

**Safety Data Sheet**

according to GSO ISO 11014:2013

**Mintex Brake Fluid DOT 5.1**

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

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**Product code:**

MBF5-1000B

**1.2. Relevant identified uses of the substance or mixture and uses advised against****Use of the substance/mixture**

Hydraulic (functional) fluids

**1.3. Details of the supplier of the safety data sheet**

Company name:	TMD Friction Services GmbH	
Street:	Schlebuscher Str. 99	
Place:	D-51381 Leverkusen	
Telephone:	+49 (2171)703-0	
e-mail:	serviceline@tmdfriction.com	
Contact person:	Hr. Beier	Telephone: +49 (2171)9113-7373
e-mail:	serviceline@tmdfriction.com	
Internet:	www.tmdfriction.com	

**1.4. Emergency telephone number:** GIZ Bonn: +49 (0)228-19240 (24/7)**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****UN-GHS (ST/SG/AC.10/11/Rev.8)**

Hazard categories:  
Reproductive toxicity: Repr. 2  
Hazard Statements:  
Suspected of damaging fertility or the unborn child.

**2.2. Label elements****UN-GHS (ST/SG/AC.10/11/Rev.8)****Hazard components for labelling**

Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate

**Signal word:** Warning**Pictograms:****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.
P203	Obtain, read and follow all safety instructions before use.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P318	IF exposed or concerned, get medical advice.
P405	Store locked up.
P501	Dispose of waste according to applicable legislation.

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#### 2.3. Other hazards

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

This material is combustible, but will not ignite readily.

### SECTION 3: Composition/information on ingredients

#### 3.2. Mixtures

##### Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
30989-05-0	Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate			80 - < 85 %
	250-418-4		01-2119462824-33	
	Repr. 2; H361			
143-22-6	2-[2-(2-butoxyethoxy)ethoxy]ethanol; TEGBE; triethylene glycol monobutylether; butoxytriethylene glycol			5 - < 10 %
	205-592-6	603-183-00-0	01-2119475107-38	
	Eye Dam. 1; H318			
9004-77-7	Polyethylene glycol butyl ether			1 - < 5 %
	500-012-0			
	Eye Irrit. 2; H319			
111-77-3	2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether			1 - < 5 %
	203-906-6	603-107-00-6	01-2119475100-52	
	Repr. 2; H361			

##### Further Information

Specific concentration limit (SCL):

CAS No. 143-22-6:

Serious eye damage, Category 1 H318:  $\geq 30\%$

Eye irritation, Category 2 H319:  $20 - < 30\%$

CAS No. 9004-77-7

Eye irritation, Category 2 H319:  $\geq 20\%$

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

##### General information

When in doubt or if symptoms are observed, get medical advice. Never give anything by mouth to an unconscious person or a person with cramps.

##### After inhalation

Provide fresh air. Medical treatment necessary.

##### After contact with skin

Wash with plenty of water. Immediately remove any contaminated clothing, shoes or stockings. Medical treatment necessary.

Clean with detergents. Avoid solvent cleaners.

##### After contact with eyes

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately. Remove contact lenses, if present and easy to do. Continue rinsing.

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**After ingestion**

Rinse mouth immediately and drink plenty of water. Observe risk of aspiration if vomiting occurs. Do NOT induce vomiting. Immediately call a doctor.

After ingestion large scale (Manufacturer): Immediately call a doctor. Alcohol (40 %) 90 - 120 mL (2 Mg/kg bw)

**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.

**SECTION 5: Firefighting measures****5.1. Extinguishing media****Suitable extinguishing media**

Water mist, alcohol resistant foam, Dry extinguishing powder, Carbon dioxide (CO<sub>2</sub>).  
Co-ordinate fire-fighting measures to the fire surroundings.

**Unsuitable extinguishing media**

Full water jet

**5.2. Special hazards arising from the substance or mixture**

This material is combustible, but will not ignite readily.

In case of fire may be liberated: Carbon monoxide, Carbon dioxide (CO<sub>2</sub>), Pyrolysis products, toxic.

**5.3. Advice for firefighters**

In case of fire: Wear self-contained breathing apparatus. Full protection suit.

**Additional information**

Suppress gases/vapours/mists with water spray jet. Use water spray jet to protect personnel and to cool endangered containers. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

Provide adequate ventilation. Do not breathe gas/vapour/aerosol. Evacuate area. Remove persons to safety.  
Special danger of slipping by leaking/spilling product.

**6.2. Environmental precautions**

Do not allow to enter into surface water or drains. Prevent spread over a wide area (e.g. by containment or oil barriers). In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

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

Clean contaminated articles and floor according to the environmental legislation.

**6.4. Reference to other sections**

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

**SECTION 7: Handling and storage****7.1. Precautions for safe handling****Advice on safe handling**

Provide adequate ventilation. Avoid contact with skin, eyes and clothes. Do not breathe gas/vapour/aerosol. Wear personal protection equipment.

**Advice on protection against fire and explosion**

Usual measures for fire prevention.

**7.2. Conditions for safe storage, including any incompatibilities**

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#### Requirements for storage rooms and vessels

Keep container tightly closed. Keep locked up. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaust at critical locations.

#### Hints on joint storage

Do not store together with: Acid, alkali (Base), Oxidising agent, Reducing agent.

#### Further information on storage conditions

storage temperature: 18 - 23 °C

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

Hydraulic (functional) fluids

### 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
111-77-3	2-(2-Methoxyethoxy)ethanol	10	50.1		TWA (8 h)	WEL

##### DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
30989-05-0	Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate			
Worker DNEL, long-term		dermal	systemic	8,3 mg/kg bw/day
Worker DNEL, long-term		inhalation	systemic	29,1 mg/m <sup>3</sup>
143-22-6	2-[2-(2-butoxyethoxy)ethoxy]ethanol; TEGBE; triethylene glycol monobutylether; butoxytriethylene glycol			
Worker DNEL, long-term		dermal	systemic	50 mg/kg bw/day
Worker DNEL, long-term		inhalation	systemic	195 mg/m <sup>3</sup>
111-77-3	2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether			
Worker DNEL, long-term		dermal	systemic	0,53 mg/kg bw/day
Worker DNEL, long-term		inhalation	systemic	50,1 mg/m <sup>3</sup>

##### PNEC values

CAS No	Substance	Value
30989-05-0	Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate	
Micro-organisms in sewage treatment plants (STP)		100 mg/l
143-22-6	2-[2-(2-butoxyethoxy)ethoxy]ethanol; TEGBE; triethylene glycol monobutylether; butoxytriethylene glycol	
Micro-organisms in sewage treatment plants (STP)		200 mg/l
111-77-3	2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether	
Micro-organisms in sewage treatment plants (STP)		10000 mg/l

#### Additional advice on limit values

To date, no national critical limit values exist.

#### 8.2. Exposure controls

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**Appropriate engineering controls**

Provide adequate ventilation as well as local exhaustion at critical locations.

**Protective and hygiene measures**

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat, drink, smoke, sniff. Avoid contact with skin, eyes and clothes. Do not breathe gas/vapour/aerosol.

**Eye/face protection**

Wear eye protection/face protection. Eye glasses with side protection (DIN EN 166)

**Hand protection**

Wear suitable gloves tested to EN374.

penetration time (maximum wearing period): > 480 min.

Suitable material: Butyl caoutchouc (butyl rubber)

Thickness of glove material: 0,3 mm

Suitable material: NBR (Nitrile rubber)

Thickness of glove material: 0,2 mm

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

**Skin protection**

Use of protective clothing.

**Respiratory protection**

In case of inadequate ventilation wear respiratory protection.

**Environmental exposure controls**

Do not allow to enter into surface water or drains.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

Physical state:	Liquid
Colour:	amber
Odour:	characteristic
Odour threshold:	not applicable
pH-Value:	7 - 10,5

**Changes in the physical state**

Melting point/freezing point:	< -50 °C
Boiling point or initial boiling point and boiling range:	> 260 °C
Flash point:	> 120 °C

**Flammability**

Solid:	> 280 °C
Gas:	not applicable

**Explosive properties**

The product is not: Explosive.

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Lower explosion limits:	not determined
Upper explosion limits:	not determined
Auto-ignition temperature:	not determined
<b>Self-ignition temperature</b>	
Solid:	not determined
Gas:	not applicable
Decomposition temperature:	300 °C
<b>Oxidizing properties</b>	
The product is not: oxidising.	
Vapour pressure: (at 20 °C)	1,00 hPa
Density:	1,02 - 1,07 g/cm <sup>3</sup>
Water solubility:	miscible
<b>Solubility in other solvents</b>	
not determined	
Partition coefficient n-octanol/water:	1,50
Viscosity / dynamic:	not determined
Viscosity / kinematic: (at 20 °C)	5 - 10 mm <sup>2</sup> /s
Relative vapour density:	not determined
Evaporation rate:	(n-butyl acetate=100) 0,01

**9.2. Other information**

Wet boiling point: < 165 °C

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

No hazardous reaction when handled and stored according to provisions.

**10.2. Chemical stability**

The product is stable under storage at normal ambient temperatures.

**10.3. Possibility of hazardous reactions**

No hazardous reaction when handled and stored according to provisions.

**10.4. Conditions to avoid**

Keep away from heat.

**10.5. Incompatible materials**

Acid, Strong alkali, Oxidizing agents, strong. Reducing agent, strong

**10.6. Hazardous decomposition products**

In case of fire may be liberated: Carbon monoxide, Carbon dioxide (CO<sub>2</sub>), Pyrolysis products, toxic.

**SECTION 11: Toxicological information**

**11.1. Information on toxicological effects**

**Acute toxicity**

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

Absorption large scale (Manufacturer): May cause damage to organs. (kidneys)

**ATEmix tested**

Dose	Species	Source
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LD50, oral	> 5000 mg/kg	Rat	Manufacturer
LD50, dermal	> 3000 mg/kg	Rabbit	Manufacturer

**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.

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

Suspected of damaging fertility or the unborn child. (Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate; 2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether)

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

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

**STOT-single exposure**

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

**STOT-repeated exposure**

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

**Aspiration hazard**

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

**Practical experience****Other observations**

Absorption large scale (Manufacturer)

The following symptoms may occur: Depression of central nervous system, Gastrointestinal complaints, Headache, Nausea.

**SECTION 12: Ecological information****12.1. Toxicity**

The product is not: Ecotoxic.

**12.2. Persistence and degradability**

Product is biodegradable. (OECD 302B)

**12.3. Bioaccumulative potential**

Based on the n-octanol/water partition coefficient accumulation in organisms is not expected.

**12.4. Mobility in soil**

Soluble in: Water. If product enters soil, it will be mobile and may contaminate groundwater.

**12.5. Results of PBT and vPvB assessment**

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

**12.6. Other adverse effects**

No information available.

**Further information**

Avoid release to the environment.

**SECTION 13: Disposal considerations****13.1. Waste treatment methods****Disposal recommendations**

Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation.

**Contaminated packaging**

Dispose of waste according to applicable legislation.

**SECTION 14: Transport information****Land transport (ADR/RID)**

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<b><u>14.1. UN number:</u></b>	No dangerous good in sense of this transport regulation.
<b><u>14.2. UN proper shipping name:</u></b>	No dangerous good in sense of this transport regulation.
<b><u>14.3. Transport hazard class(es):</u></b>	No dangerous good in sense of this transport regulation.
<b><u>14.4. Packing group:</u></b>	No dangerous good in sense of this transport regulation.

**Inland waterways transport (ADN)**

<b><u>14.1. UN number:</u></b>	No dangerous good in sense of this transport regulation.
<b><u>14.2. UN proper shipping name:</u></b>	No dangerous good in sense of this transport regulation.
<b><u>14.3. Transport hazard class(es):</u></b>	No dangerous good in sense of this transport regulation.
<b><u>14.4. Packing group:</u></b>	No dangerous good in sense of this transport regulation.

**Marine transport (IMDG)**

<b><u>14.1. UN number:</u></b>	No dangerous good in sense of this transport regulation.
<b><u>14.2. UN proper shipping name:</u></b>	No dangerous good in sense of this transport regulation.
<b><u>14.3. Transport hazard class(es):</u></b>	No dangerous good in sense of this transport regulation.
<b><u>14.4. Packing group:</u></b>	No dangerous good in sense of this transport regulation.

**Air transport (ICAO-TI/IATA-DGR)**

<b><u>14.1. UN number:</u></b>	No dangerous good in sense of this transport regulation.
<b><u>14.2. UN proper shipping name:</u></b>	No dangerous good in sense of this transport regulation.
<b><u>14.3. Transport hazard class(es):</u></b>	No dangerous good in sense of this transport regulation.
<b><u>14.4. Packing group:</u></b>	No dangerous good in sense of this transport regulation.

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: No

**14.6. Special precautions for user**

No information available.

**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****EU regulatory information**Restrictions on use (REACH, annex XVII):  
Entry 3, Entry 54**National regulatory information**

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

**SECTION 16: Other information****Abbreviations and acronyms**ACGIH: American Conference of Governmental Industrial Hygienist  
ATE: Acute toxicity estimate  
BCF: Bio-concentration factor  
CAS: Chemical Abstracts Service  
DGR: Dangerous Goods Regulations  
DNEL: Derived No Effect Level  
DMEL: Derived Minimal Effect Level  
PNEC: Predicted No Effect Concentration



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EC50: Effective Concentration 50%  
EL50: Effect loading, 50%  
ErC50: Effective Concentration 50%, growth rate  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
PBT: persistent, bioaccumulative, toxic  
vPvB: very persistent, very bioaccumulative  
IATA: International Air Transport Association  
IBC: Intermediate Bulk Container  
ICAO: International Civil Aviation Organization  
IMDG: International Maritime Code for Dangerous Goods  
LC50: Lethal concentration, 50%  
LD50: Lethal dose, 50%  
LL50: Lethal loading, 50%  
MARPOL: International Convention for the Prevention of Marine Pollution from Ships  
NOEC: No Observed Effect Concentration  
OEL: Occupational Exposure Limit  
PEL: Permissible Exposure Limit  
REL: Recommended Exposure Limit  
STEL: Short-Term Exposure Limit  
TWA: Time weighted average  
UN: United Nations

**Further Information**

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.

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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.)*