

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

### 1.1 Product identifier

**febi 21754 brake fluid DOT 4**  
**Article number: 26746, 26461, 21754**

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

#### 1.2.1 Relevant uses

brake fluid

#### 1.2.2 Uses advised against

None known.

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

**Company** Ferdinand Bilstein GmbH + Co. KG  
Wilhelmstr. 47  
58256 Ennepetal / GERMANY  
Phone +49 2333 911-0  
Fax +49 2333 911-444  
Homepage [www.febi.com](http://www.febi.com)  
E-mail [info@febi.com](mailto:info@febi.com)

#### Address enquiries to

**Technical information** [info@febi.com](mailto:info@febi.com)  
**Safety Data Sheet** [info@febi.com](mailto:info@febi.com)

### 1.4 Emergency telephone number

**Advisory body** +49 (0)89-19240 (24h) (English)  
**Company** +49 2333 911-0

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture [REGULATION (EC) No 1272/2008]

No classification.

### 2.2 Label elements

The product is required to be labelled in accordance with regulation (EC) No 1272/2008 (CLP).

**Hazard pictograms** none  
**Signal word** none  
**Hazard statements** none  
**Precautionary statements** none  
**Special labelling** EUH210 Safety data sheet available on request.

### 2.3 Other hazards

**Physico-chemical hazards** No particular hazards known.  
**Human health dangers** If swallowed or in the event of vomiting, risk of product entering the lungs.  
Frequent persistent contact with the skin can cause skin irritation.  
**Environmental hazards** Does not contain any PBT or vPvB substances.  
**Other hazards** none

### SECTION 3: Composition / Information on ingredients

#### Product-type:

The product is a mixture.

Range [%]	Substance
1 - < 10	2-2'-oxybisethanol CAS: 111-46-6, EINECS/ELINCS: 203-872-2, EU-INDEX: 603-140-00-6, Reg-No.: 01-2119457857-21-XXXX GHS/CLP: Acute Tox. 4: H302 - STOT RE 2: H373
3 - < 10	Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol EINECS/ELINCS: 907-996-4, Reg-No.: 01-2119531322-53-XXXX GHS/CLP: Eye Dam. 1: H318
1 - < 3	1,1'-Iminodipropan-2-ol CAS: 110-97-4, EINECS/ELINCS: 203-820-9, EU-INDEX: 603-083-00-7 GHS/CLP: Eye Irrit. 2: H319

#### Comment on component parts

Substances of Very High Concern - SVHC: substances are not contained or are below 0.1%.  
For full text of H-statements and R-phrases: see SECTION 16.

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

##### General information

Take off contaminated clothing and wash before reuse.

##### Inhalation

Ensure supply of fresh air.  
In the event of symptoms seek medical treatment.

##### Skin contact

When in contact with the skin, clean with soap and water.  
Consult a doctor if skin irritation persists.

##### Eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice/attention.

##### Ingestion

Consult a doctor immediately.  
Do not induce vomiting.  
Rinse out mouth and give plenty of water to drink.

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

No information available.

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

Treat symptomatically.  
Forward this sheet to the doctor.

### SECTION 5: Fire-fighting measures

#### 5.1 Extinguishing media

##### Suitable extinguishing media

foam, dry powder, water spray jet, carbon dioxide

##### Extinguishing media that must not be used

Full water jet

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

Not combusted hydrocarbons.  
Risk of formation of toxic pyrolysis products.  
Carbon monoxide (CO)  
Nitrogen oxides (NOx).

#### 5.3 Advice for firefighters

Use self-contained breathing apparatus.  
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

High risk of slipping due to leakage/spillage of product.  
Forms slippery surfaces with water.

### 6.2 Environmental precautions

Prevent spread over a wide area (e.g. by containment or oil barriers).  
Do not discharge into the drains/surface waters/groundwater.

### 6.3 Methods and material for containment and cleaning up

Take up with absorbent material (e.g. general-purpose binder).  
Dispose of absorbed material in accordance within the regulations.

### 6.4 Reference to other sections

See SECTION 8+13

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

No special measures necessary if used correctly.  
The product is combustible.  
Do not eat, drink or smoke when using this product.  
Use barrier skin cream.  
Wash hands before breaks and after work.  
Contaminated work clothing should not be allowed out of the workplace.  
Take off contaminated clothing and wash before reuse.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep only in original container.  
Prevent penetration into the ground.  
Do not store together with oxidizing agents.  
Keep container tightly closed.  
Keep container in a well-ventilated place.  
Protect from heat/overheating.  
Keep in a cool place. Store in a dry place.  
The product is hygroscopic.

### 7.3 Specific end use(s)

See product use, SECTION 1.2



Ferdinand Bilstein GmbH + Co. KG

Date printed 29.08.2018, Revision 29.08.2018

Version 08. Supersedes version: 07

Page 4 / 11

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

**8.1 Control parameters**

Ingredients with occupational exposure limits to be monitored (GB)

Substance
2-2'-oxybisethanol
CAS: 111-46-6, EINECS/ELINCS: 203-872-2, EU-INDEX: 603-140-00-6
Long-term exposure: 23 ppm, 101 mg/m <sup>3</sup>

**DNEL**

Substance
2-2'-oxybisethanol, CAS: 111-46-6
Industrial, dermal, Long-term - systemic effects: 106 mg/kg bw/d.
general population, inhalative, Long-term - local effects: 60 mg/m <sup>3</sup> .
general population, inhalative, Long-term - local effects: 12 mg/m <sup>3</sup> .
general population, dermal, Long-term - systemic effects: 53 mg/kg bw/d.
Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol
Industrial, dermal, Long-term - systemic effects: 50 mg/kg bw/day.
general population, oral, Long-term - systemic effects: 2,5 mg/kg bw/day.
general population, dermal, Long-term - systemic effects: 25 mg/kg bw/day.

**PNEC**

Substance
2-2'-oxybisethanol, CAS: 111-46-6
sewage treatment plants (STP), 199,5 mg/L.
soil, 1,53 mg/kg.
sediment (freshwater), 20,9 mg/kg.
seawater, 1 mg/L.
freshwater, 10 mg/L.
Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol
oral (food), 111 mg/kg food.
soil, 450 µg/kg soil dw.
sediment (seawater), 130 µg/kg sediment dw.
sediment (freshwater), 5,77 mg/kg sediment dw.
sewage treatment plants (STP), 200 mg/L.
seawater, 150 µg/L.
freshwater, 1,5 mg/L.

## 8.2 Exposure controls

<b>Additional advice on system design</b>	Ensure adequate ventilation on workstation. Measurement methods for taking workplace measurements must meet the performance requirements of DIN EN 482. For example, recommendations are given in the IFA's list of hazardous substances.
<b>Eye protection</b>	safety glasses
<b>Hand protection</b>	The details concerned are recommendations. Please contact the glove supplier for further information. > 0,4 mm; Nitrile rubber, >480 min (EN 374-1/-2/-3).
<b>Skin protection</b>	Oil-resistant protective clothing.
<b>Other</b>	Personal protective equipment should be selected specifically for the working place, depending on concentration and quantity handled. The resistance of this equipment to chemicals should be ascertained with the respective supplier. Avoid contact with eyes and skin. Do not inhale vapours.
<b>Respiratory protection</b>	Respiratory protection mask in the event of high concentrations. Short term: filter apparatus, filter A. (DIN EN 14387)
<b>Thermal hazards</b>	none
<b>Delimitation and monitoring of the environmental exposition</b>	Comply with applicable environmental regulations limiting discharge to air, water and soil.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

<b>Form</b>	liquid
<b>Color</b>	yellow
<b>Odor</b>	characteristic
<b>Odour threshold</b>	not applicable
<b>pH-value</b>	7,5 -9 (20° C) (FMVSS 116)
<b>pH-value [1%]</b>	No information available.
<b>Boiling point [°C]</b>	> 260 (FMVSS 116)
<b>Flash point [°C]</b>	> 139 (DIN ISO 2719)
<b>Flammability (solid, gas) [°C]</b>	> 200 (DIN 51794)
<b>Lower explosion limit</b>	1,5 Vol%
<b>Upper explosion limit</b>	No information available.
<b>Oxidising properties</b>	no
<b>Vapour pressure/gas pressure [kPa]</b>	< 0,1 kPa (20° C)
<b>Density [g/ml]</b>	ca. 1,065 (DIN 51 757) (20 °C / 68,0 °F)
<b>Bulk density [kg/m³]</b>	not applicable
<b>Solubility in water</b>	miscible
<b>Partition coefficient [n-octanol/water]</b>	No information available.
<b>Viscosity</b>	ca. 15 - 17 mm²/s (20° C) (FMVSS 116)
<b>Relative vapour density determined in air</b>	No information available.
<b>Evaporation speed</b>	No information available.
<b>Melting point [°C]</b>	No information available.
<b>Autoignition temperature [°C]</b>	No information available.
<b>Decomposition temperature [°C]</b>	ca. 360

### 9.2 Other information

No information available.

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No dangerous reactions known if used as directed.

### 10.2 Chemical stability

Stable under normal ambient conditions (ambient temperature).  
Decomposes begins at ca. 360 °C.

### 10.3 Possibility of hazardous reactions

Reactions with oxidizing agents.

### 10.4 Conditions to avoid

See SECTION 7.2.

### 10.5 Incompatible materials

not determined

### 10.6 Hazardous decomposition products

No hazardous decomposition products known.

**SECTION 11: Toxicological information**

**11.1 Information on toxicological effects**

**Acute toxicity**

Product
ATE-mix, oral, > 2000 mg/kg.
Substance
1,1'-Iminodipropan-2-ol, CAS: 110-97-4
LD50, oral, Rat: 4765 mg/kg.
2-2'-oxybisethanol, CAS: 111-46-6
LD50, dermal, Rabbit: 13300 mg/kg bw.
LD50, oral, Rat: 19600 mg/kg bw.
LC50, inhalative, Rat: 4,6 mg/L.
Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol
LD50, dermal, Rabbit: 3540.
LD50, oral, Rat: >2000.

<b>Serious eye damage/irritation</b>	Toxicological data of complete product are not available. Slight irritant effect - does not require labelling. No classification. No classification due to substance-specific concentration limits.
<b>Skin corrosion/irritation</b>	Based on the available information, the classification criteria are not fulfilled.
<b>Respiratory or skin sensitisation</b>	Based on the available information, the classification criteria are not fulfilled.
<b>Specific target organ toxicity — single exposure</b>	Based on the available information, the classification criteria are not fulfilled.
<b>Specific target organ toxicity — repeated exposure</b>	Based on the available information, the classification criteria are not fulfilled.
<b>Mutagenicity</b>	Based on the available information, the classification criteria are not fulfilled.
<b>Reproduction toxicity</b>	Based on the available information, the classification criteria are not fulfilled.
<b>Carcinogenicity</b>	Based on the available information, the classification criteria are not fulfilled.
<b>Aspiration hazard</b>	Based on the available information, the classification criteria are not fulfilled.
<b>General remarks</b>	Toxicological data of complete product are not available. The toxicity data listed pertaining to the ingredients are intended for those working in the medicinal professions, experts for occupational health and safety and toxicologists.

**SECTION 12: Ecological information**

**12.1 Toxicity**

Substance
1,1'-Iminodipropan-2-ol, CAS: 110-97-4
LC50, (96h), Brachidanio rerio: > 100 - 2200 mg/l.
EC50, (72h), Algae: 270 mg/l.
EC50, (48h), Daphnia magna: 2777 mg/l.
2-2'-oxybisethanol, CAS: 111-46-6
LC50, (96h), Pimephales promelas: 75200 mg/L.
EC50, (24h), Daphnia magna: >10000 mg/L.
EC5, (192h), Scenedesmus quadricauda (alga): >1995 mg/L.
Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol
LC50, (96h), fish: 2400 mg/L.
EC50, (48h), Crustacea: 2210 mg/L.
NOEC, (72h), Algae: 62,5 mg/L.

**Ferdinand Bilstein GmbH + Co. KG**

Date printed 29.08.2018, Revision 29.08.2018

Version 08. Supersedes version: 07

Page 8 / 11

**12.2 Persistence and degradability**

<b>Behaviour in environment compartments</b>	not determined
<b>Behaviour in sewage plant</b>	not determined
<b>Biological degradability</b>	The product is biodegradable.

**12.3 Bioaccumulative potential**

No information available.

**12.4 Mobility in soil**

No information available.

**12.5 Results of PBT and vPvB assessment**

Based on all available information not to be classified as PBT or vPvB respectively.

**12.6 Other adverse effects**

Do not discharge product unmonitored into the environment or into the drainage.  
The toxicity data pertaining to the ingredients were supplied by the manufacturers of raw materials.

**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**

Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. It is not possible to determine a waste code for this product in accordance with the European Waste Catalogue (EWC) since it is only possible to classify it according to how it is used by the customer. The waste code is to be determined within the EU in liaison with the waste-disposal operator.

<b>Product</b>	In according to RoHS! Coordinate disposal with the disposal contractor/authorities if necessary.
<b>Waste no. (recommended)</b>	160113*
<b>Contaminated packaging</b>	Packaging that cannot be cleaned should be disposed of as for product. Uncontaminated packaging may be taken for recycling.
<b>Waste no. (recommended)</b>	150102 150104 150110*

**SECTION 14: Transport information**

**14.1 UN number**

<b>Transport by land according to ADR/RID</b>	not applicable
<b>Inland navigation (ADN)</b>	not applicable
<b>Marine transport in accordance with IMDG</b>	not applicable
<b>Air transport in accordance with IATA</b>	not applicable





**Ferdinand Bilstein GmbH + Co. KG**

Date printed 29.08.2018, Revision 29.08.2018

Version 08. Supersedes version: 07

Page 9 / 11

**14.2 UN proper shipping name**

- Transport by land according to ADR/RID NO DANGEROUS GOODS
- Inland navigation (ADN) NO DANGEROUS GOODS
- Marine transport in accordance with IMDG NOT CLASSIFIED AS "DANGEROUS GOODS"
- Air transport in accordance with IATA NOT CLASSIFIED AS "DANGEROUS GOODS"

**14.3 Transport hazard class(es)**

- Transport by land according to ADR/RID not applicable
- Inland navigation (ADN) not applicable
- Marine transport in accordance with IMDG not applicable
- Air transport in accordance with IATA not applicable

**14.4 Packing group**

- Transport by land according to ADR/RID not applicable
- Inland navigation (ADN) not applicable
- Marine transport in accordance with IMDG not applicable
- Air transport in accordance with IATA not applicable

**14.5 Environmental hazards**

- Transport by land according to ADR/RID no
- Inland navigation (ADN) no
- Marine transport in accordance with IMDG no
- Air transport in accordance with IATA no

**14.6 Special precautions for user**

Relevant information under SECTION 6 to 8.

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

not applicable

## SECTION 15: Regulatory information

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

EEC-REGULATIONS	1991/689 (2001/118); 2010/75; 2004/42; 648/2004; 1907/2006 (REACH); 1272/2008; 75/324/EEC (2008/47/EC); (EU) 2015/830; (EU) 2016/131; (EU) 517/2014
TRANSPORT-REGULATIONS	DOT-Classification, ADR (2017); IMDG-Code (2017, 38. Amdt.); IATA-DGR (2018).
NATIONAL REGULATIONS (GB):	EH40/2005 Workplace exposure limits (Second edition, published December 2011).
- Observe employment restrictions for people	no
- VOC (2010/75/CE)	0 %

### 15.2 Chemical safety assessment

not applicable

## SECTION 16: Other information

### 16.1 Hazard statements (SECTION 03)

H319 Causes serious eye irritation.  
H318 Causes serious eye damage.  
H373 May cause damage to organs through prolonged or repeated exposure if swallowed. (kidneys)  
H302 Harmful if swallowed.

### 16.2 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  
ATE = acute toxicity estimate  
CAS = Chemical Abstracts Service  
CLP = Classification, Labelling and Packaging  
DMEL = Derived Minimum Effect Level  
DNEL = Derived No Effect Level  
EC50 = Median effective concentration  
ECB = European Chemicals Bureau  
EEC = European Economic Community  
EINECS = European Inventory of Existing Commercial Chemical Substances  
ELINCS = European List of Notified Chemical Substances  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
IATA = International Air Transport Association  
IBC-Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk  
IC50 = Inhibition concentration, 50%  
IMDG = International Maritime Code for Dangerous Goods  
IUCLID = International Uniform Chemical Information Database  
LC50 = Lethal concentration, 50%  
LD50 = Median lethal dose  
LC0 = lethal concentration, 0%  
LOAEL = lowest-observed-adverse-effect level  
MARPOL = International Convention for the Prevention of Marine Pollution from Ships  
NOAEL = No Observed Adverse Effect Level  
NOEC = No Observed Effect Concentration  
PBT = Persistent, Bioaccumulative and Toxic substance  
PNEC = Predicted No-Effect Concentration  
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals  
STP = Sewage Treatment Plant  
TLV@/TWA = Threshold limit value – time-weighted average  
TLV@STEL = Threshold limit value – short-time exposure limit  
VOC = Volatile Organic Compounds  
vPvB = very Persistent and very Bioaccumulative

### 16.3 Other information

Classification procedure



**Modified position**

SECTION 3 been added: Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol

SECTION 3 deleted: ethanol, 2-butoxy-, manufacture of, by-products from