BRAKE FLUID DOT 4 - 5 L

Version	Revision Date:	SDS Number:	Date of last issue: 25.11.2016
4.4	24.03.2017	366246-00006	Date of first issue: 09.10.2012

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

1.1 Product identifier

Trade name : BRAKE FLUID DOT 4 - 5 L

Product code : 08920095

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

Use of the Substance/Mixture : Brake fluid

1.3 Details of the supplier of the safety data sheet

Company : Adolf Wuerth GmbH & Co. KG
Reinhold-Würth-Str. 12-17
74653 Künzelsau

Telephone : +49 794015 0

Telefax : +49 794015 10 00

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

1.4 Emergency telephone number

Giftnotrufzentrale Berlin +49 30 30686 790. Gesellschaft (07:00 – 18:00 Uhr) +49 794015 2552

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Eye irritation, Category 2	H319: Causes serious eye irritation.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Warning

Hazard statements : H319 Causes serious eye irritation.

H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements :

Prevention:

P264 Wash skin thoroughly after handling.
P280 Wear eye protection/ face protection.

Response:

P314 Get medical advice/ attention if you feel unwell.
P337 + P313 If eye irritation persists: Get medical advice/ attention.

Hazardous components which must be listed on the label:
Diethylene glycol

2.3 Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
2-[2-(2-butoxyethoxy)ethoxy]ethanol	143-22-6 205-592-6 603-183-00-0 01-2119475107-38	Eye Dam. 1; H318	>= 20 - < 30
Diethylene glycol	111-46-6 203-872-2 603-140-00-6 01-2119457857-21	Acute Tox. 4; H302 STOT RE 2; H373	>= 20 - < 30
Boric acid	10043-35-3 233-139-2 005-007-00-2 01-2119486683-25	Repr. 1B; H360FD	>= 1 - < 5,5
Diethylene glycol methyl ether	111-77-3 203-906-6 603-107-00-6 01-2119475100-52	Repr. 2; H361d	>= 1 - < 3
Diisopropanolamine	110-97-4 203-820-9 603-083-00-7 01-2119475444-34	Eye Irrit. 2; H319	>= 1 - < 10

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.

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 : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lens, if worn.
Get medical attention.

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

Risks : Causes serious eye irritation.
May cause damage to organs through prolonged or repeated exposure.

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 : None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting	:	Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides Boron oxides Nitrogen oxides (NOx)

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 and personal protective equipment recommendations.

6.2 Environmental precautions

Environmental precautions	:	Discharge into the environment must be avoided. 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. Local authorities should be advised if significant spillages cannot be contained.

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. Do not get in eyes. Avoid prolonged or repeated contact with skin. Handle in accordance with good industrial hygiene and safety practice. Take care to prevent spills, waste and minimize release to the environment.
Hygiene measures	:	Ensure that eye flushing systems and safety showers are located 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
Storage class (TRGS 510)	:	10, Combustible liquids

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
Diethylene glycol	111-46-6	AGW (Vapour and aerosols)	10 ppm 44 mg/m3	DE TRGS 900
Peak-limit: excursion factor (category)	4;(II)			
Further information	Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., Sum of vapor and aerosols., When there is			

	compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			
Boric acid	10043-35-3	AGW (Inhalable fraction)	0,5 mg/m3 (Borate)	DE TRGS 900
Peak-limit: excursion factor (category)	2;(I)			
Further information	Commission for dangerous substances, The threshold value is based on the element content of the corresponding metal., When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			
Diethylene glycol methyl ether	111-77-3	TWA	10 ppm 50,1 mg/m3	2006/15/EC
Further information	Identifies the possibility of significant uptake through the skin, Indicative			
		AGW (Vapour and aerosols)	10 ppm 50 mg/m3	DE TRGS 900
Further information	European Union (The EU has established a limit value: deviations in value and peak limit are possible), Sum of vapor and aerosols., Skin absorption, When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
2-[2-(2-butoxyethoxy)ethoxy]ethanol	Workers	Inhalation	Long-term systemic effects	195 mg/m3
	Workers	Skin contact	Long-term systemic effects	208 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	117 mg/m3
	Consumers	Skin contact	Long-term systemic effects	125 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	12,5 mg/kg bw/day
Diethylene glycol	Consumers	Skin contact	Long-term systemic effects	53 mg/kg bw/day
	Workers	Skin contact	Long-term systemic effects	106 mg/kg bw/day
	Consumers	Inhalation	Long-term local effects	12 mg/m3
	Workers	Inhalation	Long-term local effects	60 mg/m3
Boric acid	Consumers	Skin contact	Long-term systemic effects	196 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	4,15 mg/m3
	Consumers	Ingestion	Long-term systemic effects	0,98 mg/kg bw/day
	Consumers	Ingestion	Acute systemic effects	0,98 mg/kg bw/day
	Workers	Inhalation	Long-term systemic	8,3 mg/m3

			effects	
	Workers	Skin contact	Long-term systemic effects	392 mg/kg bw/day
Diethylene glycol methyl ether	Workers	Inhalation	Long-term systemic effects	50,1 mg/m3
	Workers	Skin contact	Long-term systemic effects	0,53 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	25 mg/m3
	Consumers	Skin contact	Long-term systemic effects	0,27 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	1,5 mg/kg bw/day
Diisopropanolamine	Workers	Inhalation	Long-term systemic effects	16 mg/m3
	Workers	Skin contact	Long-term systemic effects	12,5 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	3,9 mg/m3
	Consumers	Skin contact	Long-term systemic effects	6,3 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	1,3 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
2-[2-(2-butoxyethoxy)ethoxy]ethanol	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 sediment	0,577 mg/kg
	Soil	0,35 mg/kg
	Oral (Secondary Poisoning)	111 mg/kg food
Diethylene glycol	Fresh water	10 mg/l
	Marine water	1 mg/l
	Intermittent use/release	10 mg/l
	Sewage treatment plant	199,5 mg/l
	Fresh water sediment	20,9 mg/kg
	Soil	1,53 mg/kg
	Marine sediment	2,09 mg/kg
Boric acid	Fresh water	1,35 mg/l
	Marine water	1,35 mg/l
	Intermittent use/release	9,1 mg/l
	Sewage treatment plant	1,75 mg/l
	Fresh water sediment	1,8 mg/kg
	Marine sediment	1,8 mg/kg
	Soil	5,4 mg/kg
Diethylene glycol methyl ether	Fresh water	12 mg/l
	Marine water	1,2 mg/l
	Intermittent use/release	12 mg/l
	Sewage treatment plant	10000 mg/l

	Fresh water sediment	44,4 mg/kg
	Marine sediment	0,44 mg/kg
	Soil	2,44 mg/kg
Diisopropanolamine	Fresh water	0,2777 mg/l
	Marine water	0,02777 mg/l
	Intermittent use/release	2,777 mg/l
	Sewage treatment plant	15000 mg/l
	Fresh water sediment	2,19 mg/kg
	Marine sediment	0,219 mg/kg
	Soil	0,275 mg/kg

8.2 Exposure controls

Engineering measures

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

Personal protective equipment

Eye protection : Wear the following personal protective equipment:
Safety goggles

Hand protection

Material	:	butyl-rubber
Break through time	:	> 30 min
Glove thickness	:	0,7 mm
Directive	:	DIN EN 374

Material	:	Nitrile rubber
Break through time	:	> 30 min
Glove thickness	:	0,4 mm
Directive	:	DIN EN 374

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 : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

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	:	amber
Odour	:	No data available
Odour Threshold	:	No data available
pH	:	8
Melting point/freezing point	:	< -50 °C
Initial boiling point and boiling range	:	265 °C
Flash point	:	> 100 - < 200 °C Other information: No data available
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	< 2 mbar (20 °C)
		> 0,2 mbar (50 °C)
Relative vapour density	:	No data available
Density	:	1,04 g/cm3 (20 °C)
Solubility(ies)		
Water solubility	:	completely miscible
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	> 300 °C
Decomposition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	5 - 10 cSt (20 °C)
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:

2-[2-(2-butoxyethoxy)ethoxy]ethanol:

Acute oral toxicity : LD50 (Rat): 5.170 mg/kg

Acute dermal toxicity : LD50 (Rabbit): 3.540 mg/kg

Diethylene glycol:

Acute oral toxicity : LD50 (Humans): 1.120 mg/kg

Boric acid:

Acute oral toxicity : LD50 (Rat): 3.500 - 4.100 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 2,03 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Diethylene glycol methyl ether:

Acute oral toxicity : LD50 (Rat): 7.128 mg/kg

Acute inhalation toxicity : LC0 (Rat): > 1,2 mg/l
Exposure time: 6 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): 9.404 mg/kg

Diisopropanolamine:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC0 (Mouse): 2069 mg/m3
Exposure time: 3 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): 8.000 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Components:

2-[2-(2-butoxyethoxy)ethoxy]ethanol:

Species: Rabbit
Result: No skin irritation

Diethylene glycol:

Species: Rabbit
Result: No skin irritation

Boric acid:

Species: Rabbit
Result: No skin irritation

Diethylene glycol methyl ether:

Species: Rabbit
Result: No skin irritation

Diisopropanolamine:

Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Components:

2-[2-(2-butoxyethoxy)ethoxy]ethanol:

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

Diethylene glycol:

Species: Rabbit
Result: No eye irritation

Boric acid:

Species: Rabbit
Result: No eye irritation

Diethylene glycol methyl ether:

Species: Rabbit
Result: No eye irritation

Diisopropanolamine:

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

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:

2-[2-(2-butoxyethoxy)ethoxy]ethanol:

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
Result: negative

Boric acid:

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

Diethylene glycol methyl ether:

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

Diisopropanolamine:

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

Germ cell mutagenicity

Not classified based on available information.

Components:

2-[2-(2-butoxyethoxy)ethoxy]ethanol:

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

Diethylene glycol:

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

Boric acid:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Result: negative

Diethylene glycol methyl ether:

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

Diisopropanolamine:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

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

: Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Carcinogenicity

Not classified based on available information.

Components:

Diethylene glycol:

Species: Rat
Application Route: Ingestion
Exposure time: 104 weeks
Result: negative

Boric acid:

Species: Mouse
Application Route: Ingestion
Exposure time: 103 weeks
Method: OECD Test Guideline 451

Result: negative

Diisopropanolamine:

Species: Rat
Application Route: Ingestion
Exposure time: 94 weeks
Result: negative

Reproductive toxicity

Not classified based on available information.

Components:

2-[2-(2-butoxyethoxy)ethoxy]ethanol:

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: Rat Application Route: Ingestion Result: negative
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rat Application Route: Ingestion Method: OECD Test Guideline 414 Result: negative

Boric acid:

Effects on fertility	:	Test Type: Three-generation reproduction toxicity study Species: Rat Application Route: Ingestion Result: positive
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rabbit Application Route: Ingestion Result: positive
Reproductive toxicity - Assessment	:	Clear evidence of adverse effects on sexual function and fertility, based on animal experiments., Clear evidence of adverse

effects on development, based on animal experiments.

Diethylene glycol methyl ether:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: Ingestion Method: OECD Test Guideline 416 Result: negative Remarks: Based on data from similar materials
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rat Application Route: Ingestion Result: positive Remarks: Based on data from similar materials
Reproductive toxicity - Assessment	:	Some evidence of adverse effects on development, based on animal experiments.

Diisopropanolamine:

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

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Components:

Diethylene glycol:

Exposure routes: Ingestion
Target Organs: Kidney
Assessment: Shown to produce significant health effects in animals at concentrations of >10 to 100 mg/kg bw.

Repeated dose toxicity

Components:

2-[2-(2-butoxyethoxy)ethoxy]ethanol:

Species: Rat
NOAEL: 250 mg/kg

Application Route: Ingestion
Exposure time: 90 Days
Method: OECD Test Guideline 408
Remarks: Based on data from similar materials

Diethylene glycol:

Species: Rat
NOAEL: 100 mg/kg
Application Route: Ingestion
Exposure time: 225 Days

Boric acid:

Species: Rat
NOAEL: 100 mg/kg
LOAEL: 334 mg/kg
Application Route: Ingestion
Exposure time: 2 yr

Diethylene glycol methyl ether:

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

Aspiration toxicity

Not classified based on available information.

SECTION 12: Ecological information

12.1 Toxicity

Components:

2-[2-(2-butoxyethoxy)ethoxy]ethanol:

Toxicity to fish	:	LC50 (Leuciscus idus (Golden orfe)): 2.200 - 4.600 mg/l Exposure time: 96 h Method: DIN 38412
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 2.210 mg/l Exposure time: 48 h
Toxicity to algae	:	ErC50 (Desmodesmus subspicatus (green algae)): > 612,6 mg/l Exposure time: 72 h EC10 (Desmodesmus subspicatus (green algae)): 612,6 mg/l Exposure time: 72 h
Toxicity to microorganisms	:	EC10 : > 1.995 mg/l Exposure time: 30 min

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
Toxicity to algae	:	EC50 (Selenastrum capricornutum (green algae)): 6.500 - 13.000 mg/l Exposure time: 96 h Remarks: Based on data from similar materials
Toxicity to fish (Chronic toxicity)	:	NOEC: 15.380 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: > 15.000 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea)

Boric acid:

Toxicity to fish	:	LC50 (Oncorhynchus kisutch (coho salmon)): 600 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 133 mg/l Exposure time: 48 h
Toxicity to algae	:	EC50 (Selenastrum capricornutum (green algae)): 52,4 mg/l Exposure time: 72 h NOEC (Selenastrum capricornutum (green algae)): 17,5 mg/l Exposure time: 72 h
Toxicity to microorganisms	:	EC50 : > 175 mg/l Exposure time: 3 h Method: OECD Test Guideline 209
Toxicity to fish (Chronic toxicity)	:	NOEC: 11,2 mg/l Exposure time: 32 d Species: Pimephales promelas (fathead minnow)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 32 mg/l Exposure time: 28 d Species: Chironomus riparius (harlequin fly)

Diethylene glycol methyl ether:

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	:	EC50 (Pseudokirchneriella subcapitata (green algae)): > 1.000 mg/l Exposure time: 96 h Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50 : > 1.000 mg/l Exposure time: 30 min Method: OECD Test Guideline 209

Diisopropanolamine:

Toxicity to fish	:	LC50 (Brachydanio rerio (zebrafish)): 1.466 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 277,7 mg/l Exposure time: 48 h
Toxicity to algae	:	EC50 (Desmodesmus subspicatus (green algae)): 339 mg/l Exposure time: 72 h NOEC (Desmodesmus subspicatus (green algae)): 125 mg/l Exposure time: 72 h

12.2 Persistence and degradability

Components:

2-[2-(2-butoxyethoxy)ethoxy]ethanol:

Biodegradability	:	Result: Not readily biodegradable. Biodegradation: 85 % Exposure time: 28 d Method: OECD Test Guideline 301D

Diethylene glycol:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 70 - 80 % Exposure time: 29 d Method: OECD Test Guideline 301B

Diethylene glycol methyl ether:

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

Diisopropanolamine:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 94 % Exposure time: 28 d Method: OECD Test Guideline 301

12.3 Bioaccumulative potential

Components:

2-[2-(2-butoxyethoxy)ethoxy]ethanol:

Partition coefficient: n-octanol/water : log Pow: 0,51

Diethylene glycol:

Bioaccumulation : Species: Leuciscus idus (Golden orfe)
Bioconcentration factor (BCF): 100

Boric acid:

Bioaccumulation : Species: Oysters
Bioconcentration factor (BCF): 0,7 - 1,4

Partition coefficient: n-octanol/water : log Pow: -1,09

Diethylene glycol methyl ether:

Partition coefficient: n-octanol/water : log Pow: -0,47

Diisopropanolamine:

Partition coefficient: n-octanol/water : log Pow: -0,88

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Not relevant

12.6 Other adverse effects

No data available

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.

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
160113, brake fluids

unused product
160113, brake fluids

uncleaned packagings
150110, packaging containing residues of or contaminated by dangerous substances

SECTION 14: Transport information

14.1 UN number

Not regulated as a dangerous good

14.2 UN proper shipping name

Not regulated as a dangerous good

14.3 Transport hazard class(es)

Not regulated as a dangerous good

14.4 Packing group

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)	:	Boric acid (30) Diethylene glycol methyl ether (54)
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	Boric acid
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
Regulation (EC) No 850/2004 on persistent organic pollutants	:	Not applicable
Regulation (EC) No 649/2012 of the European Parlia-	:	Not applicable

ment and the Council concerning the export and import of dangerous chemicals

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
Not applicable

Water contaminating class (Germany) : WGK 1 slightly water endangering
Classification according VwVwS, Annex 4.

Volatile organic compounds : Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control)
Volatile organic compounds (VOC) content: 0 %

Other regulations:

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Full text of H-Statements

H302	:	Harmful if swallowed.
H318	:	Causes serious eye damage.
H319	:	Causes serious eye irritation.
H360FD	:	May damage fertility. May damage the unborn child.
H361d	:	Suspected of damaging the unborn child.
H373	:	May cause damage to organs through prolonged or repeated exposure if swallowed.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
Repr.	:	Reproductive toxicity
STOT RE	:	Specific target organ toxicity - repeated exposure
2006/15/EC	:	Europe. Indicative occupational exposure limit values
DE TRGS 900	:	Germany. TRGS 900 - Occupational exposure limit values.
2006/15/EC / TWA	:	Limit Value - eight hours
DE TRGS 900 / AGW	:	Time Weighted Average

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; 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 (Cana-

da); 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 Harmonized 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 Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; 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 - International 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 - Organization 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; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; 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/

Classification of the mixture:		**Classification procedure:**
Eye Irrit. 2	H319	Calculation method
STOT RE 2	H373	Calculation method

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.

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