

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

**febi 23930 brake fluid DOT 4 PLUS**  
**Article number: 26748, 23932, 23930**

**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**

For all uses not specified in SECTION 1.2.1

**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)  
**Company** +49 2333 911-0

**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 / protective clothing / eye protection / face protection.  
 P308+P313 IF exposed or concerned: Get medical advice / attention.  
 P405 Store locked up.  
 P501 Dispose of contents/container in accordance with local/national regulation.

**UFI:**

EH84-02UQ-800M-8RWQ

**2.3 Other hazards****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

#### 3.1 Substances

not applicable

#### 3.2 Mixtures

The product is a mixture.

Range [%]	Substance
50 - < 70	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
1 - < 10	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
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
0,1 - < 0,25	Benzenamine, N-phenyl-, styrenated CAS: 68442-68-2, EINECS/ELINCS: 270-485-3, Reg-No.: 01-2120115789-46-XXXX GHS/CLP: Aquatic Acute 1: H400 - Aquatic Chronic 1: H410, M_acute = 1

#### 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

Seek medical advice 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 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.

Collect contaminated firefighting water separately, must not be discharged into the drains.

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

Ensure adequate ventilation.

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

Use only in well-ventilated areas.

Avoid formation of oil dust.

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.

Do not store together with food and animal food/diet.

The product is hygroscopic.

Keep in a cool place. Store in a dry place.

Keep container tightly closed.

Protect from heat/overheating.

Keep container in a well-ventilated place.

### 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)

Substance
2-2'-oxybisethanol
CAS: 111-46-6, EINECS/ELINCS: 203-872-2, EU-INDEX: 603-140-00-6, Reg-No.: 01-2119457857-21-XXXX
Long-term exposure: 23 ppm, 101 mg/m <sup>3</sup>

## 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/m <sup>3</sup> .
general population, inhalative, Long-term - systemic effects: 7,2 mg/m <sup>3</sup> .
general population, dermal, Long-term - systemic effects: 4,1 mg/kg bw/day.
general population, oral, Long-term - systemic effects: 4,1 mg/kg bw/day.
2-2'-oxybisethanol, CAS: 111-46-6
Industrial, dermal, Long-term - systemic effects: 43 mg/kg bw/d (AF= 105).
Industrial, inhalative, Long-term - systemic effects: 44 mg/m <sup>3</sup> .
Industrial, inhalative, Long-term - local effects: 60 mg/m <sup>3</sup> (AF= 2).
general population, inhalative, Long-term - systemic effects: 12 mg/m <sup>3</sup> .
general population, inhalative, Long-term - local effects: 12 mg/m <sup>3</sup> (AF0 10).
general population, dermal, Long-term - systemic effects: 21 mg/kg bw/d (AF= 210).
Benzenamine, N-phenyl-, styrenated, CAS: 68442-68-2
Industrial, inhalative, Long-term - systemic effects: 16,4 mg/m <sup>3</sup> .
Industrial, dermal, Long-term - systemic effects: 2,33 mg/kg bw/day.
general population, inhalative, Long-term - systemic effects: 2,9 mg/m <sup>3</sup> .
general population, dermal, Long-term - systemic effects: 0,833 mg/kg bw/day.
general population, oral, Long-term - systemic effects: 0,167 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.
2-2'-oxybisethanol, CAS: 111-46-6
sediment (freshwater), 20.9 mg/kg dw.
sewage treatment plants (STP), 199.5 mg/L (AF= 10).
seawater, 1 mg/L (AF= 100).
freshwater, 10 mg/L (AF= 10).
soil, 1.53 mg/kg dw.
sediment (seawater), 2.09 mg/kg dw.
Benzenamine, N-phenyl-, styrenated, CAS: 68442-68-2
There are no PNEC values established for the substance.,

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## 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). > 0,4 mm; Butyl 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>	In the event of occupational exposure limits being exceeded or of inadequate ventilation: wear appropriate respiratory protection. 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>	yellowish
<b>Odor</b>	characteristic
<b>Odour threshold</b>	not applicable
<b>pH-value</b>	ca. 8,5 (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>	> 134 (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. 1,06 (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>	ca. -70 (DIN 51583)
<b>Autoignition temperature [°C]</b>	No information available.
<b>Decomposition temperature [°C]</b>	360°C

## 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.  
The product is hygroscopic.

### 10.4 Conditions to avoid

See SECTION 7.2.

### 10.5 Incompatible materials

Oxidizing agent

### 10.6 Hazardous decomposition products

No hazardous decomposition products known.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product
inhalative, Based on the available information, the classification criteria are not fulfilled.:
dermal, Based on the available information, the classification criteria are not fulfilled.:
ATE-mix, oral, > 2000 mg/kg bw.
Substance
Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0
LD50, dermal, Rat: >2000 mg/kg bw.
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.
2-2'-oxybisethanol, CAS: 111-46-6
LD50, dermal, Rabbit: 13300 mg/kg.
LD50, oral, Rat: > 16500 mg/kg.
LC50, inhalative, Rat: > 4,6 mg/l/4h.
ATE, oral, 500 mg/kg (Cat. 4).
Benzenamine, N-phenyl-, styrenated, CAS: 68442-68-2
LD50, dermal, Rabbit: > 5000 mg/kg.
LD50, oral, Rat: > 5000 mg/kg.

<b>Serious eye damage/irritation</b>	Toxicological data of complete product are not available. No classification. Calculation method
<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>	Suspected of damaging the unborn child. Calculation method
<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

Product
Based on the available information, the classification criteria are not fulfilled.:
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.
2-2'-oxybisethanol, CAS: 111-46-6
LC50, (96h), Pimephales promelas: 752 mg/l.
EC50, (24h), Daphnia magna: > 100 mg/l.
EC10, (0,5h), Activated sewage sludge: > 1995 mg/l.
EC5, (8d), Scenedesmus quadricauda (alga): 2700 mg/l.

### 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>	96%, 4d - The product is biodegradable.

### 12.3 Bioaccumulative potential

CAS 110-97-4: Log Pow = -0,82

### 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

Ecological data of complete product are not available.

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.



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**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

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**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) 2015/830; (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 young people.  
Observe employment restrictions for mothers-to-be and nursing mothers.

- VOC (2010/75/CE) 0 %

**15.2 Chemical safety assessment**

not applicable

**SECTION 16: Other information****16.1 Hazard statements (SECTION 3)**

H410 Very toxic to aquatic life with long lasting effects.

H400 Very toxic to aquatic life.

H319 Causes serious eye irritation.

H302 Harmful if swallowed.

H361 Suspected of damaging fertility or the unborn child.

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**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  
 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)



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**Modified position**

- SECTION 2 been added: Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate
- SECTION 3 been added: Benzenamine, N-phenyl-, styrenated
- SECTION 3 been added: Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate
- SECTION 2 been added: H361d Suspected of damaging the unborn child.
- SECTION 2 been added: If swallowed or in the event of vomiting, risk of product entering the lungs.
- SECTION 2 deleted: none
- SECTION 2 deleted: EUH210 Safety data sheet available on request.
- SECTION 2 been added: Repr. 2
- SECTION 2 been added: health hazard
- SECTION 2 been added: WARNING
- SECTION 2 been added: P501 Dispose of contents/container in accordance with local/national regulation.
- SECTION 2 been added: P101 If medical advice is needed, have product container or label at hand.
- SECTION 2 been added: P102 Keep out of reach of children.
- SECTION 2 been added: P201 Obtain special instructions before use.
- SECTION 2 been added: P202 Do not handle until all safety precautions have been read and understood.
- SECTION 2 been added: P280 Wear protective gloves / protective clothing / eye protection / face protection.
- SECTION 2 been added: P308+P313 IF exposed or concerned: Get medical advice / attention.
- SECTION 2 been added: P405 Store locked up.
- SECTION 16 been added: Calculation method