Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.06.2023 *Version number 6 (replaces version 5)* *Revision: 23.06.2023*

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

· **1.1 Product identifier**

· **Trade name:** **TRW DOT 4 Brake Fluid ESP**

· **Article number:**
32960005, 32960005.Z, PFB440, PFB445, PFB620DR, PFB440CE, PFB440SE, PFB440RE, PFB445CE, PFB445SE, PFB445RE, PFB620DRAE, PDF440AP, PFB444TC, PFB440IR

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
· **Application of the substance / the mixture** Brake fluid

· **1.3 Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
ZF Aftermarket UK Ltd.
Abbeyfield Road
Lenton
Nottingham, NG7 2SX
Tel +44 333 240 1123
Fax +44 115 986 92 61
https://www.zf.com

· **Informing department:**
Phone: +49 (0) 7541 77 0

E-Mail adress of the competent person for the safety data sheet:
reach@dekra.com

· **1.4 Emergency telephone number:**
Poison Information Center Munich
Phone: +49 (0) 89 - 19 240
Information in German and English

*
SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**


health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the GB CLP regulation.
· **Hazard pictograms**


GHS08

· **Signal word** Warning

(Contd. on page 2)

ZF Friedrichshafen AG
Löwentaler Straße 20, 88046 Friedrichshafen, Germany
www.zf.com/contact

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.06.2023 *Version number 6 (replaces version 5)* *Revision: 23.06.2023*

Trade name: **TRW DOT 4 Brake Fluid ESP**

(Contd. from page 1)

· ***Hazard-determining components of labelling:***
Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate
· ***Hazard statements***
H361 Suspected of damaging fertility or the unborn child.
· ***Precautionary statements***
P102 Keep out of reach of children.
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 in accordance with local/regional/national/international regulations.
· ***2.3 Other hazards***
· ***Results of PBT and vPvB assessment***
· ***PBT:*** Not applicable.
· ***vPvB:*** Not applicable.

*
SECTION 3: Composition/information on ingredients

· ***3.2 Mixtures***
· ***Description:***
Mixture of the substances listed below including additives not requiring identification.
Added are corrosion and oxidation inhibitors.

· ***Dangerous components:***		
CAS: 30989-05-0 EINECS: 250-418-4 Reg.nr.: 01-2119462824-33-X	Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate Repr. 2, H361	50 - 100%
CAS: 143-22-6 EINECS: 205-592-6 Reg.nr.: 01-2119475107-38-X	2-[2-(2-butoxyethoxy)ethoxy]ethanol Eye Dam. 1, H318 Specific concentration limits: Eye Dam. 1; H318: C ≥ 30 % Eye Irrit. 2; H319: 20 % ≤ C < 30 %	≥ 10 - < 20%
CAS: 1559-34-8 EINECS: 216-322-1 Reg.nr.: 01-2120768763-41-X	3,6,9,12-tetraoxahexadecan-1-ol Eye Irrit. 2, H319	≥ 0 - < 10%
CAS: 111-77-3 EINECS: 203-906-6 Reg.nr.: 01-2119475100-52-X	Dowanol DM Repr. 2, H361d Specific concentration limit: Repr. 1B; H360D: C ≥ 3 %	≥ 0 - < 3%
CAS: 112-34-5 EINECS: 203-961-6 Reg.nr.: 01-2119475104-44-X	2-(2-butoxyethoxy)ethanol Eye Irrit. 2, H319	≤ 1%

· ***Additional information*** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· ***4.1 Description of first aid measures***
· ***General information*** Instantly remove any clothing contaminated by the product.
· ***After inhalation*** Supply fresh air; consult doctor in case of symptoms.

(Contd. on page 3)

ZF Friedrichshafen AG
Löwentaler Straße 20, 88046 Friedrichshafen, Germany
www.zf.com/contact

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.06.2023 *Version number 6 (replaces version 5)* *Revision: 23.06.2023*

Trade name: **TRW DOT 4 Brake Fluid ESP**

(Contd. from page 2)

· ***After skin contact***
Wash with water and soap.
If skin irritation continues, consult a doctor.
· ***After eye contact***
Rinse opened eye for several minutes under running water. If symptoms persist, consult doctor.
· ***After swallowing***
Rinse out mouth and then drink plenty of water.
Call a doctor immediately.
· ***4.2 Most important symptoms and effects, both acute and delayed***
No further relevant information available.
· ***4.3 Indication of any immediate medical attention and special treatment needed***
No further relevant information available.

SECTION 5: Firefighting measures

· ***5.1 Extinguishing media***
· ***Suitable extinguishing agents***
Extinguishing powder, foam or water jet. Fight larger fires with water jet or alcohol-resistant foam.
· ***For safety reasons unsuitable extinguishing agents*** Water with a full water jet.
· ***5.2 Special hazards arising from the substance or mixture***
Inhalation of combustion gases may cause serious health hazards.
Formation of flammable mixtures of vapours with air possible.
· ***5.3 Advice for firefighters***
· ***Protective equipment:*** Wear self-contained breathing apparatus.
· ***Additional information***
Remove goods in stock from incendiary zone, if possible.
Use water to keep fire exposed containers cool.

SECTION 6: Accidental release measures

· ***6.1 Personal precautions, protective equipment and emergency procedures***
Avoid contact with the product.
Ensure adequate ventilation
Particular danger of slipping on leaked/spilled product.
· ***6.2 Environmental precautions:***
Prevent from spreading (e.g. by damming-in or oil barriers).
Do not allow to enter drainage system, surface or ground water.
· ***6.3 Methods and material for containment and cleaning up:***
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders).
Dispose of contaminated material as waste according to section 13.
· ***6.4 Reference to other sections***
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

· ***7.1 Precautions for safe handling***
Prevent formation of aerosols.

(Contd. on page 4)

ZF Friedrichshafen AG
Löwentaler Straße 20, 88046 Friedrichshafen, Germany
www.zf.com/contact

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.06.2023 *Version number 6 (replaces version 5)* *Revision: 23.06.2023*

Trade name: **TRW DOT 4 Brake Fluid ESP**

(Contd. from page 3)

Don't eat, drink or smoke while working.
Keep containers tightly sealed.
Avoid contact with eyes and skin.

· ***Information about protection against explosions and fires:***
The product forms flammable fumes when heated.

· ***7.2 Conditions for safe storage, including any incompatibilities***
· ***Storage***
· ***Requirements to be met by storerooms and containers:*** Store only in the original container.
· ***Information about storage in one common storage facility:*** Store away from oxidising agents.
· ***Further information about storage conditions:***
Keep container tightly sealed.
Protect from humidity and keep away from water.
Store container in a well ventilated position.
Store under dry conditions.
· ***7.3 Specific end use(s)*** Brake fluid

*
SECTION 8: Exposure controls/personal protection

· ***8.1 Control parameters***
· ***Components with limit values that require monitoring at the workplace:***
WEL: workplace exposure limit
OEL: Occupational Exposure Limit

111-77-3 Dowanol DM	
WEL (Great Britain)	Long-term value: 50.1 mg/m³, 10 ppm Sk
IOELV (European Union)	Long-term value: 50.1 mg/m³, 10 ppm Skin
OEL (Ireland)	Long-term value: 50.1 mg/m³, 10 ppm Sk, IOELV
112-34-5 2-(2-butoxyethoxy)ethanol	
WEL (Great Britain)	Short-term value: 101.2 mg/m³, 15 ppm Long-term value: 67.5 mg/m³, 10 ppm
IOELV (European Union)	Short-term value: 101.2 mg/m³, 15 ppm Long-term value: 67.5 mg/m³, 10 ppm
OEL (Ireland)	Short-term value: 101.2 mg/m³, 15 ppm Long-term value: 67.5 mg/m³, 10 ppm IOELV

· ***DNELs***

30989-05-0 Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate		
Oral	DNEL (consumer, long-term, systemic)	1.5 mg/kg bw/day (human)
Dermal	DNEL (worker, long-term, systemic)	4.2 mg/kg bw/day (human)
	DNEL (consumer, long-term, systemic)	1.5 mg/kg bw/day (human)
Inhalative	DNEL (worker, long-term, systemic)	14.8 mg/m³ (human)
	DNEL (consumer, long-term, systemic)	2.6 mg/m³ (human)

(Contd. on page 5)

ZF Friedrichshafen AG
Löwentaler Straße 20, 88046 Friedrichshafen, Germany
www.zf.com/contact

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.06.2023 *Version number 6 (replaces version 5)* *Revision: 23.06.2023*

Trade name: **TRW DOT 4 Brake Fluid ESP**

(Contd. from page 4)

143-22-6 2-[2-(2-butoxyethoxy)ethoxy]ethanol		
Oral	DNEL (consumer, long-term, systemic)	12.5 mg/kg bw/day (human)
1559-34-8 3,6,9,12-tetraoxahexadecan-1-ol		
Oral	DNEL (consumer, long-term, systemic)	3 mg/kg bw/day (human)
111-77-3 Dowanol DM		
Oral	DNEL (consumer, long-term, systemic)	7.5 mg/kg bw/day (human)
Dermal	DNEL (worker, long-term, systemic)	2.22 mg/kg bw/day (human)
	DNEL (consumer, short-term, systemic)	1.33 mg/kg bw/day (human)
Inhalative	DNEL (worker, long-term, systemic)	50.1 mg/m³ (human)
	DNEL (consumer, long-term, systemic)	30.1 mg/m³ (human)
112-34-5 2-(2-butoxyethoxy)ethanol		
Oral	DNEL (consumer, long-term, systemic)	6.25 mg/kg bw/day (human)
Inhalative	DNEL (worker, short-term, local)	101.2 mg/m³ (human)
	DNEL (worker, long-term, local)	67.5 mg/m³ (human)

· ***PNECs***

143-22-6 2-[2-(2-butoxyethoxy)ethoxy]ethanol	
PNEC aqua (freshwater)	2 mg/L (.)
PNEC aqua (marine water)	0.2 mg/L (.)
PNEC STP - Sewage Treatment Plant	200 mg/L (.)
PNEC soil	0.47 mg/kg soil dw (.)
PNEC sediment (freshwater)	7.7 mg/kg sedim. dw (.)
PNEC sediment (marine water)	0.77 mg/kg sedim. dw (.)
PNEC oral	111 mg/kg food (.)
1559-34-8 3,6,9,12-tetraoxahexadecan-1-ol	
PNEC aqua (freshwater)	2.5 mg/L (.)
PNEC aqua (marine water)	0.25 mg/L (.)
PNEC soil	0.46 mg/kg soil dw (.)
PNEC sediment (freshwater)	9.49 mg/kg sedim. dw (.)
PNEC sediment (marine water)	0.95 mg/kg sedim. dw (.)
111-77-3 Dowanol DM	
PNEC aqua (freshwater)	12 mg/L (.)
PNEC aqua (marine water)	1.2 mg/L (.)
PNEC STP - Sewage Treatment Plant	10,000 mg/L (.)
PNEC soil	2.1 mg/kg soil dw (.)
PNEC sediment (freshwater)	44.4 mg/kg sedim. dw (.)
PNEC sediment (marine water)	0.44 mg/kg sedim. dw (.)
PNEC aqua (intermittent releases)	12 mg/L (.)
PNEC oral	90 mg/kg food (.)
112-34-5 2-(2-butoxyethoxy)ethanol	
PNEC aqua (freshwater)	1.1 mg/L (.)
PNEC aqua (marine water)	0.11 mg/L (.)

(Contd. on page 6)

ZF Friedrichshafen AG
Löwentaler Straße 20, 88046 Friedrichshafen, Germany
www.zf.com/contact

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.06.2023 *Version number 6 (replaces version 5)* *Revision: 23.06.2023*

Trade name: **TRW DOT 4 Brake Fluid ESP**

(Contd. from page 5)

PNEC soil	0.32 mg/kg soil dw (.)
PNEC sediment (freshwater)	4.4 mg/kg sedim. dw (.)
PNEC sediment (marine water)	0.44 mg/kg sedim. dw (.)
PNEC aqua (intermittent releases)	11 mg/L (.)
PNEC oral	56 mg/kg food (.)

· ***Additional information:*** The lists that were valid during the compilation were used as basis.

· ***8.2 Exposure controls***
· ***Individual protection measures, such as personal protective equipment***
· ***General protective and hygienic measures***
Take off all contaminated clothing immediately.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes.
Do not eat or drink while working.
· ***Breathing equipment:***
Not necessary if room is well-ventilated.
Use breathing protection only when aerosol or mist is formed.
Filter A/P2.
· ***Hand protection*** Use gloves of stable material (i.e. nitril rubber).
· ***Material of gloves***
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
Butyl rubber, BR
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.4 mm
· ***Penetration time of glove material***
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· ***Eye/face protection***

Tightly sealed safety glasses.

SECTION 9: Physical and chemical properties

· ***9.1 Information on basic physical and chemical properties***	
· ***General Information***	
· ***Colour:***	Amber coloured
· ***Odour:***	Mild
· ***Odour threshold:***	Not determined.
· ***Melting point/freezing point:***	< -50 °C (SAE J 1703)
· ***Boiling point or initial boiling point and boiling range***	> 260 °C (SAE J 1703)
· ***Flammability***	Not applicable.

(Contd. on page 7)

ZF Friedrichshafen AG
Löwentaler Straße 20, 88046 Friedrichshafen, Germany
www.zf.com/contact

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.06.2023 *Version number 6 (replaces version 5)* *Revision: 23.06.2023*

***Trade name:* TRW DOT 4 Brake Fluid ESP**

(Contd. from page 6)

· ***Lower and upper explosion limit***	
· ***Lower:***	Not determined.
· ***Flash point:***	> 120 °C (IP 35)
· ***Auto-ignition temperature:***	> 300 °C (ASTM D 286)
· ***Decomposition temperature:***	> 300 °C
· ***SADT***	
· ***pH at 20 °C***	7 - 10.5 (SAE J 1703)
· ***Viscosity:***	
· ***Kinematic viscosity at 20 °C***	10 mm²/s (ASTM D 445)
· ***dynamic:***	Not determined.
· ***Solubility***	
· ***Water:***	Fully miscible
· ***Partition coefficient n-octanol/water (log value)***	1.5 log POW
· ***Vapour pressure at 20 °C:***	< 2 hPa
· ***Density and/or relative density***	
· ***Density at 20 °C***	1.02 - 1.07 g/cm³ (DIN 51757)
· ***9.2 Other information***	
· ***Appearance:***	
· ***Form:***	Fluid
· ***Important information on protection of health and environment, and on safety.***	
· ***Self-inflammability:***	Product is not selfigniting.
· ***Explosive properties:***	Product is not explosive.
· ***Change in condition***	
· ***Evaporation rate***	Not determined.
· ***Information with regard to physical hazard classes***	
· ***Explosives***	Void
· ***Flammable gases***	Void
· ***Aerosols***	Void
· ***Oxidising gases***	Void
· ***Gases under pressure***	Void
· ***Flammable liquids***	Void
· ***Flammable solids***	Void
· ***Self-reactive substances and mixtures***	Void
· ***Pyrophoric liquids***	Void
· ***Pyrophoric solids***	Void
· ***Self-heating substances and mixtures***	Void
· ***Substances and mixtures, which emit flammable gases in contact with water***	Void
· ***Oxidising liquids***	Void
· ***Oxidising solids***	Void
· ***Organic peroxides***	Void
· ***Corrosive to metals***	Void
· ***Desensitised explosives***	Void

(Contd. on page 8)

ZF Friedrichshafen AG
Löwentaler Straße 20, 88046 Friedrichshafen, Germany
www.zf.com/contact

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.06.2023 *Version number 6 (replaces version 5)* *Revision: 23.06.2023*

Trade name: **TRW DOT 4 Brake Fluid ESP**

(Contd. from page 7)

SECTION 10: Stability and reactivity

· ***10.1 Reactivity*** No further relevant information available.
· ***10.2 Chemical stability***
· ***Thermal decomposition / conditions to be avoided:***
No decomposition if used according to specifications.
· ***10.3 Possibility of hazardous reactions***
Possible formation of peroxide
Reacts with light alloys to form hydrogen
· ***10.4 Conditions to avoid*** Heat.
· ***10.5 Incompatible materials:***
Avoid contact with strong oxidizing agents.
Can attack paints and coatings as well as some platics and rubber.
· ***10.6 Hazardous decomposition products:***
None in case of intended use and storage in compliance with instructions.

*

SECTION 11: Toxicological information

· ***11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008***
· ***Acute toxicity*** Based on available data, the classification criteria are not met.

· ***LD/LC50 values that are relevant for classification:***		
30989-05-0 Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate		
Oral	LD50	> 2,000 mg/kg (rat) (OECD 401)
Dermal	LD50	> 2,000 mg/kg (rat) (OECD 402)
143-22-6 2-[2-(2-butoxyethoxy)ethoxy]ethanol		
Oral	LD50	5,170 mg/kg (rat)
Dermal	LD50	3,540 mg/kg (rabbit)
1559-34-8 3,6,9,12-tetraoxahexadecan-1-ol		
Oral	LD50	2,630 mg/kg (rat)
Dermal	LD50	3,540 mg/kg (rabbit)
111-77-3 Dowanol DM		
Oral	LD50	7,128 mg/kg (mouse) (OECD 201)
Dermal	LD50	9,404 mg/kg (rabbit) (OECD 402)
Inhalative	LC0	> 1.2 mg/l/6h (rat) (OECD 403)
112-34-5 2-(2-butoxyethoxy)ethanol		
Oral	LD50	5,660 mg/kg (rat)
Dermal	LD50	2,764 mg/kg (rabbit) (OECD 402)
Inhalative	LC0	67.5 mg/l/0.5h (human)

· ***Skin corrosion/irritation*** Long-term skin contact may cause skin irritation and/or dermatitis.
· ***Serious eye damage/irritation*** Splashes can cause temporary eye irritation.
· ***Respiratory or skin sensitisation*** Based on available data, the classification criteria are not met.
· ***Germ cell mutagenicity*** Based on available data, the classification criteria are not met.
· ***Carcinogenicity*** Based on available data, the classification criteria are not met.
· ***Reproductive toxicity***
Suspected of damaging fertility or the unborn child.

(Contd. on page 9)

ZF Friedrichshafen AG
Löwentaler Straße 20, 88046 Friedrichshafen, Germany
www.zf.com/contact

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.06.2023 *Version number 6 (replaces version 5)* *Revision: 23.06.2023*

Trade name: **TRW DOT 4 Brake Fluid ESP**

(Contd. from page 8)

· ***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.
· ***Additional toxicological information:***

· ***Repeated dose toxicity***		
143-22-6 2-[2-(2-butoxyethoxy)ethoxy]ethanol		
Oral	NOAEL (90d)	500 mg/kg bw/day (rat)
111-77-3 Dowanol DM		
Oral	NOAEL (28d)	900 mg/kg bw/day (rat) (OECD 407)
Dermal	NOAEL (90d)	40 mg/kg bw/day (guinea pig) (OECD 411)
Inhalative	NOAEC (90d)	> 1,060 mg/m³ (rat) (OECD 413)
112-34-5 2-(2-butoxyethoxy)ethanol		
Oral	NOAEL (90d)	250 mg/kg bw/day (rat) (OECD 408)
Dermal	NOAEL (90d)	2,000 mg/kg bw/day (rat) (OECD 411)
Inhalative	NOAEC (90d)	94 mg/m³ (rat) (OECD 413) Vapour

· ***CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)***
Repr. 2
· ***11.2 Information on other hazards***

· ***Endocrine disrupting properties***
None of the ingredients is listed.

*
SECTION 12: Ecological information

· ***12.1 Toxicity***

· ***Aquatic toxicity:***	
30989-05-0 Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate	
EC50	> 211.2 mg/l/48h (Daphnia magna) (OECD 202)
LC50	> 222.2 mg/l/96h (Oncorhynchus mykiss) (OECD 203)
EC50	> 224.4 mg/l/72h (Raphidocelis subcapitata) (OECD 201)
143-22-6 2-[2-(2-butoxyethoxy)ethoxy]ethanol	
EC50 (static)	2,210 mg/l/48h (Daphnia magna) (EU C.2)
EC0 (static)	2,150 mg/l/96h (fish) (DIN 38 412-L15)
LC50	2,400 mg/l/96h (Pimephales promelas)
	2,200 - 4,600 mg/l/96h (fish) (DIN 38412-15)
EC50 (static)	840 mg/l/72h (Desmodesmus subspicatus) (OECD 201)
NOEC (static)	1,000 mg/l/96h (fish) (DIN 38 412-L15)
1559-34-8 3,6,9,12-tetraoxahexadecan-1-ol	
EC50	> 3,200 mg/l/48h (Daphnia magna) (OECD 202)
LC50	> 1,800 mg/l/96h (Scophthalmus maximus) (OECD 203)
111-77-3 Dowanol DM	
EC50 (static)	1,192 mg/l/48h (Daphnia magna)

(Contd. on page 10)

ZF Friedrichshafen AG
Löwentaler Straße 20, 88046 Friedrichshafen, Germany
www.zf.com/contact

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.06.2023 *Version number 6 (replaces version 5)* *Revision: 23.06.2023*

Trade name: **TRW DOT 4 Brake Fluid ESP**

(Contd. from page 9)

EC50 (static)	> 1,000 mg/l/96h (Selenastrum capricornutum) (OECD 201)
LC50 (static)	5,741 mg/l/96h (Pimephales promelas)
112-34-5 2-(2-butoxyethoxy)ethanol	
EC50 (static)	> 100 mg/l/48h (Daphnia magna) (OECD 202)
EC50 (static)	> 100 mg/l/96h (Desmodesmus subspicatus) (OECD 201)
LC50 (static)	1,300 mg/l/96h (Lepomis macrochirus) (OECD 203)

· ***12.2 Persistence and degradability*** Easily biodegradable
· ***Other information:*** There are no data available about the preparation.
· ***12.3 Bioaccumulative potential***
Due to the distribution coefficient n-octanol/water an accumulation in organisms is not expected.
· ***12.4 Mobility in soil*** No further relevant information available.
· ***12.5 Results of PBT and vPvB assessment***
· ***PBT:*** Not applicable.
· ***vPvB:*** Not applicable.
· ***12.6 Endocrine disrupting properties***
The product does not contain substances with endocrine disrupting properties.
· ***12.7 Other adverse effects***
· ***Additional ecological information:***
· ***General notes:***
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.
Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.

*
SECTION 13: Disposal considerations

· ***13.1 Waste treatment methods***
· ***Recommendation***
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
The waste code numbers mentioned are recommendations based on the probable use of the product.

· ***European waste catalogue***	
16 00 00	WASTES NOT OTHERWISE SPECIFIED IN THE LIST
16 01 00	end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)
16 01 13*	brake fluids
HP10	Toxic for reproduction

· ***Uncleaned packagings:***
· ***Recommendation:***
Disposal must be made according to official regulations.
Dispose of packaging according to regulations on the disposal of packagings.
Non contaminated packagings can be used for recycling.
Cleaned packing materials have to be admitted to local recycling circuits.
· ***Recommended cleaning agent:*** Water, if necessary with cleaning agent.

(Contd. on page 11)

ZF Friedrichshafen AG
Löwentaler Straße 20, 88046 Friedrichshafen, Germany
www.zf.com/contact

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.06.2023 *Version number 6 (replaces version 5)* *Revision: 23.06.2023*

Trade name: **TRW DOT 4 Brake Fluid ESP**

(Contd. from page 10)

SECTION 14: Transport information

· **14.1 UN number or ID number** · **ADR/RID, ADN, IMDG, IATA**	Void
· **14.2 UN proper shipping name** · **ADR/RID, ADN, IMDG, IATA**	Void
· **14.3 Transport hazard class(es)** · **ADR/RID, ADN, IMDG, IATA** · **Class**	Void
· **14.4 Packing group** · **ADR/RID, IMDG, IATA**	Void
· **14.5 Environmental hazards:** · **Marine pollutant:**	No
· **14.6 Special precautions for user**	Not applicable.
· **14.7 Maritime transport in bulk according to IMO instruments**	Not applicable.
· **Transport/Additional information:**	Not dangerous according to the above specifications.
· **UN "Model Regulation":**	Void

*
SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Chemical safety assessment**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.
· **REGULATION (EU) 2019/1148**

· **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**
None of the ingredients is listed.

· **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**
None of the ingredients is listed.

· **National regulations**

· **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.
· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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

(Contd. on page 12)

ZF Friedrichshafen AG
Löwentaler Straße 20, 88046 Friedrichshafen, Germany
www.zf.com/contact

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.06.2023 *Version number 6 (replaces version 5)* *Revision: 23.06.2023*

***Trade name:* TRW DOT 4 Brake Fluid ESP**

(Contd. from page 11)

H361d Suspected of damaging the unborn child.

· ***Department issuing data specification sheet:***

DEKRA This Safety Data Sheet has been drawn up in cooperation with:
DEKRA Assurance Services GmbH, Hanomagstr. 12, D-30449 Hanover, Germany,
phone: (+49) 511 42079 - 0, reach@dekra.com.

· ***Abbreviations and acronyms:***
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (UK REACH)
PNEC: Predicted No-Effect Concentration (UK REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Repr. 2: Reproductive toxicity – Category 2
Repr. 2: Reproductive toxicity – Category 2

· **** Data compared to the previous version altered.***

ZF Friedrichshafen AG
Löwentaler Straße 20, 88046 Friedrichshafen, Germany
www.zf.com/contact