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

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.

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 >= 30%
H319; 20% =< 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.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media
Alcohol-resistant foam, dry chemical, carbon dioxide (CO2), 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 (NOx)

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.

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.

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/m³	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:	> 260 °C
Flash point:	> 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/cm³

Water solubility: Completely miscible

9.2. Other information

No data available.

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 (CO2) and nitrogen oxides (NOx).

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.

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.

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.

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.

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.

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)

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