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

### 1.1 Product identifier

**febi 171874 brake fluid DOT4 LV**
**Article number: 171874, 171875, 171876**
**UFI: 750C-UGH2-H00M-FMSG**

### 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
E-mail info@febi.com

**Address enquiries to**

**Technical information** info@febi.com

**Safety Data Sheet** info@febi.com

### 1.4 Emergency telephone number

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

## SECTION 2: Hazards identification

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

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

### 2.2 Label elements

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

**Hazard pictograms**

**Signal word** WARNING

**Contains:** Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate

**Hazard statements** H361d Suspected of damaging the unborn child.

**Precautionary statements**

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.
P202 Do not handle until all safety precautions have been read and understood.
P280 Wear protective gloves / 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 appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

### 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.<br>Frequent persistent contact with the skin can cause skin irritation. |
| **Environmental hazards** | Does not contain any PBT or vPvB substances.<br>- |
| **Other hazards** | none |

## SECTION 3: Composition / Information on ingredients

### 3.1 Substances

**not applicable**

### 3.2 Mixtures

**The product is a mixture.**

| Range [%] | Substance |
|---|---|
| 30 - < 50 | Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate |
| | CAS: 30989-05-0, EINECS/ELINCS: 250-418-4, Reg-No.: 01-2119462824-33-XXXX |
| | GHS/CLP: Repr. 2: H361 |
| 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 |
| | SCL [%]: 20 - <30: Eye Irrit. 2: H319, >=30: 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, Reg-No.: 01-2117475444-34-XXXX |
| | 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%.<br>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.<br>In the event of symptoms seek medical treatment. |
| **Skin contact** | When in contact with the skin, clean with soap and water.<br>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.<br>If eye irritation persists: Get medical advice/attention. |
| **Ingestion** | Consult a doctor immediately.<br>Do not induce vomiting.<br>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 your 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 within 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

## SECTION 8: Exposure controls / personal protection

### 8.1 Control parameters

**Ingredients with occupational exposure limits to be monitored (GB)**

not applicable

**DNEL**

| Substance |
|---|
| Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0 |
| Industrial, dermal, Long-term - systemic effects: 8,3 mg/kg bw/day. |
| Industrial, inhalative, Long-term - systemic effects: 29,1 mg/m³. |
| general population, oral, Long-term - systemic effects: 4,1 mg/kg bw/day. |
| general population, dermal, Long-term - systemic effects: 4,1 mg/kg bw/day. |
| general population, inhalative, Long-term - systemic effects: 7,2 mg/m³. |
| Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol |
| Industrial, inhalative, Long-term - systemic effects: 195 mg/m³. |
| Industrial, dermal, Long-term - systemic effects: 208 mg/kg bw/day. |
| general population, oral, Long-term - systemic effects: 12,5 mg/kg bw/day. |
| general population, inhalative, Long-term - systemic effects: 117 mg/m³. |
| general population, dermal, Long-term - systemic effects: 125 mg/kg bw/day. |

**PNEC**

| Substance |
|---|
| Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0 |
| soil, 28,3 µg/kg soil dw. |
| sediment (seawater), 76 µg/kg sediment dw. |
| sediment (freshwater), 760 µg/kg sediment dw. |
| sewage treatment plants (STP), 100 mg/L. |
| seawater, 21,12 µg/L. |
| freshwater, 211,2 µg/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, 460 µg/kg soil dw. |
| sediment (seawater), 660 µg/kg sediment dw. |
| sediment (freshwater), 6,6 mg/kg sediment dw. |
| sewage treatment plants (STP), 500 µg/L. |
| seawater, 200 µg/L. |
| freshwater, 2 mg/L. |

### 8.2 Exposure controls

| | |
|---|---|
| **Additional advice on system design** | Ensure adequate ventilation on workstation.<br>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. |
| **Eye protection** | safety glasses |
| **Hand protection** | The details concerned are recommendations. Please contact the glove supplier for further information.<br>> 0,4 mm; Nitrile rubber, >480 min (EN 374-1/-2/-3). |
| **Skin protection** | Oil-resistant protective clothing. |
| **Other** | 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.<br>Avoid contact with eyes and skin.<br>Do not inhale vapours. |
| **Respiratory protection** | Respiratory protection mask in the event of high concentrations.<br>Short term: filter apparatus, filter A. (DIN EN 14387) |
| **Thermal hazards** | none |
| **Delimitation and monitoring of the environmental exposition** | 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

| | |
|---|---|
| **Physical state** | liquid |
| **Color** | yellow |
| **Odor** | characteristic |
| **Odour threshold** | not applicable |
| **pH-value** | ca 8 (20° C) (ASTM-D 1287) |
| **pH-value [1%]** | No information available. |
| **Boiling point [°C]** | > 264 (ASTM-D 1120) |
| **Flash point [°C]** | > 138 (DIN ISO 2719) |
| **Flammability (solid, gas) [°C]** | > 300 (DIN 51794) |
| **Lower explosion limit** | No information available. |
| **Upper explosion limit** | No information available. |
| **Oxidising properties** | no |
| **Vapour pressure/gas pressure [kPa]** | 0,27 hPa (20° C) |
| **Density [g/ml]** | ca. 1,06 (DIN 51 757) (20 °C / 68,0 °F) |
| **Bulk density [kg/m³]** | not applicable |
| **Solubility in water** | miscible |
| **Solubility other solvents** | No information available. |
| **Partition coefficient [n-octanol/water]** | No information available. |
| **Kinematic viscosity** | ca. 12 mm²/s (20° C) (DIN 51562) |
| **Relative vapour density** | No information available. |
| **Evaporation speed** | No information available. |
| **Melting point [°C]** | No information available. |
| **Auto-ignition temperature** | No information available. |
| **Decomposition temperature [°C]** | No information available. |
| **Particle characteristics** | No information available. |

### 9.2 Other information

Drop point: < -70°C

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No dangerous reactions known if used as directed.
The product is hygroscopic.

### 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

Sensitive to moisture.

### 10.6 Hazardous decomposition products

No hazardous decomposition products known.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

**Acute oral toxicity**

| Substance |
|---|
| Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0 |
| LD50, oral, Rat: >2000 mg/kg bw. |
| NOAEL, oral, Rat: >1000 mg/kg bw/day. |
| 1,1'-Iminodipropan-2-ol, CAS: 110-97-4 |
| LD50, oral, Rat: 6720 mg/kg bw. |
| Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol |
| LD50, oral, Rat: >2000 mg/kg bw. |

**Acute dermal toxicity**

| Substance |
|---|
| Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0 |
| LD50, dermal, Rat: >2000 mg/kg bw. |
| Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol |
| LD50, dermal, Rabbit: 3540 mg/kg bw. |

**Acute inhalational toxicity**

**Serious eye damage/irritation**
Toxicological data of complete product are not available.
Slight irritant effect - does not require labelling.
No classification.
Calculation method
SCL (907-996-4): 20 - < 30% Eye Irrit. 2/ >30% Eye Dam. 1 No classification due to substance-specific concentration limits.

**Skin corrosion/irritation**
Based on the available information, the classification criteria are not fulfilled.

**Respiratory or skin sensitisation**
Based on the available information, the classification criteria are not fulfilled.

**Specific target organ toxicity — single exposure**
Based on the available information, the classification criteria are not fulfilled.

**Specific target organ toxicity — repeated exposure**
Based on the available information, the classification criteria are not fulfilled.

**Mutagenicity**
Based on the available information, the classification criteria are not fulfilled.

**Reproduction toxicity**
Toxicological data of complete product are not available.
Suspected of damaging the unborn child.
Calculation method

**Carcinogenicity**
Based on the available information, the classification criteria are not fulfilled.

**Aspiration hazard**
Based on the available information, the classification criteria are not fulfilled.

**General remarks**

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 |
|---|
| Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0 |
| LC50, (96h), fish: 222,2 mg/L. |
| EC50, (48h), Crustacea: 211,2 mg/L. |
| EC50, (72h), Algae: 224,4 mg/L. |
| Reaction mass of 2-(2-(2-butoxyethoxy)ethoxy)ethanol and 3,6,9,12-tetraoxahexadecan-1-ol |
| LC50, (96h), fish: >1,5 g/L. |
| EC50, (48h), Crustacea: >3 g/L. |
| NOEC, (72h), Algae: >2,5 g/L. |

### 12.2 Persistence and degradability

| | |
|---|---|
| **Behaviour in environment compartments** | not determined |
| **Behaviour in sewage plant** | not determined |
| **Biological degradability** | 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 Endocrine disrupting properties

No information available.

### 12.7 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.

**Product**

In according to RoHS!
Coordinate disposal with the disposal contractor/authorities if necessary.

**Waste no. (recommended)** 160113*

**Contaminated packaging**

Packaging that cannot be cleaned should be disposed of as for product.
Uncontaminated packaging may be taken for recycling.

**Waste no. (recommended)**
150102
150104
150110* packaging containing residues of or contaminated by hazardous substances

## SECTION 14: Transport information

### 14.1 UN number

| | |
|---|---|
| **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 |

### 14.2 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** | 2008/98/EC 2000/532/EC); 2010/75/EU; 2004/42/EC; (EC) 648/2004; (EC) 1907/2006 (REACH); (EU) 1272/2008; 75/324/EEC ((EC) 2016/2037); (EU) 2020/878; (EU) 2016/131; (EU) 517/2014 |
| **TRANSPORT-REGULATIONS** | ADR (2019); IMDG-Code (2019, 39. Amdt.); IATA-DGR (2020) |
| **NATIONAL REGULATIONS (GB):** | EH40/2005 Workplace exposure limits (Second edition, published December 2011). |
| **- Observe employment restrictions for people** | Observe employment restrictions for mothers-to-be and nursing mothers. Observe employment restrictions for young people. |
| **- VOC (2010/75/CE)** | 0 % |

### 15.2 Chemical safety assessment

not applicable

## SECTION 16: Other information

### 16.1 Hazard statements (SECTION 3)

H318 Causes serious eye damage.
H361 Suspected of damaging fertility or the unborn child.
H319 Causes serious eye irritation.

### 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
EL50 = Median effective loading
ELINCS = European List of Notified Chemical Substances
EmS = Emergency Schedules
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
IVIS = In vitro irritation score
LC50 = Lethal concentration, 50%
LD50 = Median lethal dose
LC0 = lethal concentration, 0%
LOAEL = lowest-observed-adverse-effect level
LL50 = Median lethal loading
LQ = Limited Quantities
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** Repr. 2: H361d Suspected of damaging the unborn child. (Calculation method)

**Modified position** none