy)ethanol	Fresh water	12 mg/l
	Freshwater - intermittent	12 mg/l
	Marine water	1.2 mg/l
	Sewage treatment plant	10000 mg/l
	Fresh water sediment	44.4 mg/kg dry weight (d.w.)
	Marine sediment	0.44 mg/kg dry weight (d.w.)
	Soil	2.1 mg/kg dry weight (d.w.)
	Oral (Secondary Poisoning)	90 mg/kg food
Diethylene glycol	Fresh water	10 mg/l
	Marine water	1 mg/l
	Freshwater - intermittent	10 mg/l
	Sewage treatment plant	199.5 mg/l
	Fresh water sediment	20.9 mg/kg dry

		weight (d.w.)
	Soil	1.53 mg/kg dry weight (d.w.)
	Marine sediment	2.09 mg/kg dry weight (d.w.)
Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol	Fresh water	1.5 mg/l
	Marine water	0.15 mg/l
	Intermittent use/release	5 mg/l
	Sewage treatment plant	200 mg/l
	Fresh water sediment	5.77 mg/kg
	Marine water	0.13 mg/kg
	Soil	0.45 mg/kg
	Oral (Secondary Poisoning)	111 mg/kg food
2-(2-(2-Ethoxyethoxy)ethoxy)ethanol	Fresh water	7 mg/l
	Marine water	0.7 mg/l
	Sewage treatment plant	750 mg/l
	Fresh water sediment	26 mg/kg dry weight (d.w.)
	Marine sediment	2.6 mg/kg dry weight (d.w.)
	Soil	1.2 mg/kg dry weight (d.w.)
	Oral (Secondary Poisoning)	97 mg/kg food

8.2 Exposure controls

Engineering measures

Ensure adequate ventilation, especially in confined areas.
Minimize workplace exposure concentrations.

Personal protective equipment

Eye/face protection : Please follow all applicable local/national requirements when selecting protective measures for a specific workplace.
Wear the following personal protective equipment:
Safety glasses
Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.
Equipment should conform to BS EN 166

Hand protection

Material	:	PVC
Break through time	:	> 480 min
Glove thickness	:	0.4 mm

Material	:	Nitrile rubber
Break through time	:	> 480 min
Glove thickness	:	0.4 mm

Material	:	Natural Rubber
Break through time	:	> 480 min
Glove thickness	:	0.4 mm

Material	:	butyl-rubber
Break through time	:	> 480 min
Glove thickness	:	0.4 mm
Remarks	:	Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.
Skin and body protection	:	Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential. Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).
Respiratory protection	:	If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection. Filter should conform to BS EN 14387
Filter type	:	Combined particulates and organic vapour type (A-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	liquid
Colour	:	clear, amber
Odour	:	characteristic
Odour Threshold	:	No data available
pH	:	8 - 9 Concentration: 50 %
Melting point/freezing point	:	< -50 °C
Initial boiling point and boiling range	:	> 260 °C
Flash point	:	> 120 °C
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Flammability (liquids)	:	Ignitable (see flash point)
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available

Vapour pressure	:	< 2 mbar (20 °C)
Relative vapour density	:	No data available
Density	:	1.030 - 1.090 g/cm³ (20 °C) Method: DIN 51757
Solubility(ies)		
Water solubility	:	completely miscible
Partition coefficient: n-octanol/water	:	log Pow: < 2 (20 °C) Method: OECD Test Guideline 117
Auto-ignition temperature	:	> 300 °C
Decomposition temperature	:	> 300 °C
Viscosity		
Viscosity, kinematic	:	5 - 10 cSt (20 °C) Method: ASTM D 445
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

9.2 Other information

Particle size	:	Not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity

Not classified as a reactivity hazard.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions	:	Can react with strong oxidizing agents.

10.4 Conditions to avoid

Conditions to avoid	:	None known.

10.5 Incompatible materials

Materials to avoid	:	Oxidizing agents

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Components:

Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol:

Acute oral toxicity : LD50 (Rat): 5,170 mg/kg
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rabbit): 3,540 mg/kg
Remarks: Based on data from similar materials

3,6,9,12-Tetraoxahexadecan-1-ol:

Acute oral toxicity : LD50 (Rat): 2,630 mg/kg
Remarks: Based on data from similar materials

Diethylene glycol:

Acute oral toxicity : Acute toxicity estimate (Humans): 1,120 mg/kg
Method: Expert judgement

2-(2-Methoxyethoxy)ethanol:

Acute oral toxicity : LD50 (Guinea pig): 4,160 mg/kg

Acute dermal toxicity : LD50 (Rabbit, male): 9,404 mg/kg

Methyl-1H-benzotriazole:

Acute oral toxicity : LD50 (Rat): 720 mg/kg
Method: OECD Test Guideline 401
Remarks: The test was conducted equivalent or similar to guideline

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Method: OECD Test Guideline 402
Remarks: Based on data from similar materials

Skin corrosion/irritation

Not classified based on available information.

Components:

Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol:

Species	:	Rabbit
Result	:	No skin irritation
Remarks	:	Based on data from similar materials

3,6,9,12-Tetraoxahexadecan-1-ol:

Species	:	Rabbit
Result	:	No skin irritation

Diethylene glycol:

Species	:	Rabbit
Result	:	No skin irritation

2-(2-Methoxyethoxy)ethanol:

Species	:	Rabbit
Result	:	No skin irritation

Methyl-1H-benzotriazole:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation
Remarks	:	The test was conducted according to guideline

Serious eye damage/eye irritation

Not classified based on available information.

Product:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	No eye irritation
Remarks	:	Based on data from similar materials

Components:

Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	Irreversible effects on the eye
Remarks	:	Based on data from similar materials

3,6,9,12-Tetraoxahexadecan-1-ol:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	Irritation to eyes, reversing within 21 days

Diethylene glycol:

Species	:	Rabbit
Result	:	No eye irritation

2-(2-Methoxyethoxy)ethanol:

Species	:	Rabbit
Result	:	No eye irritation

Methyl-1H-benzotriazole:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	No eye irritation
Remarks	:	The test was conducted according to guideline

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:

Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol:

Test Type	:	Maximisation Test
Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	negative
Remarks	:	Based on data from similar materials

3,6,9,12-Tetraoxahexadecan-1-ol:

Test Type	:	Maximisation Test
Exposure routes	:	Skin contact
Species	:	Guinea pig
Result	:	negative
Remarks	:	Based on data from similar materials

Diethylene glycol:

Test Type	:	Maximisation Test
Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	Directive 67/548/EEC, Annex V, B.6.

Result : negative

2-(2-Methoxyethoxy)ethanol:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : negative

Methyl-1H-benzotriazole:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : negative
Remarks : The test was conducted according to guideline

Germ cell mutagenicity

Not classified based on available information.

Components:

Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
Remarks: Based on data from similar materials

3,6,9,12-Tetraoxahexadecan-1-ol:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative
Remarks: Based on data from similar materials

Diethylene glycol:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Result: negative

Test Type: In vitro sister chromatid exchange assay in mammalian cells
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Intraperitoneal injection

Method: OECD Test Guideline 474
Result: negative

2-(2-Methoxyethoxy)ethanol:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Result: negative
Remarks: Based on data from similar materials

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Methyl-1H-benzotriazole:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative
Remarks: The test was conducted equivalent or similar to guideline

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 474
Result: negative
Remarks: The test was conducted equivalent or similar to guideline

Carcinogenicity

Not classified based on available information.

Components:

Diethylene glycol:

Species : Rat
Application Route : Ingestion
Exposure time : 108 weeks
Result : negative

Reproductive toxicity

Not classified based on available information.

Components:

Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Mouse Application Route: Ingestion Result: negative Remarks: Based on data from similar materials
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rat Application Route: Ingestion Result: negative Remarks: Based on data from similar materials

Diethylene glycol:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Mouse Application Route: Ingestion Result: negative
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rabbit Application Route: Ingestion Method: OECD Test Guideline 414 Result: negative

2-(2-Methoxyethoxy)ethanol:

Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rat Application Route: Ingestion Result: positive
Reproductive toxicity - Assessment	:	Clear evidence of adverse effects on development, based on animal experiments.

Methyl-1H-benzotriazole:

Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rat Application Route: Ingestion Method: OECD Test Guideline 414 Result: positive Remarks: The test was conducted according to guideline
Reproductive toxicity - As-	:	Some evidence of adverse effects on development, based on

sessment animal experiments.

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Components:

2-(2-Methoxyethoxy)ethanol:

Assessment : No significant health effects observed in animals at concentrations of 200 mg/kg bw or less.

Repeated dose toxicity

Components:

Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol:

Species	:	Rat
NOAEL	:	400 mg/kg
LOAEL	:	1,300 mg/kg
Application Route	:	Ingestion
Exposure time	:	91 Days
Remarks	:	Based on data from similar materials

Diethylene glycol:

Species	:	Rat
NOAEL	:	300 mg/kg
Application Route	:	Ingestion
Exposure time	:	98 Days

Species	:	Dog
NOAEL	:	2,220 mg/kg
Application Route	:	Skin contact
Exposure time	:	4 Weeks
Method	:	OECD Test Guideline 410
Remarks	:	Based on data from similar materials

2-(2-Methoxyethoxy)ethanol:

Species	:	Rat, male
NOAEL	:	900 mg/kg
Application Route	:	Ingestion
Exposure time	:	6 Weeks

Species	:	Rat
NOAEL	:	> 1.06 mg/l
Application Route	:	inhalation (vapour)
Exposure time	:	13 Weeks

Species	:	Guinea pig
NOAEL	:	40 mg/kg
LOAEL	:	200 mg/kg
Application Route	:	Skin contact
Exposure time	:	13 Weeks

Methyl-1H-benzotriazole:

Species	:	Rat
NOAEL	:	>= 750 mg/kg
Application Route	:	Ingestion
Exposure time	:	90 Days
Method	:	OECD Test Guideline 408
Remarks	:	The test was conducted according to guideline

Aspiration toxicity

Not classified based on available information.

SECTION 12: Ecological information

12.1 Toxicity

Components:

Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol:

Toxicity to fish	:	LC50 (Leuciscus idus (Golden orfe)): 2,200 - 4,600 mg/l Exposure time: 96 h Method: DIN 38412 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): 2,210 mg/l Exposure time: 48 h Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): > 612.6 mg/l Exposure time: 72 h Remarks: Based on data from similar materials NOEC (Desmodesmus subspicatus (green algae)): 62.5 mg/l Exposure time: 72 h Remarks: Based on data from similar materials
Toxicity to microorganisms	:	IC50 : > 5,000 mg/l Exposure time: 16 h Remarks: Based on data from similar materials

3,6,9,12-Tetraoxahexadecan-1-ol:

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202

Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : ErC50 (Scenedesmus capricornutum (fresh water algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

EC10 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Diethylene glycol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 75,200 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10,000 mg/l
Exposure time: 24 h
Method: DIN 38412

Toxicity to algae/aquatic plants : NOEC (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l
Exposure time: 72 h
Remarks: Based on data from similar materials

Toxicity to fish (Chronic toxicity) : NOEC: > 1 mg/l
Exposure time: 7 d
Species: Pimephales promelas (fathead minnow)
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: > 1 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Remarks: Based on data from similar materials

2-(2-Methoxyethoxy)ethanol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 5,741 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1,192 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Raphidocelis subcapitata (freshwater green alga)): > 1,000 mg/l
Exposure time: 96 h

Toxicity to microorganisms : EC10 (Pseudomonas putida): > 1,000 mg/l
Exposure time: 17 h
Method: DIN 38 412 Part 8

Methyl-1H-benzotriazole:

Toxicity to fish	:	LC50 (Cyprinodon variegatus (sheepshead minnow)): 55 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Acartia tonsa (Calanoid copepod)): 55 mg/l Exposure time: 48 h Method: ISO 14669 and PARCOM method Remarks: The test was conducted according to guideline
Toxicity to algae/aquatic plants	:	NOEC (Skeletonema costatum (marine diatom)): 30 mg/l Exposure time: 72 h Method: ISO 10253 Remarks: The test was conducted according to guideline ErC50 (Skeletonema costatum (marine diatom)): 53 mg/l Exposure time: 72 h Method: ISO 10253 Remarks: The test was conducted according to guideline
Toxicity to microorganisms	:	EC10 (activated sludge): > 1 mg/l Exposure time: 3 h Method: OECD Test Guideline 209 Remarks: The test was conducted according to guideline Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	EC10: > 0.1 - 1 mg/l Exposure time: 21 d Species: Daphnia galeata (water flea) Method: OECD Test Guideline 211 Remarks: The test was conducted according to guideline Based on data from similar materials

12.2 Persistence and degradability

Components:

Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol:

Biodegradability	:	Result: Not readily biodegradable. Biodegradation: 85 % Exposure time: 28 d Method: OECD Test Guideline 301D Remarks: Based on data from similar materials

3,6,9,12-Tetraoxahexadecan-1-ol:

Biodegradability	:	Result: Readily biodegradable. Remarks: Based on data from similar materials

Diethylene glycol:

Biodegradability	:	Result: Readily biodegradable.

2-(2-Methoxyethoxy)ethanol:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 100 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Methyl-1H-benzotriazole:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 4 %
Exposure time: 28 d
Method: Directive 67/548/EEC Annex V, C.4.D.
Remarks: The test was conducted according to guideline

Biodegradation Simulation Tests : Environmental Compartment: Fresh water
Value type: DT50
Value: > 60 d
Measurement method: OECD Test Guideline 309
Temperature: 10 °C
pH: 7.89
Remarks: The test was conducted according to guideline

12.3 Bioaccumulative potential

Components:

Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol:

Partition coefficient: n-octanol/water : log Pow: 0.51
Remarks: Based on data from similar materials

3,6,9,12-Tetraoxahexadecan-1-ol:

Partition coefficient: n-octanol/water : log Pow: 0.25

Diethylene glycol:

Partition coefficient: n-octanol/water : log Pow: -1.98
Remarks: Calculation

2-(2-Methoxyethoxy)ethanol:

Partition coefficient: n-octanol/water : log Pow: -0.47

Methyl-1H-benzotriazole:

Partition coefficient: n-octanol/water : log Pow: 1.079 - 1.083
Method: OECD Test Guideline 117
Remarks: The test was conducted according to guideline

12.4 Mobility in soil

Components:

Methyl-1H-benzotriazole:

Distribution among environmental compartments : log Koc: < 2
Remarks: Based on data from similar materials

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Product:

Endocrine disrupting potential : This substance/mixture does not contain components considered to have endocrine disrupting properties for environment according to UK REACH Article 57(f) at levels of 0.1% or higher.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of in accordance with local regulations.
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.
Do not dispose of waste into sewer.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
If not otherwise specified: Dispose of as unused product.

Waste Code : The following Waste Codes are only suggestions:

used product
16 01 13*, brake fluids

unused product
16 01 13*, brake fluids

uncleaned packagings
15 01 10*, packaging containing residues of or contaminated by hazardous substances

SECTION 14: Transport information

14.1 UN number

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA	:	Not regulated as a dangerous good

14.2 UN proper shipping name

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA	:	Not regulated as a dangerous good

14.3 Transport hazard class(es)

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA	:	Not regulated as a dangerous good

14.4 Packing group

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA (Cargo)	:	Not regulated as a dangerous good
IATA (Passenger)	:	Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Not applicable

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Remarks : Not applicable for product as supplied.

SECTION 15: Regulatory information

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

Relevant EU provisions transposed through retained EU law

UK REACH List of restrictions (Annex 17)	:	Conditions of restriction for the following entries should be considered: Number on list 54: 2-(2-Methoxyethoxy)ethanol Number on list 55: Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol Substance(s) or mixture(s) are listed here according to their appearance in the regulation, irrespective of their use/purpose or the conditions of the restriction. Please refer to the conditions in corresponding Regulation to determine whether an entry is applicable to the placing on the market or not.
UK REACH Candidate list of substances of very high concern (SVHC) for Authorisation	:	Not applicable
The Persistent Organic Pollutants Regulations (retained Regulation (EU) 2019/1021 as amended for Great Britain)	:	Not applicable
Regulation (EU) No 2024/590 on substances that deplete the ozone layer	:	Not applicable
UK REACH List of substances subject to authorisation (Annex XIV)	:	Not applicable
GB Export and import of hazardous chemicals - Prior Informed Consent (PIC) Regulation	:	Not applicable

Control of Major Accident Hazards Regulations 2015 (COMAH)
Not applicable

Volatile organic compounds	:	Directive 2010/75/EU of 24 November 2010 on industrial and livestock rearing emissions (integrated pollution prevention and control) Volatile organic compounds (VOC) content: < 0.5 %

Other regulations:

Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to new and expectant mothers at work contained in Regulation 16 to 18) and of the Pregnant Workers Directive 92/85/EEC.
Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to protection of young people at work contained in Regulation 19) and of Directive

94/33/EC on the protection of young people at work.

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Other information	:	Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Full text of H-Statements

H302	:	Harmful if swallowed.
H318	:	Causes serious eye damage.
H319	:	Causes serious eye irritation.
H360D	:	May damage the unborn child.
H361d	:	Suspected of damaging the unborn child.
H411	:	Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
PMT	:	Persistent, mobile and toxic
Repr.	:	Reproductive toxicity
vPvM	:	Very persistent and very mobile
2006/15/EC	:	Europe. Indicative occupational exposure limit values
GB EH40	:	UK. EH40 WEL - Workplace Exposure Limits
2006/15/EC / TWA	:	Limit Value - eight hours
2006/15/EC / STEL	:	Short term exposure limit
GB EH40 / TWA	:	Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL	:	Short-term exposure limit (15-minute reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - Interna-

tional Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

Sources of key data used to compile the Safety Data Sheet	:	Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

GB / EN