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Safety data sheet according to Regulation (EC) No 1907/2006, Annex II

Revision date / version: 14.12.2022 / 0015

Replacing version dated / version: 20.05.2022 / 0014

Valid from: 14.12.2022 PDF print date: 14.12.2022 Brake Fluid DOT 3

# Safety data sheet according to Regulation (EC) No 1907/2006, Annex II

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

#### 1.1 Product identifier

#### **Brake Fluid DOT 3**

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

Hydraulic fluid

#### **Uses advised against:**

No information available at present.

#### 1.3 Details of the supplier of the safety data sheet

LIQUI MOLY GmbH Jerg-Wieland-Str. 4 89081 Ulm-Lehr Tel: (+49) 0731-142

Tel.: (+49) 0731-1420-0 Fax: (+49) 0731-1420-88

Qualified person's e-mail address: info@chemical-check.de, k.schnurbusch@chemical-check.de Please DO NOT use for requesting Safety Data Sheets.

#### 1.4 Emergency telephone number

## Emergency information services / official advisory body:

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# Telephone number of the company in case of emergencies:

+49 (0) 700 / 24 112 112 (LMR)

+1 872 5888271 (LMR)

#### **SECTION 2: Hazards identification**

#### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) 1272/2008 (CLP)
Hazard class Hazard category Hazard statement

Eye Irrit. 2 H319-Causes serious eye irritation.

Repr. 2 H361d-Suspected of damaging the unborn child.

## 2.2 Label elements

Labeling according to Regulation (EC) 1272/2008 (CLP)





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#### Warning

H319-Causes serious eye irritation. H361d-Suspected of damaging the unborn child.

P101-If medical advice is needed, have product container or label at hand. P102-Keep out of reach of children.

P201-Obtain special instructions before use. P280-Wear protective gloves / protective clothing / eye protection / face protection.

P308+P313-IF exposed or concerned: Get medical advice / attention.

P405-Store locked up.

P501-Dispose of contents / container to an approved waste disposal facility.

Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate

#### 2.3 Other hazards

The mixture does not contain any vPvB substance (vPvB = very persistent, very bioaccumulative) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).

The mixture does not contain any PBT substance (PBT = persistent, bioaccumulative, toxic) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).

The mixture does not contain any substance with endocrine disrupting properties (< 0,1 %).

# **SECTION 3: Composition/information on ingredients**

# 3.1 Substances

# n.a. 3.2 Mixtures

2-[2-(2-butoxyethoxy)ethoxy]ethanol	
Registration number (REACH)	01-2119475107-38-XXXX
Index	603-183-00-0
EINECS, ELINCS, NLP, REACH-IT List-No.	205-592-6
CAS	143-22-6
content %	20-<30
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Eye Dam. 1, H318
Specific Concentration Limits and ATE	Eye Dam. 1, H318: >=30 %
	Eye Irrit. 2, H319: >=20 %

Diethylene glycol	
Registration number (REACH)	01-2119457857-21-XXXX
Index	603-140-00-6
EINECS, ELINCS, NLP, REACH-IT List-No.	203-872-2
CAS	111-46-6
content %	15-24
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Acute Tox. 4, H302

Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate	
Registration number (REACH)	01-2119462824-33-XXXX
Index	
EINECS, ELINCS, NLP, REACH-IT List-No.	250-418-4
CAS	30989-05-0
content %	5-20
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Repr. 2. H361d

310-287-7
161907-77-3
5-10
Eye Dam. 1, H318



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Specific Concentration Limits and ATE	Eye Dam. 1, H318: >=30 %
	Eye Irrit. 2, H319: >=20 %

2-(2-butoxyethoxy)ethanol	Substance for which an EU exposure limit value applies.
Registration number (REACH)	01-2119475104-44-XXXX
Index	603-096-00-8
EINECS, ELINCS, NLP, REACH-IT List-No.	203-961-6
CAS	112-34-5
content %	1-<3
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Eye Irrit. 2, H319

2-(2-methoxyethoxy)ethanol	Substance for which an EU exposure limit value applies.
Registration number (REACH)	01-2119475100-52-XXXX
Index	603-107-00-6
EINECS, ELINCS, NLP, REACH-IT List-No.	203-906-6
CAS	111-77-3
content %	0,1-<3
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Repr. 1B, H360D
Specific Concentration Limits and ATE	Repr. 1B, H360D: >=3 %

For the text of the H-phrases and classification codes (GHS/CLP), see Section 16.

The substances named in this section are given with their actual, appropriate classification!

For substances that are listed in appendix VI, table 3.1 of the regulation (EC) no. 1272/2008 (CLP regulation) this means that all notes that may be given here for the named classification have been taken into account.

#### **SECTION 4: First aid measures**

## 4.1 Description of first aid measures

First-aiders should ensure they are protected!

Never pour anything into the mouth of an unconscious person!

#### Inhalation

Remove person from danger area.

Supply person with fresh air and consult doctor according to symptoms.

#### Skin contact

Remove polluted, soaked clothing immediately, wash thoroughly with plenty of water and soap, in case of irritation of the skin (flare), consult a doctor.

Unsuitable cleaning product:

Solvents

Thinners

# Eye contact

Remove contact lenses.

Wash thoroughly for several minutes using copious water. Seek medical help if necessary.

#### Ingestion

Rinse the mouth thoroughly with water.

Do not induce vomiting - give copious water to drink. Consult doctor immediately.

Allow drinking approx. 100 ml approx. 40% ethanol in esculent.

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

If applicable delayed symptoms and effects can be found in section 11 and the absorption route in section 4.1.

In certain cases, the symptoms of poisoning may only appear after an extended period / after several hours.

The following may occur:

Product removes fat.

Dermatitis (skin inflammation)

In aerosol misting:

Irritation of the respiratory tract

Ingestion of large quantities:

Kidney damage

Coma

Death

#### 4.3 Indication of any immediate medical attention and special treatment needed

Symptomatic treatment.

Antidote:



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None known

# **SECTION 5: Firefighting measures**

# 5.1 Extinguishing media

## Suitable extinguishing media

Water jet spray / alcohol resistant foam / CO2 / dry extinguisher.

#### Unsuitable extinguishing media

High volume water jet

#### 5.2 Special hazards arising from the substance or mixture

In case of fire the following can develop:

Oxides of carbon Ethylene glycol Boron oxide Toxic gases

## 5.3 Advice for firefighters

For personal protective equipment see Section 8.

In case of fire and/or explosion do not breathe fumes.

Protective respirator with independent air supply.

Full protection, if necessary.

Cool container at risk with water.

Dispose of contaminated extinction water according to official regulations.

# **SECTION 6: Accidental release measures**

# 6.1 Personal precautions, protective equipment and emergency procedures

#### 6.1.1 For non-emergency personnel

In case of spillage or accidental release, wear personal protective equipment as specified in section 8 to prevent contamination.

Ensure sufficient ventilation, remove sources of ignition.

Avoid dust formation with solid or powder products.

Leave the danger zone if possible, use existing emergency plans if necessary.

Avoid contact with eyes or skin.

If applicable, caution - risk of slipping.

# **6.1.2 For emergency responders**

See section 8 for suitable protective equipment and material specifications.

#### 6.2 Environmental precautions

If leakage occurs, dam up.

Resolve leaks if this possible without risk.

Prevent from entering drainage system.

Prevent surface and ground-water infiltration, as well as ground penetration.

If accidental entry into drainage system occurs, inform responsible authorities.

# 6.3 Methods and material for containment and cleaning up

Soak up with absorbent material (e.g. sand, earth) and dispose of according to Section 13.

Flush residue using copious water.

#### 6.4 Reference to other sections

For personal protective equipment see Section 8 and for disposal instructions see Section 13.

# **SECTION 7: Handling and storage**

In addition to information given in this section, relevant information can also be found in section 8 and 6.1.

#### 7.1 Precautions for safe handling

#### 7.1.1 General recommendations

Ensure good ventilation.

Avoid contact with eyes or skin.

Pregnant women should avoid contact with this product.

Eating, drinking, smoking, as well as food-storage, is prohibited in work-room.

Observe directions on label and instructions for use.

Use working methods according to operating instructions.



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# 7.1.2 Notes on general hygiene measures at the workplace

General hygiene measures for the handling of chemicals are applicable.

Wash hands before breaks and at end of work.

Keep away from food, drink and animal feedingstuffs.

Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

## 7.2 Conditions for safe storage, including any incompatibilities

Keep out of access to unauthorised individuals.

Not to be stored in gangways or stair wells.

Store product closed and only in original packing.

Store at room temperature.

Store in a dry place.

## 7.3 Specific end use(s)

No information available at present.

# **SECTION 8: Exposure controls/personal protection**

## 8.1 Control parameters

Area of application	Exposure route /	Effect on health	Descriptor	Value	Unit	Note
••	Environmental		·			
	compartment					
	Environment - freshwater		PNEC	1,5	mg/l	
	Environment - marine		PNEC	0,15	mg/l	
	Environment - sediment, marine		PNEC	0,13	mg/kg dw	
	Environment - sediment, freshwater		PNEC	5,77	mg/kg dw	
	Environment - soil		PNEC	0,45	mg/kg dw	
	Environment - sewage treatment plant		PNEC	200	mg/l	
	Environment - water, sporadic (intermittent) release		PNEC	5	mg/l	
Consumer	Human - dermal	Long term, systemic effects	DNEL	25	mg/kg bw/day	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	117	mg/m3	
Consumer	Human - oral	Long term, systemic effects	DNEL	2,5	mg/kg bw/day	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	50	mg/kg bw/day	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	195	mg/m3	



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Diethylene glycol	1				T	
Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	10	mg/m3	
	Environment - marine		PNEC	1	mg/l	
	Environment - water, sporadic (intermittent) release		PNEC	10	mg/l	
	Environment - sediment, freshwater		PNEC	20,9	mg/kg dw	
	Environment - soil		PNEC	1,53	mg/kg dw	
	Environment - sediment, marine		PNEC	2,09	mg/kg	
	Environment - sewage treatment plant		PNEC	199,5	mg/l	
Consumer	Human - dermal	Long term, systemic effects	DNEL	21	mg/kg bw/day	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	12	mg/m3	
Consumer	Human - inhalation	Long term, local effects	DNEL	12	mg/m3	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	43	mg/kg bw/day	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	44	mg/m3	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	60	mg/m3	

Area of application	Exposure route / Environmental	Effect on health	Descriptor	Value	Unit	Note
	compartment					
	Environment - freshwater		PNEC	0,211	mg/l	
	Environment - water, sporadic (intermittent) release		PNEC	2,112	mg/l	
	Environment - marine		PNEC	0,021	mg/l	
	Environment - sediment, freshwater		PNEC	0,76	mg/kg dw	
	Environment - sediment, marine		PNEC	0,076	mg/kg dw	
	Environment - soil		PNEC	0,028	mg/kg dw	
	Environment - sewage treatment plant		PNEC	100	mg/I	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	7,2	mg/m3	
Consumer	Human - dermal	Long term, systemic effects	DNEL	4,1	mg/kg bw/d	
Consumer	Human - oral	Long term, systemic effects	DNEL	4,1	mg/kg bw/d	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	29,1	mg/m3	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	8,3	mg/kg bw/d	

Ethanol, 2-butoxy-, manufacture of, by-products from						
Area of application	Exposure route /	Effect on health	Descriptor	Value	Unit	Note
	Environmental					
	compartment					
	Environment - freshwater		PNEC	4,5	mg/l	
	Environment - marine		PNEC	0,31	mg/l	
	Environment - sediment,		PNEC	6,6	mg/kg dw	
	freshwater					



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	Environment - sediment,		PNEC	0,66	mg/kg dw
	marine				
	Environment - soil		PNEC	1,32	mg/kg dw
	Environment - sewage		PNEC	500	mg/l
	treatment plant				
Consumer	Human - dermal	Long term, systemic	DNEL	25	mg/kg
		effects			bw/day
Consumer	Human - inhalation	Long term, systemic	DNEL	117	mg/m3
		effects			
Consumer	Human - oral	Long term, systemic	DNEL	2,5	mg/kg
		effects			bw/day
Workers / employees	Human - dermal	Long term, systemic	DNEL	50	mg/kg
		effects			bw/day
Workers / employees	Human - inhalation	Long term, systemic	DNEL	195	mg/m3
. ,		effects			

Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - marine		PNEC	0,11	mg/l	
	Environment - water, sporadic (intermittent) release		PNEC	11	mg/l	
	Environment - sediment, freshwater		PNEC	4,4	mg/kg	
	Environment - sediment, marine		PNEC	0,44	mg/kg	
	Environment - soil		PNEC	0,32	mg/kg	
	Environment - sewage treatment plant		PNEC	100	mg/l	
	Environment - oral (animal feed)		PNEC	56	mg/kg	
Consumer	Human - inhalation	Short term, local effects	DNEL	60,7	mg/m3	
Consumer	Human - dermal	Long term, systemic effects	DNEL	50	mg/kg bw/d	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	40,5	mg/m3	
Consumer	Human - oral	Long term, systemic effects	DNEL	5	mg/kg bw/d	
Consumer	Human - oral	Long term, systemic effects	DNEL	6,25	mg/kg bw/d	
Consumer	Human - inhalation	Long term, local effects	DNEL	40,5	mg/m3	
Workers / employees	Human - oral	Long term, local effects	DNEL	67,5	mg/m3	
Workers / employees	Human - dermal	Short term, systemic effects	DNEL	89	mg/kg bw/d	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	67,5	mg/m3	
Workers / employees	Human - dermal	Long term, systemic effects Short term, local	DNEL	20	mg/kg	
Workers / employees	Vorkers / employees Human - inhalation		DNEL	101,2	mg/m3	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	67,5	mg/m3	

2-(2-methoxyethoxy)ethanol						
Area of application	Exposure route /	Effect on health	Descriptor	Value	Unit	Note
	Environmental					
	compartment					
	Environment - freshwater		PNEC	12	mg/l	
	Environment - marine		PNEC	1,2	mg/l	



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	Environment - water, sporadic (intermittent) release		PNEC	12	mg/l
	Environment - sediment, freshwater		PNEC	44,4	mg/kg dw
	Environment - sediment, marine		PNEC	0,44	mg/l
	Environment - soil		PNEC	2,1	mg/kg dw
	Environment - sewage treatment plant		PNEC	10000	mg/l
	Environment - oral (animal feed)		PNEC	0,09	g/kg feed
Consumer	Human - dermal	Long term, systemic effects	DNEL	0,27	mg/kg bw/day
Consumer	Human - inhalation	Long term, systemic effects	DNEL	25	mg/m3
Consumer	Human - oral	Long term, systemic effects	DNEL	1,5	mg/kg bw/day
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	0,53	mg/kg bw/day
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	50,1	mg/m3

Area of application	Exposure route /	Effect on health	Descriptor	Value	Unit	Note
••	Environmental		•			
	compartment					
	Environment - freshwater		PNEC	10	mg/l	
	Environment - marine		PNEC	1	mg/l	
	Environment - water,		PNEC	50	mg/l	
	sporadic (intermittent)					
	release					
	Environment - sediment,		PNEC	36,6	mg/kg dw	
	freshwater					
	Environment - sediment,		PNEC	3,66	mg/kg dw	
	marine					
	Environment - soil		PNEC	1,56	mg/kg dw	
	Environment - sewage		PNEC	200	mg/l	
	treatment plant					
	Environment - oral (animal		PNEC	89	mg/kg feed	
	feed)					
Consumer	Human - dermal	Long term, systemic	DNEL	20	mg/kg bw/d	
		effects				
Consumer	Human - inhalation	Long term, systemic	DNEL	93	mg/m3	
		effects				
Consumer	Human - oral	Long term, systemic	DNEL	2	mg/kg bw/d	
		effects				
Workers / employees	Human - dermal	Long term, systemic	DNEL	40	mg/kg bw/d	
		effects				
Workers / employees	Human - inhalation	Long term, systemic	DNEL	156	mg/m3	
		effects				

WEL-TWA = Workplace Exposure Limit - Long-term exposure limit (8-hour TWA (= time weighted average) reference period) EH40. AGW = "Arbeitsplatzgrenzwert" (workplace limit value, Germany).

<sup>(8) =</sup> Inhalable fraction (Directive 2017/164/EU, Directive 2004/37/CE). (9) = Respirable fraction (Directive 2017/164/EU, Directive 2004/37/CE). (11) = Inhalable fraction (Directive 2004/37/CE). (12) = Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of this Directive, a biomonitoring system with a biological limit value not exceeding 0,002 mg Cd/g creatinine in urine (Directive 2004/37/CE). | WEL-STEL = Workplace Exposure Limit - Short-term exposure limit (15-minute reference period).

<sup>(8) =</sup> Inhalable fraction (2017/164/EU, 2017/2398/EU). (9) = Respirable fraction (2017/164/EU), 2017/2398/EU). (10) = Short-term exposure limit value in relation to a reference period of 1 minute (2017/164/EU). | BMGV = Biological monitoring guidance value EH40. BGW = "Biologischer Grenzwert" (biological limit value, Germany) | Other information: Sen = Capable of causing occupational asthma. Sk = Can be absorbed through skin. Carc = Capable of causing cancer and/or heritable genetic damage.

<sup>\*\* =</sup> The exposure limit for this substance is repealed through the TRGS 900 (Germany) of January 2006 with the goal of revision.

<sup>(13) =</sup> The substance can cause sensitisation of the skin and of the respiratory tract (Directive 2004/37/CE), (14) = The substance can cause



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sensitisation of the skin (Directive 2004/37/CE).

#### 8.2 Exposure controls

#### 8.2.1 Appropriate engineering controls

Ensure good ventilation. This can be achieved by local suction or general air extraction.

If this is insufficient to maintain the concentration under the WEL or AGW values, suitable breathing protection should be worn.

Applies only if maximum permissible exposure values are listed here.

Suitable assessment methods for reviewing the effectiveness of protection measures adopted include metrological and non-metrological investigative techniques.

These are specified by e.g. EN 14042.

EN 14042 "Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents".

#### 8.2.2 Individual protection measures, such as personal protective equipment

General hygiene measures for the handling of chemicals are applicable.

Wash hands before breaks and at end of work.

Keep away from food, drink and animal feedingstuffs.

Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

Eye/face protection:

Tight fitting protective goggles with side protection (EN 166).

Skin protection - Hand protection:

Chemical resistant protective gloves (EN ISO 374).

Recommended

Protective gloves in butyl rubber (EN ISO 374).

Minimum layer thickness in mm:

0,3

Protective nitrile gloves (EN ISO 374).

Minimum layer thickness in mm:

0,2

Permeation time (penetration time) in minutes:

> 480

The breakthrough times determined in accordance with EN 16523-1 were not obtained under practical conditions.

The recommended maximum wearing time is 50% of breakthrough time.

Protective hand cream recommended.

Skin protection - Other:

Protective working garments (e.g. safety shoes EN ISO 20345, long-sleeved protective working garments).

Respiratory protection:

If OES or MEL is exceeded.

Filter A2 P2 (EN 14387), code colour brown, white

Observe wearing time limitations for respiratory protection equipment.

Thermal hazards:

Not applicable

Additional information on hand protection - No tests have been performed.

In the case of mixtures, the selection has been made according to the knowledge available and the information about the contents.

Selection of materials derived from glove manufacturer's indications.

Final selection of glove material must be made taking the breakthrough times, permeation rates and degradation into account. Selection of a suitable glove depends not only on the material but also on other quality characteristics and varies from manufacturer to

In the case of mixtures, the resistance of glove materials cannot be predicted and must therefore be tested before use.

The exact breakthrough time of the glove material can be requested from the protective glove manufacturer and must be observed.

# 8.2.3 Environmental exposure controls

No information available at present.

## **SECTION 9: Physical and chemical properties**



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# 9.1 Information on basic physical and chemical properties

Physical state:

Colour:

Odour:

Mild

Melting point/freezing point:

Boiling point or initial boiling point and boiling range:

Flammability:

Liquid

Amber

Amber

6-50 °C

>210 °C

>220 °C

Lower explosion limit:

Upper explosion limit:

There is no information available on this parameter.

There is no information available on this parameter.

Flash point: >100 °C

Auto-ignition temperature: There is no information available on this parameter.

Decomposition temperature: 300 °C pH: 7-10,5

Kinematic viscosity: 5-10 cSt (20°C, There is no information available on this parameter.)

Solubility: Soluble
Partition coefficient n-octanol/water (log value): 1,5
Vapour pressure: 1,00 mbar
Density and/or relative density: 1,01-1,06 g/cm3

Relative vapour density:

There is no information available on this parameter.

Particle characteristics: Does not apply to liquids.

9.2 Other information

Evaporation rate: 0,01

# **SECTION 10: Stability and reactivity**

# 10.1 Reactivity

The product has not been tested.

#### 10.2 Chemical stability

Stable with proper storage and handling.

# 10.3 Possibility of hazardous reactions

No dangerous reactions are known.

#### 10.4 Conditions to avoid

See also section 7.

None known

#### 10.5 Incompatible materials

See also section 7.

Bases

Acids

Oxidizing agents Reducing agent

#### 10.6 Hazardous decomposition products

See also section 5.2

No decomposition when used as directed.

# **SECTION 11: Toxicological information**

# 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Possibly more information on health effects, see Section 2.1 (classification).

Brake Fluid DOT 3						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	>2000	mg/kg			calculated value
Acute toxicity, by dermal route:						n.d.a.
Acute toxicity, by inhalation:						n.d.a.
Skin corrosion/irritation:						n.d.a.
Serious eye damage/irritation:						n.d.a.
Respiratory or skin						n.d.a.
sensitisation:						
Germ cell mutagenicity:						n.d.a.
Carcinogenicity:						n.d.a.



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Reproductive toxicity:			n.d.a.
Specific target organ toxicity -			n.d.a.
single exposure (STOT-SE):			
Specific target organ toxicity -			n.d.a.
repeated exposure (STOT-RE):			
Aspiration hazard:			n.d.a.
Symptoms:			n.d.a.

2-[2-(2-butoxyethoxy)ethoxy]ethanol						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	5100-6616	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	>2000-6540	mg/kg	Rabbit		
Skin corrosion/irritation:						Not irritant
Serious eye damage/irritation:						Eye Dam. 1
Germ cell mutagenicity:					OECD 471 (Bacterial	Negative
					Reverse Mutation Test)	
Aspiration hazard:					,	No
Symptoms:						cornea opacity,
						mucous
						membrane
						irritation

Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	12565	mg/kg	Rat		Does not conform with EU classification.
Acute toxicity, by dermal route:	LD50	11890	mg/kg	Rabbit		
Acute toxicity, by inhalation:	LC0	4,4-4,6	mg/l/4h	Rat		Does not conform with EU classification.
Skin corrosion/irritation:				Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Not irritant
Serious eye damage/irritation:						Mild irritant
Respiratory or skin sensitisation:				Guinea pig	Regulation (EC) 440/2008 B.6 (SKIN SENSITISATION)	Not sensitizising
Germ cell mutagenicity:				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Germ cell mutagenicity:				Mouse	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative
Reproductive toxicity (Developmental toxicity):	NOAEL	1000	mg/kg bw/d	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	
Reproductive toxicity (Effects on fertility):	NOAEL	3060	mg/kg bw/d	Mouse	OECD 416 (Two- generation Reproduction Toxicity Study)	
Specific target organ toxicity - repeated exposure (STOT-RE):	NOAEL	936	mg/kg bw/d	Rat	OECD 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents)	
Specific target organ toxicity - repeated exposure (STOT-RE):	NOAEL	2200	mg/kg bw/d	Dog	OECD 410 (Repeated Dose Dermal Toxicity - 90-Day)	Analogous conclusion



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Symptoms:		acidosis, breathing difficulties, unconsciousness , diarrhoea, coughing, cramps, fatigue, mucous membrane irritation, dizziness,
		dizziness, nausea and vomiting., trembling

Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	>2000	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	
Acute toxicity, by dermal route:	LD50	>2000	mg/kg	Rat	OECD 402 (Acute Dermal Toxicity)	
Skin corrosion/irritation:				Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Not irritant
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Not irritant
Germ cell mutagenicity:					OECD 471 (Bacterial Reverse Mutation Test)	Negative
Reproductive toxicity:	NOAEL	250	mg/kg bw/d	Rabbit	OECD 414 (Prenatal Developmental Toxicity Study)	

Ethanol, 2-butoxy-, manufactur	e of, by-prod	ucts from				
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	2630	mg/kg	Rat		Analogous
						conclusion
Acute toxicity, by dermal route:	LD50	3540	mg/kg	Rabbit		Analogous
						conclusion
Skin corrosion/irritation:				Rabbit	OECD 404 (Acute	Not irritant,
					Dermal	Analogous
					Irritation/Corrosion)	conclusion
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye	Corrosive,
					Irritation/Corrosion)	Analogous
						conclusion
Respiratory or skin				Pig	OECD 406 (Skin	Not sensitizising,
sensitisation:					Sensitisation)	Analogous
						conclusion
Specific target organ toxicity -	NOAEL	500	mg/kg/d	Rat	OECD 408 (Repeated	Analogous
repeated exposure (STOT-RE),					Dose 90-Day Oral	conclusion
oral:					Toxicity Study in	
					Rodents)	
Specific target organ toxicity -	NOAEL	5000	mg/kg/d	Rat		Analogous
repeated exposure (STOT-RE),						conclusion
dermal:						

2-(2-butoxyethoxy)ethanol						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	>5000	mg/kg	Rat	OECD 401 (Acute Oral	
					Toxicity)	
Acute toxicity, by oral route:	LD50	2410	mg/kg	Mouse	OECD 401 (Acute Oral	fasted animals
					Toxicity)	
Acute toxicity, by dermal route:	LD50	2764	mg/kg	Rabbit	OECD 402 (Acute	
					Dermal Toxicity)	



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Acute toxicity, by inhalation:	LC50	>29	ppm	Rat	OECD 403 (Acute	Dusts or mist
					Inhalation Toxicity)	
Skin corrosion/irritation:				Rabbit	OECD 404 (Acute	Not irritant
					Dermal	
					Irritation/Corrosion)	
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye	Eye Irrit. 2
					Irritation/Corrosion)	
Respiratory or skin				Guinea pig	OECD 406 (Skin	No (skin contact
sensitisation:				' '	Sensitisation)	,
Germ cell mutagenicity:				Salmonella	OECD 471 (Bacterial	Negative
,				typhimurium	Reverse Mutation Test)	3
Germ cell mutagenicity:				.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	OECD 473 (In Vitro	Negative
Com con matagornony.					Mammalian	Chinese hamste
					Chromosome	Offinese namste
					Aberration Test)	
Corm cell mutagenicity				Mouse	OECD 475 (Mammalian	Negative
Germ cell mutagenicity:				Wouse		Negative
					Bone Marrow	
					Chromosome	
					Aberration Test)	
Germ cell mutagenicity:					OECD 476 (In Vitro	Negative
					Mammalian Cell Gene	Chinese hamste
					Mutation Test)	
Reproductive toxicity:		1000	mg/kg	Rat	OECD 414 (Prenatal	Negative,
					Developmental Toxicity	Analogous
					Study)	conclusion
Aspiration hazard:						No
Symptoms:						breathing
C)p.too.						difficulties,
						respiratory
						distress.
						diarrhoea.
						coughing,
						mucous
						membrane
						irritation,
						dizziness,
						watering eyes,
						nausea
Specific target organ toxicity -	NOAEL	250	mg/kg	Rat		
repeated exposure (STOT-RE),						
oral:						
Specific target organ toxicity -	NOAEL	< 200	mg/kg	Rat	OECD 411 (Subchronic	Male
repeated exposure (STOT-RE),			bw/d		Dermal Toxicity - 90-day	
dermal:					Study)	
Specific target organ toxicity -	NOAEL	14	ppm	Rat		Vapours
repeated exposure (STOT-RE),			PP	1.55		
iopodiod oxpodulo (OTOT INE),	1	1		1	1	

# 11.2. Information on other hazards

Brake Fluid DOT 3							
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes	
Endocrine disrupting properties:	-					Does not apply	
						to mixtures.	
Other information:						No other	
						relevant	
						information	
						available on	
						adverse effects	
						on health.	

# **SECTION 12: Ecological information**



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Possibly more information on environmental effects, see Section 2.1 (classification).

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:							n.d.a.
12.1. Toxicity to daphnia:							n.d.a.
12.1. Toxicity to algae:							n.d.a.
12.2. Persistence and degradability:							n.d.a.
12.3. Bioaccumulative potential:							n.d.a.
12.4. Mobility in soil:							n.d.a.
12.5. Results of PBT and vPvB assessment							n.d.a.
12.6. Endocrine							Does not apply
disrupting properties:							to mixtures.
12.7. Other adverse							No information
effects:							available on
							other adverse
							effects on the
							environment.
Other information:							DOC-elimination
							degree(complexi
							ng organic
							substance)>=
							80%/28d: n.a.
Other information:	AOX			%			According to the
							recipe, contains
							no AOX.

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.5. Results of PBT							No PBT
and vPvB assessment							substance, No
							vPvB substance
12.1. Toxicity to fish:	LC50	96h	1305-	mg/l	Leuciscus idus		
			4600				
12.1. Toxicity to fish:	LC50	96h	1350-	mg/l	Pimephales		
			2400		promelas		
12.1. Toxicity to daphnia:	EC50	48h	500-	mg/l	Daphnia magna		
			2802				
12.1. Toxicity to algae:	EC50	72h	>500	mg/l	Scenedesmus		
					subspicatus		
12.2. Persistence and		14d	88	%	·	OECD 301 E	
degradability:						(Ready	
-						Biodegradability -	
						Modified OECD	
						Screening Test)	

Diethylene glycol Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.5. Results of PBT	•						No PBT
and vPvB assessment							substance, No
							vPvB substance
12.1. Toxicity to fish:	LC50	24h	>5000	ppm	Carassius auratus		
12.1. Toxicity to fish:	LC50	96h	>32000	mg/l	Gambusia affinis		References
12.1. Toxicity to daphnia:	EC50	24h	>10000	mg/l	Daphnia magna		
12.1. Toxicity to algae:	IC0	7d	2700	mg/l	Scenedesmus quadricauda		References
12.2. Persistence and degradability:		28d	67	%		OECD 301 A (Ready Biodegradability - DOC Die-Away Test)	



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Toxicity to bacteria:	EC0	16h	8000	mg/l	Pseudomonas putida	References
Other information:	BOD5		1,3 - 10	%		References
Other information:	COD		99	%		References
Other information:	ThOD		1,51	g/g		References
Water solubility:						Mixable

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.2. Persistence and degradability:	·	10d	>70	%		OECD 301 A (Ready Biodegradability - DOC Die-Away Test)	
12.1. Toxicity to fish:	LC50	96h	100,3	mg/l	Oncorhynchus mykiss	OECD 203 (Fish, Acute Toxicity Test)	
12.1. Toxicity to daphnia:	EC50	48h	>211,2	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	EC50	72h	>224,4	mg/l	Pseudokirchneriell a subcapitata	OEĆD 201 (Alga, Growth Inhibition Test)	
12.5. Results of PBT and vPvB assessment						,	No PBT substance, N vPvB substa

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	>1800	mg/l	Scophthalmus	OECD 203 (Fish,	
					maximus	Acute Toxicity	
						Test)	
12.1. Toxicity to daphnia:	EC50	48h	>3200	mg/l	Daphnia magna	OECD 202	
						(Daphnia sp.	
						Acute	
						Immobilisation	
						Test)	
12.1. Toxicity to algae:	EC50	72h	1075	mg/l	Selenastrum	OECD 201 (Alga,	
					capricornutum	Growth Inhibition	
						Test)	
12.1. Toxicity to algae:	EC50	72h	2490	mg/l	Selenastrum	OECD 201 (Alga,	
					capricornutum	Growth Inhibition	
						Test)	
12.1. Toxicity to algae:	EC50	72h	1075	mg/l	Selenastrum	OECD 201 (Alga,	
					capricornutum	Growth Inhibition	
						Test)	
12.2. Persistence and		28d	76	%		OECD 301 D	
degradability:						(Ready	
						Biodegradability -	
						Closed Bottle Test)	
12.2. Persistence and		28d	70	%		OECD 306	
degradability:						(Biodegradability	
						in Seawater)	

2-(2-butoxyethoxy)ethanol								
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes	
12.1. Toxicity to daphnia:	NOEC/NOEL	48h	>=100	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)		



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12.1. Toxicity to fish:	LC50	96h	1300	mg/l	Lepomis macrochirus	OECD 203 (Fish, Acute Toxicity Test)	
12.1. Toxicity to daphnia:	EC50	48h	>100	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	NOEC/NOEL	96h	>100	mg/l	Desmodesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	
12.2. Persistence and degradability:		28d	76	%		OECD 301 D (Ready Biodegradability - Closed Bottle Test)	
12.2. Persistence and degradability:		28d	100	%	activated sludge	OECD 302 B (Inherent Biodegradability - Zahn- Wellens/EMPA Test)	Readily biodegradable
12.3. Bioaccumulative potential:	Log Pow		0,9-1			OECD 117 (Partition Coefficient (n- octanol/water) - HPLC method)	Slight
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Toxicity to bacteria:	EC10	30min	>1995	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	
Other information:							Does not contain any organically bound halogens which can contribute to the AOX value in waste water.

# **SECTION 13: Disposal considerations**

#### 13.1 Waste treatment methods

## For the substance / mixture / residual amounts

EC disposal code no.:

The waste codes are recommendations based on the scheduled use of this product. Owing to the user's specific conditions for use and disposal, other waste codes may be allocated under certain circumstances. (2014/955/EU)

16 01 13 brake fluids

Recommendation:

Sewage disposal shall be discouraged.

Pay attention to local and national official regulations.

E.g. dispose at suitable refuse site.

E.g. suitable incineration plant.

# For contaminated packing material

Pay attention to local and national official regulations.

Empty container completely.

Uncontaminated packaging can be recycled.



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Dispose of packaging that cannot be cleaned in the same manner as the substance.

## **SECTION 14: Transport information**

Not applicable

#### **General statements**

Transport by road/by rail (ADR/RID)

14.1. UN number or ID number: Not applicable

14.2. UN proper shipping name:

Not applicable

14.3. Transport hazard class(es): Not applicable 14.4. Packing group: Not applicable 14.5. Environmental hazards: Not applicable Not applicable Tunnel restriction code: Classification code: Not applicable I O: Not applicable

Transport category: Transport by sea (IMDG-code)

14.1. UN number or ID number: Not applicable

14.2. UN proper shipping name:

Not applicable

14.3. Transport hazard class(es): Not applicable 14.4. Packing group: Not applicable 14.5. Environmental hazards: Not applicable Marine Pollutant: Not applicable Not applicable EmS:

Transport by air (IATA)

14.1. UN number or ID number: Not applicable

14.2. UN proper shipping name:

Not applicable

14.3. Transport hazard class(es): Not applicable Not applicable 14.4. Packing group: 14.5. Environmental hazards: Not applicable

#### 14.6. Special precautions for user

Unless specified otherwise, general measures for safe transport must be followed.

## 14.7. Maritime transport in bulk according to IMO instruments

Non-dangerous material according to Transport Regulations.

# **SECTION 15: Regulatory information**

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

Comply with national regulations/laws governing maternity protection (national implementation of the Directive 92/85/EEC)!

Regulation (EC) No 1907/2006, Annex XVII

2-(2-butoxyethoxy)ethanol

2-(2-methoxyethoxy)ethanol

This product is regulated by Regulation (EU) 2019/1148. All suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point.

For exceptions see Regulation (EU) 2019/1148 and guidelines for the implementation of Regulation (EU) 2019/1148.

Comply with trade association/occupational health regulations.

Directive 2010/75/EU (VOC): 14.5 %

#### 15.2 Chemical safety assessment

A chemical safety assessment is not provided for mixtures.

## **SECTION 16: Other information**

3, 11, 15

Revised sections:

These details refer to the product as it is delivered.



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Employee instruction/training in handling hazardous materials is required.

# Classification and processes used to derive the classification of the mixture in accordance with the ordinance (EG) 1272/2008 (CLP):

Classification in accordance with regulation (EC) No. 1272/2008 (CLP)	Evaluation method used
Eye Irrit. 2, H319	Classification according to calculation procedure.
Repr. 2, H361d	Classification according to calculation procedure.

The following phrases represent the posted Hazard Class and Risk Category Code (GHS/CLP) of the product and the constituents (specified in Section 2 and 3).

H360D May damage the unborn child.

H361d Suspected of damaging the unborn child.

H302 Harmful if swallowed.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

Eye Irrit. — Eye irritation
Repr. — Reproductive toxicity
Eye Dam. — Serious eye damage
Acute Tox. — Acute toxicity - oral

#### Key literature references and sources for data:

Regulation (EC) No 1907/2006 (REACH) and Regulation (EC) No 1272/2008 (CLP) as amended.

Guidelines for the preparation of safety data sheets as amended (ECHA).

Guidelines on labelling and packaging according to the Regulation (EG) Nr. 1272/2008 (CLP) as amended (ECHA).

Safety data sheets for the constituent substances.

ECHA Homepage - Information about chemicals.

GESTIS Substance Database (Germany).

German Environment Agency "Rigoletto" information site on substances that are hazardous to water (Germany).

EU Occupation Exposure Limits Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164, (EU) 2019/1831, each as amended

National Lists of Occupational Exposure Limits for each country as amended.

Regulations on the transport of hazardous goods by road, rail, sea and air (ADR, RID, IMDG, IATA) as amended.

#### Any abbreviations and acronyms used in this document:

acc., acc. to according, according to

ADR Accord européen relatif au transport international des marchandises Dangereuses par Route (= European Agreement concerning the International Carriage of Dangerous Goods by Road)

AOX Adsorbable organic halogen compounds

approx. approximately

Art., Art. no. Article number

ASTM ASTM International (American Society for Testing and Materials)

ATE Acute Toxicity Estimate

BAM Bundesanstalt für Materialforschung und -prüfung (Federal Institute for Materials Research and Testing, Germany)
BAuA Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (= Federal Institute for Occupational Health and Safety, Germany)

BCF Bioconcentration factor

BSEF The International Bromine Council

bw body weight

CAS Chemical Abstracts Service

CLP Classification, Labelling and Packaging (REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures)

CMR carcinogenic, mutagenic, reproductive toxic

DMEL Derived Minimum Effect Level
DNEL Derived No Effect Level
DOC Dissolved organic carbon

dw dry weight



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for example (abbreviation of Latin 'exempli gratia'), for instance

EbCx, EyCx, EbLx (x = 10, 50) Effect Concentration/Level of x % on reduction of the biomass (algae, plants)

EC **European Community** ECHA European Chemicals Agency

ECx, ELx (x = 0, 3, 5, 10, 20, 50, 80, 100) Effect Concentration/Level for x % effect

**European Economic Community** EEC

**EINECS** European Inventory of Existing Commercial Chemical Substances

**ELINCS** European List of Notified Chemical Substances

**Furopean Norms** FN

**EPA** United States Environmental Protection Agency (United States of America)

ErCx,  $E\mu Cx$ , ErLx (x = 10, 50) Effect Concentration/Level of x % on inhibition of the growth rate (algae, plants)

etc. et cetera EU European Union

EVAL Ethylene-vinyl alcohol copolymer

Fax number Fax.

general aen.

GHS Globally Harmonized System of Classification and Labelling of Chemicals **GWP** Global warming potential

Adsorption coefficient of organic carbon in the soil Koc

octanol-water partition coefficient Kow

IARC International Agency for Research on Cancer International Air Transport Association IATA IBC (Code) International Bulk Chemical (Code)

IMDG-code International Maritime Code for Dangerous Goods

including, inclusive

IUCLID International Uniform Chemical Information Database IUPAC International Union for Pure Applied Chemistry LC50 Lethal Concentration to 50 % of a test population

LD50 Lethal Dose to 50% of a test population (Median Lethal Dose)

Log Koc Logarithm of adsorption coefficient of organic carbon in the soil Log Kow, Log Pow Logarithm of octanol-water partition coefficient

**Limited Quantities** 

MARPOL International Convention for the Prevention of Marine Pollution from Ships

n.a. not applicable not available n.av. not checked n.c. n.d.a. no data available

NIOSH National Institute for Occupational Safety and Health (USA)

NLP No-longer-Polymer

NOEC, NOEL No Observed Effect Concentration/Level OECD Organisation for Economic Co-operation and Development

org.

OSHA Occupational Safety and Health Administration (USA)

PBT persistent, bioaccumulative and toxic

PF Polyethylene

PNEC Predicted No Effect Concentration

ppm parts per million PVC Polyvinylchloride

REACHRegistration, Evaluation, Authorisation and Restriction of Chemicals (REGULATION (EC) No 1907/2006 concerning the Registration,

Evaluation, Authorisation and Restriction of Chemicals)

9xx-xxx-x No. is automatically assigned, e.g. to pre-registrations without a CAS No. or other numerical identifier. List REACH-IT List-No. Numbers do not have any legal significance, rather they are purely technical identifiers for processing a submission via REACH-IT.

Règlement concernant le transport International ferroviaire de marchandises Dangereuses (= Regulation concerning the International Carriage of Dangerous Goods by Rail)

SVHC Substances of Very High Concern

Tel. Telephone

TOC Total organic carbon

**UN RTDG** United Nations Recommendations on the Transport of Dangerous Goods

VOC Volatile organic compounds

vPvB very persistent and very bioaccumulative

wwt wet weight

The statements made here should describe the product with regard to the necessary safety precautions - they are not meant to guarantee definite characteristics - but they are based on our present up-to-date knowledge.



③B)·

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No responsibility.

# These statements were made by: Chemical Check Platz 1-7, D-32839 Steinheim, Tel.: +49 5233 94 17 0, Fax: +49 5233 94 17 90

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