Safety data sheet
according to 1907/2006/EC, Article 31

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

· **1.1 Product identifier**

· **Trade name: BRAKE FLUID DOT 4**

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.

· **Application of the substance / the mixture**
Only for proper handling.
Brake fluid

· **1.3 Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

MOTOREX AG
Bern–Zürich–Strasse 31, Postfach
CH–4901 Langenthal
Tel. +41 (0)62 919 75 75
www.motorex.com

· **Further information obtainable from:** msds@motorex.com
· **1.4 Emergency telephone number:**
In case of a medical emergency following exposure to a chemical, the public should call NHS Direct in England or Wales 0845 46 47 or NHS 24 in Scotland 08454 24 24 24 (UK only).

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SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**
Eye Irrit. 2 H319 Causes serious eye irritation.
Repr. 2 H361d Suspected of damaging the unborn child.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the GB CLP regulation.
· **Hazard pictograms**

GHS07 GHS08

· **Signal word** Warning

· **Hazard-determining components of labelling:**
Tris[2-[2-(2-methoxyethoxy)ethoxy] ethyl] orthoborate
· **Hazard statements**
H319 Causes serious eye irritation.
H361d Suspected of damaging the unborn child.
· **Precautionary statements**

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read carefully and follow all instructions.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P264	Wash thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.

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P337+P313	If eye irritation persists: Get medical advice/attention.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/ international regulations.

· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.2 Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 30989-05-0 EINECS: 250-418-4	Tris[2-[2-(2-methoxyethoxy)ethoxy] ethyl] orthoborate Repr. 2, H361d	≥10-≤50%
CAS: 143-22-6 EINECS: 205-592-6 Index number: 603-183-00-0 Reg.nr.: 01-2119531322-53	2-[2-(2-butoxyethoxy)ethoxy]ethanol Eye Dam. 1, H318 Specific concentration limits: Eye Dam. 1; H318: C ≥ 30% Eye Irrit. 2; H319: 25 % ≤ C < 30 %	≥25-<30%
CAS: 9004-77-7 NLP: 500-012-0	Butyl Polyglycol Eye Irrit. 2, H319	10%
CAS: 111-46-6 EINECS: 203-872-2 Index number: 603-140-00-6 Reg.nr.: 01-2119457857-21	2,2'-oxybisethanol Acute Tox. 4, H302	≥0-≤10%
CAS: 111-77-3 EINECS: 203-906-6 Index number: 603-107-00-6 Reg.nr.: 01-2119475100-52	2-(2-methoxyethoxy)ethanol Repr. 2, H361d	≥0-<3%
CAS: 112-34-5 EINECS: 203-961-6 Index number: 603-096-00-8 Reg.nr.: 01-2119475104-44	2-(2-butoxyethoxy)ethanol Eye Irrit. 2, H319	≥0-≤3%

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Remove residues with soap and water.
Remove contaminated clothing immediately.
· **After eye contact:**
Rinse opened eye for several minutes under running water.
Consult a physician if irritation develops.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:**
Do not induce vomitting. Do not take in resorption stimulating agents.
Consult a physician who will decide on need and method of emptying the stomach.
· **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.

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· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:** Use fire extinguishing methods suitable to surrounding conditions.
· **5.2 Special hazards arising from the substance or mixture**
No further relevant information available.
· **5.3 Advice for firefighters**
· **Protective equipment:** No special measures required.

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SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures** Not required.
· **6.2 Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
· **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
· **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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SECTION 7: Handling and storage

· **7.1 Precautions for safe handling** Open and handle receptacle with care.
· **Information about fire - and explosion protection:** Keep respiratory protective device available.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
The recommended storage temperature is (deg.C): ≤50°C
Keep container tightly sealed.
· **Storage class:** 10
· **7.3 Specific end use(s)** No further relevant information available.

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SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
111-46-6 2,2'-oxybisethanol	
WEL	Long-term value: 101 mg/m³, 23 ppm
111-77-3 2-(2-methoxyethoxy)ethanol	
WEL	Long-term value: 50.1 mg/m³, 10 ppm Sk

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112-34-5 2-(2-butoxyethoxy)ethanol	
WEL	Short-term value: 101.2 mg/m³, 15 ppm Long-term value: 67.5 mg/m³, 10 ppm

· **DNELs**		
30989-05-0 Tris[2-[2-(2-methoxyethoxy)ethoxy] ethyl] orthoborate		
Oral	DNEL/general population/Systemic effects/Long-term	4.1 mg/kg/24h (consumer)
Dermal	DNEL / Workers / Systemic effects / Long-term	8.3 mg/kg/24h (worker)
	DNEL/general population/Systemic effects/Long-term	4.1 mg/kg/24h (consumer)
Inhalative	DNEL / Workers / Systemic effects / Long-term	29.1 mg/m3 (worker)
	DNEL/general population/Systemic effects/Long-term	7.2 mg/m3 (consumer)
143-22-6 2-[2-(2-butoxyethoxy)ethoxy]ethanol		
Oral	DNEL/general population/Systemic effects/Long-term	50.25 mg/kg/24h (consumer)
	DNEL/general pop/Systemic effects/acute-short term	103.4 mg/kg/24h (consumer)
Dermal	DNEL / Workers / Local Effects / Long-term	5.65 mg/cm2 (worker)
	DNEL / Workers / Systemic effects / Long-term	400 mg/kg/24h (worker)
	DNEL/Workers/Systemic effects/acute-short term	1,005 mg/kg/24h (worker)
	DNEL/Workers/local effects/acute-short term	8.35 mg/cm2 (worker)
	DNEL/general popul/Local effects/acute-short term	4.173 mg/cm2 (consumer)
	DNEL/general population/Systemic effects/Long-term	200 mg/kg/24h (consumer)
	DNEL/general pop/Systemic effects/acute-short term	502.5 mg/kg/24h (consumer)
	DNEL/general population/Local effects/Long-term	2.823 mg/cm2 (consumer)
	DNEL/general population/Local effects/Long-term	mg/kg/24h (consumer)
Inhalative	DNEL / Workers / Systemic effects / Long-term	24 mg/m3 (worker)
	DNEL/Workers/Systemic effects/acute-short term	96 mg/m3 (worker)
	DNEL/Workers/Local effects/acute-short term	96 mg/m3 (worker)
	DNEL / Workers / Local Effects / Long-term	30.5 mg/m3 (worker)
	DNEL/general population/Systemic effects/Long-term	12 mg/m3 (consumer)
	DNEL/general pop/Systemic effects/acute-short term	48 mg/m3 (consumer)
	DNEL/general pop/Local effects/acute-short term	48 mg/m3 (consumer)
	DNEL/general population/Local effects/Long-term	15.252 mg/m3 (consumer)
111-46-6 2,2'-oxybisethanol		
Dermal	DNEL / Workers / Systemic effects / Long-term	43 mg/kg/24h (worker)
	DNEL/general population/Systemic effects/Long-term	21 mg/kg/24h (consumer)
Inhalative	DNEL / Workers / Systemic effects / Long-term	44 mg/m3 (worker)
	DNEL / Workers / Local Effects / Long-term	60 mg/m3 (worker)
	DNEL/general population/Systemic effects/Long-term	12 mg/m3 (consumer)
	DNEL/general population/Local effects/Long-term	12 mg/m3 (consumer)
111-77-3 2-(2-methoxyethoxy)ethanol		
Oral	DNEL/general population/Systemic effects/Long-term	7.5 mg/kg/24h (consumer)
Dermal	DNEL / Workers / Systemic effects / Long-term	2.22 mg/kg/24h (worker)
	DNEL/general population/Systemic effects/Long-term	1.33 mg/kg/24h (consumer)
112-34-5 2-(2-butoxyethoxy)ethanol		
Oral	DNEL/general population/Systemic effects/Long-term	5 mg/kg/24h (consumer)
Dermal	DNEL / Workers / Systemic effects / Long-term	83 mg/kg/24h (worker)
	DNEL/general population/Systemic effects/Long-term	50 mg/kg/24h (consumer)
Inhalative	DNEL / Workers / Systemic effects / Long-term	67.5 mg/m3 (worker)

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	DNEL/Workers/Local effects/acute-short term	101.2 mg/m3 (worker)
	DNEL / Workers / Local Effects / Long-term	67.5 mg/m3 (worker)
	DNEL/general population/Systemic effects/Long-term	40.5 mg/m3 (consumer)
	DNEL/general pop/Local effects/acute-short term	60.7 mg/m3 (consumer)
	DNEL/general population/Local effects/Long-term	40.5 mg/m3 (consumer)

· **PNECs**

30989-05-0 Tris[2-[2-(2-methoxyethoxy)ethoxy] ethyl] orthoborate

	PNEC / Aquatic organisms / Freshwater	0.2112 mg/l (aquatic organisms)
	PNEC / Aquatic organisms / Marine water	0.0211 mg/l (aquatic organisms)
	PNEC/Aquatic org/intermittent releases(freshwater)	2.112 mg/l (aquatic organisms)
	PNEC/Aquatic organisms/Sewage treatment plant/STP	100 mg/l (aquatic organisms)
	PNEC / Aquatic organisms / Sediment (freshwater)	0.76 mg/kg (aquatic organisms)
	PNEC / Aquatic organisms / Sediment (marine water)	0.076 mg/kg (aquatic organisms)

143-22-6 2-[2-(2-butoxyethoxy)ethoxy]ethanol

Oral	PNEC / Predators / Secondary poisoning	525.5 mg/kg food (secondary poisoning (predators))
	PNEC / Aquatic organisms / Freshwater	100 mg/l (aquatic organisms)
	PNEC / Aquatic organisms / Marine water	142.57 mg/l (aquatic organisms)
	PNEC/Aquatic organisms/Sewage treatment plant/STP	199.5 mg/l (aquatic organisms)
	PNEC / Aquatic organisms / Sediment (freshwater)	11.115 mg/kg (aquatic organisms)
	PNEC / Aquatic organisms / Sediment (marine water)	1.111 mg/kg (aquatic organisms)

111-46-6 2,2'-oxybisethanol

	PNEC / Aquatic organisms / Freshwater	10 mg/l (aquatic organisms)
	PNEC / Aquatic organisms / Marine water	1 mg/l (aquatic organisms)
	PNEC/Aquatic org/intermittent releases(freshwater)	10 mg/l (aquatic organisms)
	PNEC/Aquatic organisms/Sewage treatment plant/STP	199.5 mg/l (aquatic organisms)
	PNEC / Aquatic organisms / Sediment (freshwater)	20.9 mg/kg (aquatic organisms)
	PNEC / Aquatic organisms / Sediment (marine water)	2.09 mg/kg (aquatic organisms)
	PNEC / Terrestrial organism / Soil	1.53 mg/kg (terrestrial organisms)

111-77-3 2-(2-methoxyethoxy)ethanol

Oral	PNEC / Predators / Secondary poisoning	90 mg/kg food (secondary poisoning (predators))
	PNEC / Aquatic organisms / Freshwater	12 mg/l (aquatic organisms)
	PNEC / Aquatic organisms / Marine water	1.2 mg/l (aquatic organisms)
	PNEC/Aquatic org/intermittent releases(freshwater)	12 mg/l (aquatic organisms)

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	PNEC/Aquatic organisms/Sewage treatment plant/STP	10,000 mg/l (aquatic organisms)
	PNEC / Aquatic organisms / Sediment (freshwater)	44.4 mg/kg (aquatic organisms)
	PNEC / Aquatic organisms / Sediment (marine water)	0.44 mg/kg (aquatic organisms)
	PNEC / Terrestrial organism / Soil	2.1 mg/kg (terrestrial organisms)
112-34-5 2-(2-butoxyethoxy)ethanol		
Oral	PNEC / Predators / Secondary poisoning	56 mg/kg food (secondary poisoning (predators))
	PNEC / Aquatic organisms / Freshwater	1.1 mg/l (aquatic organisms)
	PNEC / Aquatic organisms / Marine water	0.11 mg/l (aquatic organisms)
	PNEC/Aquatic organisms/Sewage treatment plant/STP	200 mg/l (aquatic organisms)
	PNEC / Aquatic organisms / Sediment (freshwater)	4.4 mg/kg (aquatic organisms)
	PNEC / Aquatic organisms / Sediment (marine water)	0.44 mg/kg (aquatic organisms)
	PNEC / Terrestrial organism / Soil	0.32 mg/kg (terrestrial organisms)

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**
· **Appropriate engineering controls** No further data; see section 7.
· **Individual protection measures, such as personal protective equipment**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.
· **Respiratory protection:**
Not necessary if room is well-ventilated.
Respiratory protection if formation of aerosol or mist: use mask with filter type A2, A2/P2 or ABEK.
· **Hand protection**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye/face protection** Goggles recommended during refilling
· **Body protection:** Protective work clothing

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SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **General Information**	
· **Physical state**	Fluid
· **Colour:**	Amber coloured
· **Odour:**	Characteristic
· **Odour threshold:**	Not determined.
· **Melting point/freezing point:**	<-50 °C
· **Boiling point or initial boiling point and boiling range**	>260 °C (DIN EN ISO 3405)
· **Flammability**	Not applicable.
· **Lower and upper explosion limit**	
· **Lower:**	Not determined.
· **Upper:**	Not determined.
· **Flash point:**	>100 °C
· **Auto-ignition temperature:**	>300 °C (DIN 51794)
· **Decomposition temperature:**	Not determined.
· **pH at 20 °C**	7-11.5 (DIN 51369)
· **Viscosity:**	
· **Kinematic viscosity**	5-10 mm²/s @ 20 °C 20 mm²/s @ 40°C
· **Consistency**	
· **Dynamic:**	Not determined.
· **Solubility**	
· **water:**	Fully miscible.
· **Partition coefficient n-octanol/water (log value)**	<2
· **Heat Capacity**	
· **Vapour pressure:**	Not determined.
· **Density and/or relative density**	
· **Density at 20 °C:**	1.02-1.07 g/cm³ (ASTM D 4052)
· **Relative density**	Not determined.
· **Vapour density**	Not determined.

· **9.2 Other information**	
· **Appearance:**	
· **Form:**	Fluid
· **Important information on protection of health and environment, and on safety.**	
· **Explosive properties:**	Product does not present an explosion hazard.
· **Solvent separation test:**	
· **VOC (EC)**	0.00 %
· **Change in condition**	
· **Evaporation rate**	Not determined.

· **Information with regard to physical hazard classes**	
· **Explosives**	Void
· **Flammable gases**	Void
· **Aerosols**	Void
· **Oxidising gases**	Void
· **Gases under pressure**	Void
· **Flammable liquids**	Void
· **Flammable solids**	Void
· **Self-reactive substances and mixtures**	Void
· **Pyrophoric liquids**	Void
· **Pyrophoric solids**	Void

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· **Self-heating substances and mixtures**	Void
· **Substances and mixtures, which emit flammable gases in contact with water**	Void
· **Oxidising liquids**	Void
· **Oxidising solids**	Void
· **Organic peroxides**	Void
· **Corrosive to metals**	Void
· **Desensitised explosives**	Void

SECTION 10: Stability and reactivity

· **10.1 Reactivity** No further relevant information available.
· **10.2 Chemical stability**
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **10.3 Possibility of hazardous reactions** No dangerous reactions known.
· **10.4 Conditions to avoid** No further relevant information available.
· **10.5 Incompatible materials:** No further relevant information available.
· **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

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SECTION 11: Toxicological information

· **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
· **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD/LC50 values relevant for classification:**		
30989-05-0 Tris[2-[2-(2-methoxyethoxy)ethoxy] ethyl] orthoborate		
Oral	LD50	2,000 mg/kg (rat)
	NOAEL	1,000 mg/kg/24h (rat)
Dermal	LD50	2,000 mg/kg (rat)
143-22-6 2-[2-(2-butoxyethoxy)ethoxy]ethanol		
Oral	LD50	5,000-11,300 mg/kg (rat)
	NOAEL	250-400 mg/kg/24h (rat)
	LOAEL	1,000-1,200 mg/kg/24h (rat)
Dermal	LD50	3,540 mg/kg (rabbit)
	NOAEL	200-4,000 mg/kg/24h (rat)
		1,000 mg/kg/24h (rabbit)
Inhalative	LC50 / 16h	2.4 mg/l (rat)
	NOAEL	94 mg/m3 (rat)
	NOAEC	120-152.52 mg/m3 (rat)
	NOEC	40 mg/m3 (rat)
111-46-6 2,2'-oxybisethanol		
Oral	LD50	1,000 mg/kg (rat)
	NOAEL	10,000 mg/kg (rat)
	NOAEL	128-300 mg/kg/24h (rat)
	LOAEL	40,000 mg/kg (rat)
Dermal	LD50	13,300 mg/kg (rabbit)
	NOAEL	2,200-4,400 mg/kg/24h (dog)
Inhalative	LC50 / 4h	>4.6 mg/l (rat)

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111-77-3 2-(2-methoxyethoxy)ethanol		
Oral	LD50	7,128-8,188 mg/kg (mouse)
	NOAEL	900 mg/kg/24h (rat)
	LOAEL	1,800 mg/kg/24h (rat)
Dermal	LD50	9,404 mg/kg (rabbit)
	NOAEL	40 mg/kg/24h (guinea pig)
Inhalative	NOAEC	1.06 mg/l (rat)
112-34-5 2-(2-butoxyethoxy)ethanol		
Oral	LD50	2,410-5,530 mg/kg (mouse)
	NOAEL	250 mg/kg/24h (rat)
Dermal	LD50	2,764 mg/kg (rabbit)
	NOAEL	200-2,000 mg/kg/24h (rat)
Inhalative	NOAEL	14 ppm (rat)

· **Serious eye damage/irritation** Causes serious eye irritation.
· **Reproductive toxicity** Suspected of damaging the unborn child.
· **11.2 Information on other hazards**

· **Endocrine disrupting properties**
None of the ingredients is listed.

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SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**	
30989-05-0 Tris[2-[2-(2-methoxyethoxy)ethoxy] ethyl] orthoborate	
LC50	222-1,010 mg/l/96h (fish)
LC50	222-1,010 mg/l/48h (fish)
LC50	222-1,010 mg/l/72h (aquatic organisms)
LC50	222-1,010 ppm/96h (fish)
EC10	224.4 mg/l (Alga)
EC10	500 mg/l/48h (aquatic invertebrates)
EC50	211-960 mg/l/24h (aquatic invertebrates)
EC50	224-1,020 mg/l/72h (algae / cyanobacteria)
EC0	500 mg/l/48h (aquatic invertebrates)
EC50	211-960 mg/l/48h (aquatic invertebrates)
EC50	224.4 mg/l (Alga)
NOEC	224-1,020 mg/l/72h (algae / cyanobacteria)
143-22-6 2-[2-(2-butoxyethoxy)ethoxy]ethanol	
LC50	2,182-14,257 mg/l/96h (fish)
LC0	2,150 mg/l/96h (fish)
LC100	4,600 mg/l/96h (fish)
LC50	1,740-5,521 mg/l/48h (aquatic invertebrates)
	2,400 mg/l/48h (fish)
LC50	2,400-2,967 mg/l/24h (fish)
EC10	233.9-235.6 mg/l/21d (aquatic invertebrates)
EC50	174.5-3,167.5 mg/l/24h (aquatic invertebrates)
EC10	151-1,185 mg/l/72h (algae / cyanobacteria)

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EC50	500-3,211 mg/l/72h (algae / cyanobacteria)
EC50	518.3 mg/l/21d (aquatic invertebrates)
EC0	500 mg/l/48h (aquatic invertebrates)
EC50	500-3,141.3 mg/l/48h (aquatic invertebrates)
NOEC	97.7-174.6 mg/l/21d (aquatic invertebrates)
	174.6 mg/l/21d (fish)
NOEC	62.5-499 mg/l/72h (algae / cyanobacteria)
111-46-6 2,2'-oxybisethanol	
LC50	75.2 mg/l/96h (fish)
LC50	1,500 mg/l/28d (fish)
EC50	10,000 mg/l/24h (aquatic invertebrates)
EC50	6,500-13,000 mg/l/96h (algae / cyanobacteria)
EC50	33,911 mg/l/21d (aquatic invertebrates)
NOEC	7,500-15,000 mg/l/21d (aquatic invertebrates)
NOEC	100 mg/l/72h (algae / cyanobacteria)
NOEC	8,590-24,000 mg/l/7d (aquatic invertebrates)
	15,380-32,000 mg/l/7d (fish)
111-77-3 2-(2-methoxyethoxy)ethanol	
LC50	5,741 mg/l/96h (fish)
EC10	688 mg/l/48h (aquatic invertebrates)
EC50	1,000 mg/l/96h (algae / cyanobacteria)
EC50	1,192 mg/l/48h (aquatic invertebrates)
112-34-5 2-(2-butoxyethoxy)ethanol	
LC50	1,300 mg/l/96h (fish)
EC50	100 mg/l/96h (algae / cyanobacteria)
EC50	1,101 mg/l/72h (algae / cyanobacteria)
EC50	100 mg/l/48h (aquatic invertebrates)
NOEC	100 mg/l/96h (algae / cyanobacteria)
NOEC	100 mg/l/48h (aquatic invertebrates)

· **12.2 Persistence and degradability** No further relevant information available.

· **12.3 Bioaccumulative potential**	
143-22-6 2-[2-(2-butoxyethoxy)ethoxy]ethanol	
Partition coefficient	0.51 [---] (log Kow) (Bioaccumulation)
Biodegradability	85 % (28d) (Biodegradability) (OECD 301 A)
111-46-6 2,2'-oxybisethanol	
Partition coefficient	≤1.98 [---] (log Kow) (Bioaccumulation)
Biodegradability	90-100 % (28d) (Biodegradability) (OECD 301 A)
111-77-3 2-(2-methoxyethoxy)ethanol	
Partition coefficient	≤0.47 [---] (log Kow) (Bioaccumulation)
Biodegradability	>75 % (28d) (Biodegradability)
112-34-5 2-(2-butoxyethoxy)ethanol	
Partition coefficient	1 [---] (log Kow) (Bioaccumulation)
Biodegradability	95 % (28d) (Biodegradability) (OECD 301 C)

· **12.4 Mobility in soil** No further relevant information available.
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

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· **12.6 Endocrine disrupting properties**
The product does not contain substances with endocrine disrupting properties.
· **12.7 Other adverse effects**
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (according to Appendix 1 AwSV): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably reduced, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

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SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Contact waste processors for recycling information.
Return product and/or partially emptied container in original packaging to the point of sale or hand it over to a collection point for special waste.

· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.
· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

SECTION 14: Transport information

· **14.1 UN number or ID number** · **ADR/RID/ADN, ADN, IMDG, IATA**	Void
· **14.2 UN proper shipping name** · **ADR/RID/ADN, ADN, IMDG, IATA**	Void
· **14.3 Transport hazard class(es)** · **ADR/RID/ADN, ADN, IMDG, IATA** · **Class**	Void
· **14.4 Packing group** · **ADR/RID/ADN, IMDG, IATA**	Void
· **14.5 Environmental hazards:** · **Marine pollutant:**	No
· **14.6 Special precautions for user**	Not applicable.
· **14.7 Maritime transport in bulk according to IMO instruments**	Not applicable.
· **UN "Model Regulation":**	Void

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SECTION 15: Regulatory information

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

· **Directive 2012/18/EU**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

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SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
The classification of the mixture was carried out by calculation in accordance with the rules laid down in Annex I of Regulation (EC) No 1272/2008.
No special training instructions to ensure protection of human health and environment are required.

· **purity requirement**
· **Relevant phrases**
H302 Harmful if swallowed.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H361d Suspected of damaging the unborn child.

· **Department issuing SDS:** Abteilung Produktsicherheit
· **Abbreviations and acronyms:**
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
DNEL: Derived No-Effect Level (UK REACH)
PNEC: Predicted No-Effect Concentration (UK REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity – Category 4
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Repr. 2: Reproductive toxicity – Category 2
· *** Data compared to the previous version altered.**

Annex: Exposure scenario 1

· **Short title of the exposure scenario** Industrial use of brake fluids
· **Sector of Use**
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
· **Product category** PC17 Hydraulic fluids
· **Process category**
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC20 Use of functional fluids in small devices

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· ***Environmental release category***
ERC7 Use of functional fluid at industrial site
ERC9a Widespread use of functional fluid (indoor)
ERC9b Widespread use of functional fluid (outdoor)
· ***Description of the activities / processes covered in the Exposure Scenario***
See section 1 of the annex to the Safety Data Sheet.
· ***Conditions of use***
· ***Duration and frequency*** *5 workdays/week.*
· ***Physical parameters***
· ***Physical state*** *Fluid*
· ***Concentration of the substance in the mixture*** *The substance is main component.*
· ***Other operational conditions***
· ***Other operational conditions affecting environmental exposure*** *No special measures required.*
· ***Other operational conditions affecting consumer exposure*** *Not required.*
· ***Other operational conditions affecting consumer exposure during the use of the product***
Not applicable.
· ***Risk management measures***
· ***Worker protection***
· ***Organisational protective measures*** *No special measures required.*
· ***Technical protective measures*** *No special measures required.*
· ***Personal protective measures*** *No special measures required.*
· ***Measures for consumer protection*** *No special measures required.*
· ***Environmental protection measures***
· ***Air*** *No special measures required.*
· ***Water*** *No special measures required.*
· ***Disposal measures*** *Ensure that waste is collected and contained.*
· ***Disposal procedures*** *Dispose of product residues with household waste.*
· ***Waste type*** *Partially emptied and uncleaned packaging*
· ***Exposure estimation***
· ***Consumer*** *Not relevant for this Exposure Scenario.*
· ***Guidance for downstream users*** *No further relevant information available.*

Annex: Exposure scenario 2

· ***Short title of the exposure scenario*** *Professional use of brake fluids*
· ***Sector of Use***
SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
· ***Product category*** *PC17 Hydraulic fluids*
· ***Process category***
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC20 Use of functional fluids in small devices
· ***Environmental release category***
ERC9a Widespread use of functional fluid (indoor)
ERC9b Widespread use of functional fluid (outdoor)
· ***Description of the activities / processes covered in the Exposure Scenario***
See section 1 of the annex to the Safety Data Sheet.
· ***Conditions of use***
· ***Duration and frequency*** *5 workdays/week.*
· ***Physical parameters***
· ***Physical state*** *Fluid*
· ***Concentration of the substance in the mixture*** *The substance is main component.*

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· **Other operational conditions**
· **Other operational conditions affecting environmental exposure** No special measures required.
· **Other operational conditions affecting consumer exposure** Not required.
· **Other operational conditions affecting consumer exposure during the use of the product** Not applicable.
· **Risk management measures**
· **Worker protection**
· **Organisational protective measures** No special measures required.
· **Technical protective measures** No special measures required.
· **Personal protective measures** No special measures required.
· **Measures for consumer protection** No special measures required.
· **Environmental protection measures**
· **Air** No special measures required.
· **Water** No special measures required.
· **Disposal measures** Ensure that waste is collected and contained.
· **Disposal procedures** Dispose of product residues with household waste.
· **Waste type** Partially emptied and uncleaned packaging
· **Exposure estimation**
· **Consumer** Not relevant for this Exposure Scenario.
· **Guidance for downstream users** No further relevant information available.

Annex: Exposure scenario 3

· **Short title of the exposure scenario** Private use of brake fluids
· **Sector of Use** SU21 Consumer uses: Private households / general public / consumers
· **Product category** PC17 Hydraulic fluids
· **Process category**
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC20 Use of functional fluids in small devices
· **Environmental release category**
ERC9a Widespread use of functional fluid (indoor)
ERC9b Widespread use of functional fluid (outdoor)
· **Description of the activities / processes covered in the Exposure Scenario**
See section 1 of the annex to the Safety Data Sheet.
· **Conditions of use**
· **Duration and frequency** 5 workdays/week.
· **Physical parameters**
· **Physical state** Fluid
· **Concentration of the substance in the mixture** The substance is main component.
· **Other operational conditions**
· **Other operational conditions affecting environmental exposure** No special measures required.
· **Other operational conditions affecting consumer exposure** Not required.
· **Other operational conditions affecting consumer exposure during the use of the product** Not applicable.
· **Risk management measures**
· **Worker protection**
· **Organisational protective measures** No special measures required.
· **Technical protective measures** No special measures required.
· **Personal protective measures** No special measures required.
· **Measures for consumer protection** No special measures required.
· **Environmental protection measures**
· **Air** No special measures required.

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· ***Water*** *No special measures required.*
· ***Disposal measures*** *Ensure that waste is collected and contained.*
· ***Disposal procedures*** *Dispose of product residues with household waste.*
· ***Waste type*** *Partially emptied and uncleaned packaging*
· ***Exposure estimation***
· ***Consumer*** *Not relevant for this Exposure Scenario.*
· ***Guidance for downstream users*** *No further relevant information available.*