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

### **1.1. Product identifier**

DOT 4 1987479105;1987479106;1987479107;1987479108;1987479109;1987479111

### **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 name: Robert Bosch GmbH  
Street: Auf der Breit 4  
Place: D-76227 Karlsruhe  
Telephone: +49 721-942-0

Responsible Department: Service Deutschland: 0 900 1 942 010-5  
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)  
England and Wales: NHS Direct - 0845 4647; Scotland: NHS 24 - 08454 24 24  
24

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## **SECTION 2: Hazards identification**

### **2.1. Classification of the substance or mixture according to 1272/2008/EC**

This mixture is not classified as hazardous in accordance with Regulation (EC) No. 1272/2008.

### **2.2. Label elements**

#### **Special labelling of certain mixtures**

EUH210 Safety data sheet available on request.

### **2.3. Other hazards**

High risk of slipping due to leakage/spillage of product.

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

### **3.2. Mixtures**

#### **Chemical characterization**

Mixture of the following substances with non-hazardous admixtures

**Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
112-27-6	2,2'-(ethylenedioxy)diethanol			5 - 15 %
	203-953-2		01-2119438366-35	
161907-77-3	2-Butoxyethanol (by products from manufacture of)			10 - 15 %
	310-287-7		01-2119475115-41	
	Eye Dam. 1; H318			
111-46-6	2,2' -Oxybisethanol			4 - 10 %
	203-872-2	603-140-00-6	01-2119457857-21	
	Acute Tox. 4, STOT RE 2; H302 H373			
71035-05-7	Ester of boric acid			4 - 10 %
	Acute Tox. 4; H302			
143-22-6	2-[2-(2-Butoxyethoxy) ethoxy] ethanol			1 - 3 %
	205-592-6	603-183-00-0	01-2119475107-38	
	Eye Dam. 1; H318			
112-34-5	2-(2-Butoxyethoxy)ethanol			1 - 3 %
	203-961-6	603-096-00-8	01-2119475104-44	
	Eye Irrit. 2; H319			
111-77-3	2-(2-Methoxyethoxy)ethanol			1 - 2 %
	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-Butoxyethanol (by products from manufacture of)

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

H318; C  $\geq$  30%

H319; 20%  $\leq$  C < 30 %

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

Remove contaminated soaked clothing immediately.

In the event of persistent symptoms receive medical treatment.

**After inhalation**

Move to fresh air in case of accidental inhalation of vapours or decomposition products.

Call a physician immediately.

If patient is not breathing, apply artificial respiration.

**After contact with skin**

In case of contact with skin wash off 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.

Call a physician immediately.



Rinse out mouth and give plenty of water to drink.  
Never give anything by mouth to an unconscious person.  
Induce vomiting only upon the advice of a physician.

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

Contact with eyes, skin or oral tissues may cause irritation.  
Ingestion causes irritation of upper respiratory system and gastrointestinal disturbance.

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

Treat symptoms.

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**SECTION 5: Firefighting measures**

**5.1. Extinguishing media**

**Suitable extinguishing media**

Alcohol-resistant foam, dry chemical, carbon dioxide (CO<sub>2</sub>), 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 (CO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>)

**5.3. Advice for firefighters**

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

Protective suit.

**Additional information**

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

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**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.

Do not discharge into the subsoil/soil.

**6.3. Methods and material for containment and cleaning up**

Take up with absorbent material (e.g. sand, kieselguhr, acid binder, general-purpose binder, sawdust).

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.

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**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

**Advice on safe handling**

Ensure adequate ventilation.

Avoid contact with skin, eyes and clothing.

**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.

**Advice on storage compatibility**

Incompatible with:

Strong oxidizing agents, reducing agents.

Acids and bases.

**Further information on storage conditions**

Keep away from food, drink and animal feeding stuffs.

**7.3. Specific end use(s)**

Brake fluid

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters****Exposure limits (EH40)**

CAS No	Substance	ppm	mg/m <sup>3</sup>	fibres/ml	Category	Origin
111-46-6	2,2'-Oxydiethanol	23	101		TWA (8 h)	WEL
		-	-		STEL (15 min)	WEL
112-34-5	2-(2-Butoxyethoxy)ethanol	10	67.5		TWA (8 h)	WEL
		15	101.2		STEL (15 min)	WEL
111-77-3	2-(2-Methoxyethoxy)ethanol	10	50.1		TWA (8 h)	WEL
		-	-		STEL (15 min)	WEL

**8.2. Exposure controls****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).

**Hand protection**

Short time contact: Solvent-resistant gloves (nitrile rubber). (EN 374)

Glove material must be impermeable and resistant against product / substance / preparation. Gloves material should comply with breakthrough times, permeation rates, and degradation.

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.

**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:	Amber
Odour:	Characteristic

pH-Value (at 20 °C): 7 - 11,5

**Changes in the physical state**

Initial boiling point and boiling range: &gt; 260 °C

Flash point: &gt; 60 °C

Explosive properties: The product is not explosive.

Lower explosion limits: n.d.

Upper explosion limits:

Ignition temperature: n.d.

Vapour pressure:  
(at 20 °C) n.d.Density (at 20 °C): 1,00 - 1,10 g/cm<sup>3</sup>



Water solubility:

Completely miscible

**9.2. Other information**

No data available.

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**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

No decomposition if used as directed.

**10.2. Chemical stability**

Stable under normal conditions.

**10.3. Possibility of hazardous reactions**

Reactions with acids, alkalies and oxidizing agents

Reactions with reducing agents.

**10.4. Conditions to avoid**

To avoid thermal decomposition, do not overheat.

**10.5. Incompatible materials**

Strong oxidizing agents, reducing agents.

Acids and bases.

**10.6. Hazardous decomposition products**

Carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>).

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**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.

2-(2-Methoxyethoxy)ethanol

LD50/oral = 5500 mg/kg

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

LD50/oral = 5170 mg/kg

LD50/dermal = 3540 mg/kg

2,2' -Oxybisethanol

LD50/oral = 19600 mg/kg

LD50/dermal = 13300 mg/kg

**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.

**STOT-single exposure**

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

**Severe effects after repeated or prolonged exposure**

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

**Carcinogenic/mutagenic/toxic effects for reproduction**

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, skin or oral tissues may cause irritation.

Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.

Ingestion causes irritation of upper respiratory system and gastrointestinal disturbance.

If appropriately handled and if in accordance with the general hygienic rules, no damages to health



have become known.

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## **SECTION 12: Ecological information**

### **12.1. Toxicity**

Ecological data are not available.

2,2'-(ethylenedioxy)diethanol

EC50/Daphnia/48 h > 10000 mg/l

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

LC50/Fish/96 h > 2200 mg/l

EC50/Daphnia/48 h > 500 mg/l

NOEC/Algae = 62,5 mg/l

2,2' -Oxybisethanol

LC50/Fish/96 h > 100 mg/l

NOEC/Fish > 100 mg/l

2-(2-Butoxyethoxy)ethanol

LC50/Fish/96 h = 1300 mg/l

### **12.2. Persistence and degradability**

2,2'-(ethylenedioxy)diethanol; 2-(2-Methoxyethoxy)ethanol; 2-[2-(2-Butoxyethoxy) ethoxy] ethanol; 2,2'-Oxybisethanol

Readily biodegradable.

### **12.3. Bioaccumulative potential**

2,2'-(ethylenedioxy)diethanol; 2-(2-Methoxyethoxy)ethanol; 2-[2-(2-Butoxyethoxy) ethoxy] ethanol; 2-(2-Butoxyethoxy)ethanol

Low bio-accumulation can be estimated because of low log Po/w.

### **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.

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## **SECTION 13: Disposal considerations**

### **13.1. Waste treatment methods**

#### **Advice on disposal**

Can be incinerated, when in compliance with local regulations.

#### **Waste disposal number of waste from 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  
Classified as 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.

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## **SECTION 14: Transport information**

**Land transport (ADR/RID); Marine transport (IMDG); Air transport (ICAO-TI/IATA-DGR); Inland waterways transport (ADN):**



**14.1. UN number:**

No hazardous material as defined by the transport regulations.

**14.2. UN proper shipping name:**

No hazardous material as defined by the transport regulations.

**14.3. Transport hazard class(es):**

No hazardous material as defined by the transport regulations.

**14.4. Packing group:**

No hazardous material as defined by the transport regulations.

**14.5. Environmental hazards**

No hazardous material as defined by the transport regulations.

**14.6. Special precautions for user**

No hazardous material as defined by the transport regulations.

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

No hazardous material as defined by the transport regulations.

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**SECTION 15: Regulatory information**

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

**EU regulatory information**

2004/42/EC (VOC): 3,9 %

**National regulatory information**

Water contaminating class (D): 1 - slightly water contaminating

**15.2. Chemical safety assessment**

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

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**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

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

vPvB = Very Persistent and very Bio-accumulative

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.

EUH210 Safety data sheet available on request.

**Further Information**

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)

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