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

1.1 Product identifier

brake fluid DOT 4
Article number: 26746, 26461, 21754,180588, 1003875
UFI: J944-AH4A-H001-PDNP

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 Call NHS 111 or a doctor

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture [REGULATION (GB) CLP]

Eye Irrit. 2: H319 Causes serious eye irritation.
Repr. 2: H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.

2.2 Label elements

The product is required to be labelled in accordance with regulation CLP.

Hazard pictograms





Signal word WARNING

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

Hazard statements

H319 Causes serious eye irritation.
H361fd Suspected of damaging fertility. 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.
P337+P313 If eye irritation persists: Get medical advice / attention.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/national regulation.

2.3 Other hazards

Physico-chemical hazards Material will burn in fire.

Human health hazards The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Environmental hazards The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Further hazards Further hazards were not determined with the current level of knowledge.

SECTION 3: Composition / Information on ingredients

3.1 Substances

not applicable

3.2 Mixtures

The product is a mixture.

Range [%]	Substance
20 - <30	2-(2-(2-Butoxyethoxy)ethoxy)ethanol
	CAS: 143-22-6, EINECS/ELINCS: 205-592-6, EU-INDEX: 603-183-00-0, Reg-No.: 01-2119475107-38-XXXX
	GHS/CLP: Eye Dam. 1: H318
	SCL [%]: 20 - <30: Eye Irrit. 2: H319, >=30: Eye Dam. 1: H318
15 - 25	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: H361fd
5 - 10	3,6,9,12-tetraoxahexadecan-1-ol
	CAS: 1559-34-8, EINECS/ELINCS: 216-322-1
	GHS/CLP: Eye Irrit. 2: H319
5 - 10	2-2'-oxybisethanol
	CAS: 111-46-6, EINECS/ELINCS: 203-872-2, EU-INDEX: 603-140-00-6
	GHS/CLP: Acute Tox. 4: H302
1 - 3	2-(2-Butoxyethoxy)ethanol
	CAS: 112-34-5, EINECS/ELINCS: 203-961-6, EU-INDEX: 603-096-00-8, Reg-No.: 01-2119475104-44-XXXX
	GHS/CLP: Eye Irrit. 2: H319
< 1	2-(2-Methoxyethoxy)ethanol
	CAS: 111-77-3, EINECS/ELINCS: 203-906-6, EU-INDEX: 603-107-00-6, Reg-No.: 01-2119475100-52-XXXX
	GHS/CLP: Repr. 1B: H360D
	SCL [%]: >= 3: Repr. 1B: H360D

Comment on component parts For full text of H-statements: 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

Irritant effects

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)

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

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.
Use personal protective equipment (protective gloves, safety glasses, protective clothing).

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.
Use personal protective equipment.

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.
Recommended storage temperature: 15 - 30°C

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 (UK)

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/m³
2-(2-Butoxyethoxy)ethanol
CAS: 112-34-5, EINECS/ELINCS: 203-961-6, EU-INDEX: 603-096-00-8, Reg-No.: 01-2119475104-44-XXXX
Long-term exposure: 10 ppm, 67,5 mg/m³
Short-term exposure (15-minute): 15 ppm, 101,2 mg/m³
2-(2-Methoxyethoxy)ethanol
CAS: 111-77-3, EINECS/ELINCS: 203-906-6, EU-INDEX: 603-107-00-6, Reg-No.: 01-2119475100-52-XXXX
Long-term exposure: 10 ppm, 50,1 mg/m³, Sk

Ingredients with occupational exposure limits to be monitored EU (2004/37/EG)

Substance / EC LIMIT VALUES
2-(2-Butoxyethoxy)ethanol
CAS: 112-34-5, EINECS/ELINCS: 203-961-6, EU-INDEX: 603-096-00-8, Reg-No.: 01-2119475104-44-XXXX
Eight hours: 10 ppm, 67,5 mg/m³
Short-term (15-minute): 15 ppm, 101,2 mg/m³
2-(2-Methoxyethoxy)ethanol
CAS: 111-77-3, EINECS/ELINCS: 203-906-6, EU-INDEX: 603-107-00-6, Reg-No.: 01-2119475100-52-XXXX
Eight hours: 10 ppm, 50,1 mg/m³, H

DNEL

Substance
2-(2-Butoxyethoxy)ethanol, CAS: 112-34-5
Industrial, inhalative, Long-term - local effects, 67,5 mg/m³
Industrial, inhalative, Acute - local effects, 101,2 mg/m³
general population, oral, Long-term - systemic effects, 6,25 mg/kg bw/day
2-2'-oxybisethanol, CAS: 111-46-6
Industrial, inhalative, Long-term - systemic effects, 44 mg/m³
Industrial, inhalative, Acute - local effects, 60 mg/m³
Industrial, dermal, Long-term - systemic effects, 43 mg/kg bw/day
general population, inhalative, Long-term - systemic effects, 12 mg/m³
general population, inhalative, Acute - local effects, 12 mg/m³
general population, dermal, Long-term - systemic effects, 21 mg/kg bw/day
2-(2-(2-Butoxyethoxy)ethoxy)ethanol, CAS: 143-22-6
Industrial, inhalative, Long-term - systemic effects, 24 mg/m³
Industrial, inhalative, Acute - systemic effects, 96 mg/m³
Industrial, inhalative, Long-term - local effects, 30,5 mg/m³
Industrial, inhalative, Acute - local effects, 96 mg/m³
Industrial, dermal, Long-term - systemic effects, 1005 mg/kg bw/day
Industrial, dermal, Acute - systemic effects, 400 mg/kg bw/day
Industrial, dermal, Long-term - local effects, 5,65 mg/cm²
Industrial, dermal, Acute - local effects, 8,35 mg/cm²
general population, inhalative, Long-term - systemic effects, 12 mg/m³
general population, inhalative, Acute - systemic effects, 48 mg/m³
general population, inhalative, Long-term - local effects, 15,252 mg/m³
general population, inhalative, Acute - local effects, 48 mg/m³
general population, dermal, Long-term - systemic effects, 125 mg/kg bw/day
general population, dermal, Acute - systemic effects, 200 mg/kg bw/day

general population, dermal, Long-term - local effects, 2,823 mg/cm²
general population, dermal, Acute - local effects, 4,173 mg/cm²
general population, oral, Long-term - systemic effects, 12,5 mg/kg bw/day
general population, oral, Acute - systemic effects, 103,4 mg/kg bw/day
2-(2-Methoxyethoxy)ethanol, CAS: 111-77-3
Industrial, inhalative, Long-term - systemic effects, 50,1 mg/m³
Industrial, dermal, Long-term - systemic effects, 2,22 mg/kg bw/day
general population, inhalative, Long-term - systemic effects, 30,1 mg/m³
general population, dermal, Long-term - systemic effects, 1,33 mg/kg bw/day
general population, oral, Long-term - systemic effects, 7,5 mg/kg bw/day
Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0
Industrial, inhalative, Long-term - systemic effects, 14.8 mg/m³ (AF=25)
Industrial, dermal, Long-term - systemic effects, 4.2 mg/kg bw/d (AF=100)
general population, inhalative, Long-term - systemic effects, 2.6 mg/m³ (AF=50)
general population, dermal, Long-term - systemic effects, 1.5 mg/kg bw/d (AF=200)
general population, oral, Long-term - systemic effects, 1.5 mg/kg bw/d (AF=200)

PNEC

Substance
2-(2-Butoxyethoxy)ethanol, CAS: 112-34-5
There are no PNEC values established for the substance.
2-2'-oxybisethanol, CAS: 111-46-6
freshwater, 10 mg/L
seawater, 1 mg/L
sediment (freshwater), 20,9 mg/kg
soil, 1,53 mg/kg
sewage treatment plants (STP), 199,5 mg/L
2-(2-(2-Butoxyethoxy)ethoxy)ethanol, CAS: 143-22-6
freshwater, 2 - 100 mg/L
seawater, 200 - 142570 µg/L
sewage treatment plants (STP), 199,5 - 200 mg/L
sediment (freshwater), 7,7 - 11,115 mg/kg sediment dw
sediment (seawater), 770 - 1111,5 µg/kg sediment dw
soil, 470 - 11510 µg/kg soil dw
2-(2-Methoxyethoxy)ethanol, CAS: 111-77-3
freshwater, 12 mg/L
seawater, 1,2 mg/L
sewage treatment plants (STP), 10000 mg/L
sediment (freshwater), 44,4 mg/kg sediment dw
sediment (seawater), 0,44 mg/kg sediment dw
terrestrial, 2,1 mg/kg
oral (food), 0,09 g/kg
Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0
There are no PNEC values established for the substance.

8.2 Exposure controls

Additional advice on system design	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.
Eye protection	safety glasses
Hand protection	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).
Skin protection	Protective clothing (EN 340)
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. Avoid contact with eyes and skin. Do not inhale vapours.
Respiratory protection	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)
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
Form	liquid
Color	amber colour
Odor	mild
Odour threshold	not relevant
pH-value	7 - 10,5
pH-value [1%]	No information available.
Boiling point or initial boiling point and boiling range [°C]	>260
Flash point [°C]	>100
Flammability	no
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Oxidising properties	no
Vapour pressure/gas pressure [kPa]	0,1
Density [g/cm³]	1,02 - 1,07 (20 °C / 68,0 °F)
Relative density	not determined
Bulk density [kg/m³]	not applicable
Solubility in water [g/L]	miscible
Solubility other solvents	No information available.
Partition coefficient n-octanol/water (log value)	1,5
Kinematic viscosity	not relevant
Relative vapour density	No information available.
Melting point [°C]	<-50
Auto-ignition temperature [°C]	>280
Decomposition temperature [°C]	300
Particle characteristics	not applicable

9.2 Other information

none

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. 300 °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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute oral toxicity Based on the available information, the classification criteria are not fulfilled.

Product
ATE-mix, oral, Rat, > 5000 mg/kg bw

Substance
2-(2-Butoxyethoxy)ethanol, CAS: 112-34-5
LD50, oral, mouse, 2410 - 5530 mg/kg bw
2-(2-(2-Butoxyethoxy)ethoxy)ethanol, CAS: 143-22-6
LD50, oral, Rat, 5000 - 11300 mg/kg bw
LD0, oral, Rat, 5 mL/kg bw
2-(2-Methoxyethoxy)ethanol, CAS: 111-77-3
LD50, oral, Rat, 7128 mg/kg
Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0
LD50, oral, Rat, > 2000 mg/kg bw, OECD 401

Acute dermal toxicity Based on the available information, the classification criteria are not fulfilled.

Product
ATE-mix, dermal, Rabbit, > 3000 mg/kg bw

Substance
2-(2-Butoxyethoxy)ethanol, CAS: 112-34-5
LD50, dermal, Rabbit, 2764 mg/kg bw
2-(2-(2-Butoxyethoxy)ethoxy)ethanol, CAS: 143-22-6
LC50, dermal, Rabbit, 3540 mg/kg bw
LDLo, dermal, Rabbit, 2000 mg/kg bw
2-(2-Methoxyethoxy)ethanol, CAS: 111-77-3
LD50, dermal, Rabbit, 9404 mg/kg
Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0
LD50, dermal, Rat, > 2000 mg/kg bw

Acute inhalational toxicity Based on the available information, the classification criteria are not fulfilled.

Substance
2-(2-(2-Butoxyethoxy)ethoxy)ethanol, CAS: 143-22-6
LC50, inhalative, Rat, 2,4 mg/L air
LCLO, inhalative, Rat, 1,2 mg/L air, 8h
2-(2-Methoxyethoxy)ethanol, CAS: 111-77-3
LC0, inhalation (vapour), Rat, > 1,2 mg/l 6h

Serious eye damage/irritation Based on the available information, the classification criteria are fulfilled.
Irritant
Classification was carried out based on substance-specific concentration limits.

Substance
2-(2-Butoxyethoxy)ethanol, CAS: 112-34-5
Eye, irritant
2-(2-(2-Butoxyethoxy)ethoxy)ethanol, CAS: 143-22-6
Eye, adverse effect observed
2-(2-Methoxyethoxy)ethanol, CAS: 111-77-3
Eye, non-irritating
Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0
Eye, non-irritating

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

Substance
2-(2-Butoxyethoxy)ethanol, CAS: 112-34-5
dermal, Rabbit, OECD 404, non-irritating
2-(2-(2-Butoxyethoxy)ethoxy)ethanol, CAS: 143-22-6
dermal, non-irritating
2-(2-Methoxyethoxy)ethanol, CAS: 111-77-3
dermal, non-irritating
Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0
dermal, non-irritating

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

Substance
2-(2-Butoxyethoxy)ethanol, CAS: 112-34-5
dermal, Guinea pig, OECD 406, non-sensitizing
2-(2-(2-Butoxyethoxy)ethoxy)ethanol, CAS: 143-22-6
dermal, non-sensitizing
2-(2-Methoxyethoxy)ethanol, CAS: 111-77-3
dermal, non-sensitizing
Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0
dermal, non-sensitizing

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.

Substance
2-(2-Butoxyethoxy)ethanol, CAS: 112-34-5
NOAEL, oral, Rat, 250 mg/kg bw/day, The effects observed are not sufficient for classification.
NOAEC, inhalative, 94 mg/m³, The effects observed are not sufficient for classification.
2-2'-oxybisethanol, CAS: 111-46-6
NOAEL, oral, Rat, 128 - 936 mg/kg bw/day
NOAEL, dermal, Dog, 2220 - 4440 mg/kg bw/day
2-(2-(2-Butoxyethoxy)ethoxy)ethanol, CAS: 143-22-6
NOAEL, oral, Rat, 500 mg/kg bw/day
NOAEL, dermal, Rat, 5000 mg/kg bw/day
Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0
NOAEL, oral, Rat, 1000 mg/kg bw/day

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

Substance
2-(2-Butoxyethoxy)ethanol, CAS: 112-34-5
oral, mouse, In vivo study, negative
2-(2-(2-Butoxyethoxy)ethoxy)ethanol, CAS: 143-22-6
in vitro, negative
in vivo, negative
Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0
in vitro, negative

Reproduction toxicity Suspected of damaging the unborn child.
Suspected of damaging fertility.
Classification was carried out based on substance-specific concentration limits.

- Fertility

Substance
2-(2-Butoxyethoxy)ethanol, CAS: 112-34-5

NOAEL, oral, Rat, > 1000 mg/kg bw/day, no adverse effect observed
2-(2-Methoxyethoxy)ethanol, CAS: 111-77-3
NOAEL, oral, 200 mg/kg bw/day, adverse effect observed, Effect on developmental toxicity,
NOAEL, dermal, Rabbit, 50 mg/kg bw/day, adverse effect observed, Effect on developmental toxicity,

- Development

Substance
2-(2-Butoxyethoxy)ethanol, CAS: 112-34-5
NOAEL, oral, Rat, > 633 mg/kg bw/day, no adverse effect observed
2-(2-Methoxyethoxy)ethanol, CAS: 111-77-3
NOAEL, oral, 200 mg/kg bw/day, adverse effect observed, Effect on developmental toxicity,
NOAEL, dermal, Rabbit, 50 mg/kg bw/day, adverse effect observed, Effect on developmental toxicity,
Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0
NOAEL, oral, Rabbit, 250 mg/kg bw/day, adverse effect observed

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.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties Contains no ingredients with endocrine-disrupting properties.

11.2.2 Other information none

SECTION 12: Ecological information

12.1 Toxicity

Ecological data of complete product are not available.
Based on the available information, the classification criteria are not fulfilled.

Substance
2-(2-Butoxyethoxy)ethanol, CAS: 112-34-5
LC50, (96h), Fish, 1,3 g/L
EC50, (48h), Invertebrates, 100 mg/L
EC50, (4d), Algae, 100 mg/L
2-2'-oxybisethanol, CAS: 111-46-6
LC50, (96h), Fish, 75.2 g/L
LC50, (28d), Fish, 1.5 g/L
EC50, (24h), Invertebrates, 10 g/L
EC50, (21d), Invertebrates, 33.911 g/L
EC50, (4d), Algae, 6.5 - 13 g/L
2-(2-(2-Butoxyethoxy)ethoxy)ethanol, CAS: 143-22-6
LC50, (96h), Fish, 2,182 - 14,257 g/L
LC50, (48h), Fish, 2,4 g/L
LC50, (24h), Fish, 2,4 - 2,967 g/L
EC50, (21d), Invertebrates, 518,3 mg/L
EC50, (72h), Algae, 500 - 3211 mg/L
LC0, (96h), Fish, 2,15 g/L
NOEC, (72h), Algae, 62,5 - 499 mg/L
NOEC, (21d), Fish, 174,6 mg/L
NOEC, (21d), Invertebrates, 97,7 - 174,6 mg/L
LC100, (96h), Fish, 4,6 g/L
EC10, (72h), Algae, 151 - 1185 mg/L
EC10, (21d), Invertebrates, 233,9 - 235,6 mg/L
EC20, (72h), Algae, 270 - 364 mg/L
2-(2-Methoxyethoxy)ethanol, CAS: 111-77-3
LC50, (96h), Pimephales promelas, 5741 mg/L
EC50, (96h), Pseudokirchneriella subcapitata, > 1000 mg/L
EC50, (48h), Daphnia magna, 1192 mg/L
Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0
LC50, (48h), Oncorhynchus mykiss, > 222,2 mg/L
EC50, (24h), Daphnia magna, > 211,2 mg/L
EC50, (72h), Algae, > 224,4 mg/L

12.2 Persistence and degradability

Behaviour in environment compartments No information available.

Behaviour in sewage plant No information available.

Biological degradability The product is readily biodegradable.

Substance
Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0
Biological degradability:, (22d), >70 %, OECD 301 A, The product is readily biodegradable.

12.3 Bioaccumulative potential

Product has having no bioaccumulation potential.

Substance
Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0
log Pow, <<3, Does not bioaccumulate.

12.4 Mobility in soil

No information available.

Substance
Tris[2-(2-(2-methoxyethoxy)ethoxy)ethyl]orthoborate, CAS: 30989-05-0
log Kow, -4,37, QSAR, no adverse effect observed

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

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

None known.

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 or ID 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 Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

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

EEC-REGULATIONS	2008/98/EG (2000/532/EC); 2010/75/EU; 2004/42/EG; (EG) 648/2004; (EC) 1907/2006 (REACH); (EU) 1272/2008; 75/324/EWG ((EC) 2016/2037); (EU) 2020/878; (EU) 2016/131; (EU) 2024/573; (EU) 2019/1148; (EU) 2019/1021, (EU) 2023/707
- Comment on component parts	Substances of Very High Concern - SVHC: substances are not contained or are below 0.1%.
- Annex XIV (REACH)	According to Annex XIV of Regulation (EC) 1907/2006 (REACH) the product does not contain any substances ≥ 0.1% that are subject to authorisation.
- Annex XVII (REACH)	According to Annex XVII of Regulation (EC) 1907/2006 (REACH) the product contains ≥ 0.1% of substances with the following restrictions. 30, 54, 55, 72, 75
	According to Annex XVII of Regulation (EC) 1907/2006 (REACH) the product is subject to the following restrictions. 3
TRANSPORT-REGULATIONS	ADR (2025); IMDG-Code (2025, 42. Amdt.); IATA-DGR (2026, 67th Edition)
NATIONAL REGULATIONS (UK):	EH40/2005 Workplace exposure limits (Second edition, published December 2011); UK REACH; GB CLP.
- 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

For this product a chemical safety assessment has not been carried out.

SECTION 16: Other information

16.1 Hazard statements (SECTION 3)

H360D May damage the unborn child.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.

H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.
H318 Causes serious eye damage.

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

Eye Irrit. 2: H319 Causes serious eye irritation. (Calculation method)
Repr. 2: H361fd Suspected of damaging fertility. Suspected of damaging the unborn child. (Calculation method)

Modified position

6.1, 8.1, 8.2, 9.1, 11.1, 11.2, 12.1, 12.2, 12.3, 12.4, 12.5, 12.6, 12.7, 15.1, 15.2, 16.1, 16.2, 16.3