



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

1.1. Product identifier

Brake Fluid in the Hydraulic Unit

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

Use of the substance/mixture

Brake Fluid in the Hydraulic Unit

1.3. Details of the supplier of the safety data sheet

Company name: Robert Bosch GmbH
Automotive Aftermarket
Post-office box: 41 09 60
D-76227 Karlsruhe
Telephone: +49 721-942-0

Responsible Department: Responsible for the safety data sheet: sds@gbk-ingelheim.de

1.4. Emergency telephone

number: INTERNATIONAL: +49 - (0) 6132 - 84463, GBK GmbH (24h - 7d/w - 365d/a)

In England and Wales: NHS 111 In Scotland: NHS 24 - dial 111

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:

Reproductive toxicity: Repr. 2

Hazard Statements:

Suspected of damaging the unborn child.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling

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

Signal word: Warning

Pictograms:



Hazard statements

H361d Suspected of damaging the unborn child.

Precautionary statements

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P308+P311 IF exposed or concerned: Call a POISON CENTER/doctor.
P405 Store locked up.
P501 Dispose of contents/container to in accordance with local and national regulations.

2.3. Other hazards

According to Regulation (EC) No 1907/2006 (REACH) none of the substances, contained in this product are a PBT / vPvB substance.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Mixture of the following substances with non-hazardous admixtures



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Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
30989-05-0	Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate			60 - 70 %
	250-418-4		01-2119462824-33	
	Repr. 2; H361d			
	Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol			< 15 %
	907-996-4		01-2119531322-53	
	Eye Dam. 1; H318 EUH066			
111-46-6	2,2' -Oxybisethanol			< 2 %
	203-872-2	603-140-00-6	01-2119457857-21	
	Acute Tox. 4, STOT RE 2; H302 H373			
110-97-4	1,1'-iminodipropan-2-ol, di-isopropanolamine			< 2 %
	203-820-9	603-083-00-7	01-2119475444-34	
	Eye Irrit. 2; H319			
111-77-3	2-(2-methoxyethoxy)ethanol, diethylene glycol monomethyl ether			0,1 - 0,5 %
	203-906-6	603-107-00-6	01-2119475100-52	
	Repr. 2; H361d			

Full text of H and EUH statements: see section 16.

Further Information

Specific concentration limits

2-[2-(2-Butoxyethoxy) ethoxy] ethanol

H319: 20% =< C < 30%

H318: C >= 30%

SECTION 4: First aid measures**4.1. Description of first aid measures****General information**

Remove and wash contaminated clothing before re-use.

If you feel unwell, seek medical advice.

After inhalation

Move to fresh air in case of accidental inhalation of fumes from overheating or combustion.

After contact with skin

In case of contact with skin wash off immediately with soap and water.

Consult a doctor if skin irritation persists.

After contact with eyes

Remove contact lens.

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Seek medical treatment by eye specialist.

After ingestion

Do not induce vomiting.

Rinse out mouth and give plenty of water to drink.

Never give anything by mouth to an unconscious person.

Call a physician immediately.

Induce vomiting only upon the advice of a physician.

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

Suspected of damaging the unborn child.

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

Treat symptoms.

No specific antidotes are known.





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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Foam, carbon dioxide (CO₂), dry chemical, water-spray

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

Fire may produce:

carbon monoxide (CO), carbon dioxide (CO₂) and nitrogen oxides (NO_x)

5.3. Advice for firefighters

In case of fire, wear suitable respiratory equipment with positive air supply.

Protective suit.

Additional information

Cool containers at risk with water spray jet.

Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective clothing.

Ensure adequate ventilation.

Attention. Hazard of skidding.

6.2. Environmental precautions

Do not discharge into the drains/surface waters/ground water.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder). Shovel into suitable container for disposal.

6.4. Reference to other sections

Observe protective instructions (see Sections 7 and 8).

Information for disposal see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Avoid contact with skin, eyes and clothing.

Ensure adequate ventilation.

Reacts with air to form peroxides.

Advice on protection against fire and explosion

No special protective measures against fire required.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

To be kept tightly closed, in a cool and dry place.

Protect against direct sun radiation.

Recommended storage temperature: 0°C - 40°C

Hints on joint storage

Incompatible with oxidizing agents.

Further information on storage conditions

Keep away from food, drink and animal feeding stuffs.

7.3. Specific end use(s)

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters



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Exposure limits (EH40)

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
111-46-6	2,2'-Oxydiethanol	23	101		TWA (8 h)	WEL
111-77-3	2-(2-Methoxyethoxy)ethanol	10	50.1		TWA (8 h)	WEL

8.2. Exposure controls**Appropriate engineering controls**

Ensure adequate ventilation, especially in confined areas.

Protective and hygiene measures

Use barrier skin cream.

Remove and wash contaminated clothing before re-use.

Wash hands before breaks and at the end of workday.

Avoid contact with skin, eyes and clothing.

When using do not eat, drink or smoke.

Eye/face protection

Safety goggles (EN 166).

Eye wash bottle with pure water (EN 15154).

Hand protection

Short time contact:

Protective gloves resistant to chemicals made off butyl, minimum coat thickness 0.7 mm, permeation resistance (wear duration) > 30 minutes, i.e. protective glove <Butoject 898> made by www.kcl.de.

Protective gloves resistant to chemicals made off nitrile, minimum coat thickness 0.4 mm, permeation resistance (wear duration) approx. 60 minutes, i.e. protective glove <Camatril Velours 730> made by www.kcl.de.

This recommendation refers exclusively to the chemical compatibility and the lab test conforming to EN 374 carried out under lab conditions.

Requirements can vary as a function of the use. Therefore it is necessary to adhere additionally to the recommendations given by the manufacturer of protective gloves.

Skin protection

Long sleeved clothing (DIN EN ISO 6530)

Respiratory protection

No personal respiratory protective equipment normally required.

In case of insufficient ventilation wear suitable respiratory equipment (gas filter type A) (EN 14387).

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Physical state:	Liquid
Colour:	Yellow
Odour:	Characteristic

pH-Value: 7,7

Changes in the physical state

Melting point:	n.d.	
Initial boiling point and boiling range:	271 °C	ASTM D 1120
Sublimation point:	n.a.	
Solidifying point:	< - 50 °C	DIN/ISO 3016
Flash point:	137,5 °C	DIN EN ISO 2719

Flammability

Solid: n.a.

Gas: n.a.

Explosive properties

The product is not explosive.



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Lower explosion limits:	n.d.	
Upper explosion limits:	n.d.	
Ignition temperature:	230 °C	DIN 51794
Auto-ignition temperature		
Solid:	n.a.	
Gas:	n.a.	
Decomposition temperature:	n.d.	
Oxidizing properties		
Not fire-promoting.		
Vapour pressure: (at 20 °C)	1 hPa	
Vapour pressure: (at 50 °C)	1 hPa	
Density (at 20 °C):	1,06 g/cm ³	DIN 51757
Water solubility: (at 20 °C)	Miscible	
Solubility in other solvents		
n.d.		
Partition coefficient:	n.d.	
Viscosity / dynamic:	n.d.	
Viscosity / kinematic: (at 23 °C)	11,5 mm ² /s	ASTM D 445
Flow time:	n.d.	
Vapour density:	n.d.	
Evaporation rate:	n.d.	
Solvent separation test:	0 %	
Solvent content:	0 %	

9.2. Other information

No data available

SECTION 10: Stability and reactivity**10.1. Reactivity**

No decomposition if used as directed.

Not corrosive to metals.

10.2. Chemical stability

Stable under normal conditions.

The product is hygroscopic.

10.3. Possibility of hazardous reactions

Reactions with oxidizing agents.

10.4. Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition.

To avoid thermal decomposition, do not overheat.

10.5. Incompatible materials

strong oxidizing agents

Humid air

10.6. Hazardous decomposition products

No hazardous decomposition products known.

Fire may produce:

carbon monoxide (CO), carbon dioxide (CO₂) and nitrogen oxides (NO_x)**SECTION 11: Toxicological information****11.1. Information on toxicological effects****Acute toxicity**

Based on available data, the classification criteria are not met.

No toxicological data available.

LD50/oral/rat: > 2000 mg/kg



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CAS No	Chemical name			
	Exposure route	Dose	Species	Source
111-46-6	2,2' -Oxybisethanol			
	oral	LD50 12600 mg/kg	Rat (GESTIS)	
	dermal	LD50 11890 mg/kg	Rabbit (GESTIS)	
110-97-4	1,1'-iminodipropan-2-ol, di-isopropanolamine			
	oral	LD50 4765 mg/kg	Ratte	
111-77-3	2-(2-methoxyethoxy)ethanol, diethylene glycol monomethyl ether			
	oral	LD50 ca. 6500 mg/kg	Ratte	
	dermal	LD50 ca. 6450 mg/kg	Kaninchen	
	inhalation (1 h) vapour	LC50 > 200 mg/l	Ratte	

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Not classified.

Carcinogenic/mutagenic/toxic effects for reproduction

Suspected of damaging the unborn child. (Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate; 2-(2-methoxyethoxy)ethanol, diethylene glycol monomethyl ether)

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Carcinogenicity: Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Additional information on tests

Classification in compliance with the assessment procedure specified in the Regulation (EC) no 1272/2008.

Practical experience**Other observations**

Contact with eyes may cause irritation.

Prolonged contact may irritate skin.

Inhalation of vapours is irritating to the respiratory system, may cause throat pain and cough.

Ingestion causes irritation of upper respiratory system and gastrointestinal disturbance.

SECTION 12: Ecological information**12.1. Toxicity**

Ecological data are not available.

LC50/Leuciscus idus/96 h > 100 mg/l



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CAS No	Chemical name				
	Aquatic toxicity	Dose	[h] [d]	Species	Source
111-46-6	2,2' -Oxybisethanol				
	Acute fish toxicity	LC50 > 32000 mg/l	96 h	Gambusia affinis	
110-97-4	1,1'-iminodipropan-2-ol, di-isopropanolamine				
	Acute fish toxicity	LC50 > 1000-2200 mg/l	96 h	Leuciscus idus	
111-77-3	2-(2-methoxyethoxy)ethanol, diethylene glycol monomethyl ether				
	Acute fish toxicity	LC50 7500 mg/l	96 h	Lepomis macrochirus	
	Acute algae toxicity	ErC50 > 500 mg/l	72 h	Desmodesmus subspicatus	
	Acute crustacea toxicity	EC50 > 500 mg/l	48 h	Daphnia magna	

12.2. Persistence and degradability

Biodegradable (OECD): > 70% (28 d, OECD 302B)

Readily biodegradable.

12.3. Bioaccumulative potential

There is no indication of bioaccumulation potential.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
111-46-6	2,2' -Oxybisethanol	-1,98 (25°C)
110-97-4	1,1'-iminodipropan-2-ol, di-isopropanolamine	-0,82
111-77-3	2-(2-methoxyethoxy)ethanol, diethylene glycol monomethyl ether	-0,68

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

According to Regulation (EC) No 1907/2006 (REACH) none of the substances, contained in this product are a PBT / vPvB substance.

12.6. Other adverse effects

Low hazard to waters.

Further information

Do not flush into surface water or sanitary sewer system.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Disposal recommendations**

Remove in accordance with local official regulations.

List of Wastes Code - residues/unused products

160113 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08); brake fluids; hazardous waste

Contaminated packaging

Empty containers should be taken for local recycling, recovery or waste disposal.

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

Packaging that cannot be cleaned should be disposed of like the product.

SECTION 14: Transport information**Land transport (ADR/RID)****14.1. UN number:**

No dangerous good in sense of this transport regulation.

14.2. UN proper shipping name:

No dangerous good in sense of this transport regulation.

14.3. Transport hazard class(es):

No dangerous good in sense of this transport regulation.



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14.4. Packing group: No dangerous good in sense of this transport regulation.**Inland waterways transport (ADN)****14.1. UN number:** No dangerous good in sense of this transport regulation.**14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.**14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.**14.4. Packing group:** No dangerous good in sense of this transport regulation.**Marine transport (IMDG)****14.1. UN number:** No dangerous good in sense of this transport regulation.**14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.**14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.**14.4. Packing group:** No dangerous good in sense of this transport regulation.**Air transport (ICAO-TI/IATA-DGR)****14.1. UN number:** No dangerous good in sense of this transport regulation.**14.2. UN proper shipping name:** No dangerous good in sense of this transport regulation.**14.3. Transport hazard class(es):** No dangerous good in sense of this transport regulation.**14.4. Packing group:** No dangerous good in sense of this transport regulation.**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: no

14.6. Special precautions for user

No dangerous good in sense of this transport regulation.

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

No dangerous good in sense of this transport regulation.

Other applicable information

No hazardous material as defined by the transport regulations.

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 54: 2-(2-methoxyethoxy)ethanol, diethylene glycol monomethyl ether

2004/42/EC (VOC): 0 %

Information according to 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

National regulatory information

Employment restrictions:

Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers. Observe employment restrictions for women of child-bearing age.

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information**Abbreviations and acronyms**

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route

RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses

ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure

IMDG = International Maritime Code for Dangerous Goods

IATA/ICAO = International Air Transport Association / International Civil Aviation Organization

MARPOL = International Convention for the Prevention of Pollution from Ships

IBC-Code = International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk





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GHS = Globally Harmonized System of Classification and Labelling of Chemicals

REACH = Registration, Evaluation, Authorization and Restriction of Chemicals

CAS = Chemical Abstract Service

EN = European norm

ISO = International Organization for Standardization

DIN = Deutsche Industrie Norm

PBT = Persistent Bioaccumulative and Toxic

LD = Lethal dose

LC = Lethal concentration

EC = Effect concentration

IC = Median immobilisation concentration or median inhibitory concentration

Relevant H and EUH statements (number and full text)

H302 Harmful if swallowed.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H361d Suspected of damaging the unborn child.

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

EUH066 Repeated exposure may cause skin dryness or cracking.

Further Information

Weitere Informationen :

Data of items 4 to 8, as well as 10 to 12, do partly not refer to the use and the regular employing of the product (in this sense consult information on use and on product), but to liberation of major amounts in case of accidents and irregularities.

The information describes exclusively the safety requirements for the product(s) and is based on the present level of our knowledge.

The delivery specifications are contained in the corresponding product sheet.

This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations.

(n.a. = not applicable; n.d. = not determined)

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

