SAFETY DATA SHEET

According to Regulation (US HCS) 29 CFR 1910.1200

TRW Brake Fluid DOT 4

Version number: 1

Issued: 2026-11-24

SECTION 1: Identification

Product identifier

Trade name

TRW Brake Fluid DOT 4

Article No.

4204401, 4204405, 4204450, PFB104, PFB104i PFB104i2, PFB401, PFB401, PFB401AP, PFB401CE, PFB401IR, PFB401RE, PFB401SE, PFB405, PFB405, PFB405AP, PFB405IR, PFB405RE, PFB405SE, PFB405CE, PFB420, PFB420AE, PFB420DR, PFB420DRAE, PFB425, PFB425AP, PFB425ENG, PFB425FRA, PFB425GER, PFB425MXC, PFB425POL, PFB425POR, PFB425ROM, PFB425RUL, PFB425RUS, PFB450, PFB450, PFB450AP, PFB450CE, PFB450SE, PFB450RE, PFB450IR, PFB450MXC, PFB450RE, PFB455.SQ, PFB480AP, PFB490MXC

Recommended use of the chemical and restrictions on use

Product type

Mixture

Use

Hydraulic fluid

Not suitable for use in

No uses advised against identified.

Supplier's details

SDS created by

Global Division B Product Compliance Mgmt. System (BWC)

Supplier

ZF Services, LLC

Address
ZF Services Region North
America Headquarters
777 Hickory Hill Drive
Vernon Hills
60061 Illinois
USA

Telephone
+1 847 478 6868

Email
msds.zf-aftermarket@zf.com

TRW Brake Fluid DOT 4

Contact person
Global Division B Product Compliance Mgmt. System (BWC)

Email address
msds.zf-aftermarket@zf.com

Emergency phone number
1-800-222-1222 (general poison US emergency number) (+49) 89 19 240

Available outside office hours
Yes

SECTION 2: Hazard identification

Classification of the substance or mixture and any national or regional information

Classification according to Regulation (US HCS) 29 CFR 1910.1200

Classification
Eye irritation, hazard category 2
Reproductive toxicity, hazard category 2

Hazard statements
H319, H361fd

Description
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label elements, including precautionary statements

Labeling according to Regulation (US HCS) 29 CFR 1910.1200

Hazard pictograms



Signal word
Warning

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.
P202 Do not handle until all safety precautions have been read and understood.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor/.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P405 Store locked up.
P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards which do not result in classification

Product is not classified as combustible but will burn.
Unknown toxicity: Due to information available product does not contain any ingredients of unknown toxicity.

TRW Brake Fluid DOT 4

SECTION 3: Composition/information on ingredients

Mixture

Chemical name	CAS No. EC No. REACH No. Index No.	Concentration	Classification	H-phrase M factor acute M factor chronic	Specific concentration limits ATE	Note
Butyl Triglycol	143-22-6 205-592-6 01-2119475107-38 603-183-00-0	25 - 40%	Eye Dam. 1	H318 - -	Eye Dam. 1, H318: C ≥ 30% Eye Irrit. 2, H319: 20% ≤ C < 30%	-
Tris[2-[2-(2-methoxyethoxy)ethoxy]ethyl] orthoborate	30989-05-0 250-418-4 - -	15 - 25%	Repr. 2	H361fd - -		-
2,2' -oxybisethanol; diethylene glycol	111-46-6 203-872-2 01-2119457857-21 603-140-00-6	5 - 10%	Acute Tox. 4 - oral	H302 - -		-
3,6,9,12-tetraoxahexadecan-1-ol	1559-34-8 216-322-1 - -	5 - 10%	Eye Irrit. 2	H319 - -		-
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	112-34-5 203-961-6 01-2119475104-44 603-096-00-8	1 - 3%	Eye Irrit. 2	H319 - -		-
2-(2-methoxyethoxy)ethanol; diethylene glycol monomethyl ether	111-77-3 203-906-6 01-2119475100-52 603-107-00-6	0 - <1%	Repr. 1B	H360D - -		

Product based on

This product is a mixture.

Where the concentration of an ingredient is expressed as a range the exact concentration has been withheld as a trade secret.

Substance additional information
See full text of H-phrases in section 16. Occupational exposure limits are listed in section 8, if these are available.

SECTION 4: First-aid measures

Description of necessary first-aid measures
If breathing is irregular, drowsiness, loss of consciousness or cramps: Call 911 and give immediate treatment (first aid).
Contact a doctor if in doubt about the injured person's condition or if the symptoms persist. Never give an unconscious person water or other drink.

Inhalation
Upon breathing difficulties or irritation of the respiratory tract: Bring the person into fresh air and stay with him/her.
If recovery is not rapid, seek medical attention.

Skin contact
Remove contaminated clothing and shoes immediately. Ensure to wash exposed skin thoroughly with water and soap. Skin cleanser can be used. DO NOT use solvents or thinners.
If skin irritation occurs: Get medical advice/attention.

Eye contact
Remove contact lenses. Flush eyes immediately with plenty of water or isotonic water (20-30°C) for at least 5 minutes and continue until irritation stops. Make sure to flush under upper and lower eyelids. If irritation continues, contact a doctor. Continue flushing during transport.

Ingestion
Provide plenty of water for the person to drink and stay with him/her. Seek medical advice immediately and bring the safety data sheet or label from the product. Do not induce vomiting, unless recommended by the doctor. Have the victim lean forward with head down to avoid inhalation of- or choking on vomited material.
If medical attention is delayed, give adults 90-120 ml hard liquor such as 40% v/v spirits. Give children proportionately less at a rate of 2ml/kg body weight.

Most important symptoms/effects, acute and delayed
The most important symptoms are described in sections 2 and 11.
Irritation effects: This product contains substances, which may cause irritation upon exposure to skin, eyes or lungs.
Exposure may result in an increased absorption potential of other hazardous substances at the area of exposure.

Indication of immediate medical attention and special treatment needed, if necessary

If eye irritation persists: Get medical advice/attention.
Treat according to symptoms. There is no specific antidote. Due to the Di-ethylene Glycol content, treatment as for Ethylene Glycol poisoning may help.
Information to medics: Bring this safety data sheet or the label from this product.

Other

Burns: Not applicable.

SECTION 5: Fire-fighting measures

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media

Recommended: alcohol-resistant foam, carbon dioxide, powder, water mist.

Unsuitable extinguishing media

Waterjets should not be used, since they can spread the fire. However they may be used to cool adjacent containers.

Specific hazards arising from the chemical (e.g. nature of any hazardous combustion products).

Fire will result in dense smoke. Exposure to combustion products may harm your health. Closed containers, which are exposed to fire, should be cooled with water. Do not allow fire-extinguishing water to enter the sewage system and nearby surface waters.
If the product is exposed to high temperatures, e.g. in the event of fire, dangerous decomposition compounds are produced. These are: Carbon oxides (CO / CO2).

Special protective actions for fire-fighters

Special protective equipment for fire-fighters

Wear self-contained breathing apparatus and protective clothing to prevent contact. Upon direct exposure contact the Poison Help Line on 1-800-222-1222 (24/7) in order to obtain further advice.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid direct contact with spilled substances.
Contaminated areas may be slippery.
Prevent unnecessary personnel entering area of a spill. When cleaning up large spills appropriate protective clothing should be worn - see section 8.

Environmental precautions

Avoid discharge to lakes, streams, sewers, etc.
Keep unauthorized persons away from the spill.

Methods and materials for containment and cleaning up

Limit spillage and collect using granular absorbent or similar materials, and dispose of it in accordance with the regulations on dangerous waste.
Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.
Wherever possible cleaning should be performed with normal cleaning agents. Avoid use of solvents.

Reference to other sections

See section 13 “Disposal considerations” on handling of waste.
See section 8 "Exposure controls/personal protection" for protective measures.

SECTION 7: Handling and storage

Precautions for safe handling

Preventive handling precautions

Avoid any method of handling that generates mists or aerosols.
Avoid direct contact with the product.
Avoid contact during pregnancy and while nursing.
Do not eat, drink or smoke when handling this product.
See section 8 "Exposure controls/personal protection" for information on personal protection.

Conditions for safe storage, including any incompatibilities

Containers that have been opened must be carefully resealed and kept upright to prevent leakage.
Always store in containers of the same material as the original container.
Storage conditions: Room temperature 15 to 30°C.
Incompatible materials: Strong acids, strong bases, strong oxidizing agents, and strong reducing agents.

Specific end use(s)

This product should only be used for applications quoted in section 1.2.
Users are referred to the specification SAE J1707 "Service maintenance of brake fluids".

SECTION 8: Exposure controls/personal protection

Control parameters

Exposure limits

No substances are listed with a permissible exposure limit (ref: 29 CFR 1910.1000 TABLE Z-1)
Exposure scenarios: There are no exposure scenarios implemented for this product.
Exposure controls: Apply general control to prevent unnecessary exposure
Exposure scenarios: There are no exposure scenarios implemented for this product.
Exposure limits: Occupational exposure limits have not been defined for the substances in this product.

Appropriate engineering controls

Appropriate engineering controls

Apply standard precautions during use of the product. Avoid inhalation of vapours.
Hygiene measures: In between use of the product and at the end of the working day all exposed areas of the body must be washed thoroughly. Pay special attention to hands, forearms and face.

Use only protective equipment with a recognized certification mark, e.g. the UL mark.

Personal Protective Equipment Symbols



Eye / face protection

Wear safety glasses with side shields. EN166.

Other skin protection

Material: Butyl.
Glove thickness (mm): 0.3
Breakthrough time (min.): > 480
Standards: EN374-2, EN16523-1, EN388

Material: Nitrile
Glove thickness (mm): 0.2
Breakthrough time (min.): > 480
Standards: EN374-2, EN16523-1, EN388

Respiratory protection

No specific requirements.
Ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry into confined spaces. In case of insufficient ventilation, wear suitable respiratory equipment. The use of breathing apparatus must comply strictly with the manufacturer's instructions and the regulations governing their choices and uses.

Thermal hazards
None known.

Environmental exposure controls
Keep spill absorbent materials available in the workplace. If possible, clean up any spills immediately.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state
Liquid

Colour
Amber

Odour
Mild

Melting point / freezing point
< -50 °C

Boiling point or initial boiling point and boiling range
>260 °C

Flammability
No data available

Lower and upper explosion limit
No data available

Flash point
>100 °C

Auto-ignition temperature
>280 °C

Decomposition temperature
300 °C

pH
7 - 10.5

Kinematic viscosity
5 - 10 centistokes (20 °C)

Solubility
No data available

Water solubility
Completely soluble

Partition coefficient n-octanol/water
LogKow: 1.5

Vapour pressure
1 millibar

Density and/or relative density
1.02 - 1.07 g/cm³

Relative vapour density
No data available

Evaporation Rate
0.01 [n-butylacetate = 100]

Particle characteristics
Does not apply to liquids.

Other information
Softening point/range (°F): Does not apply to liquids.

SECTION 10: Stability and reactivity

Reactivity
No hazardous reactions if stored and handled as indicated.

Chemical stability
No hazardous reactions if stored and handled as indicated.

Possibility of hazardous reactions
None known.

Conditions to avoid
None known.

Incompatible materials
Strong acids, strong bases, strong oxidizing agents, and strong reducing agents.

Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11. Toxicological information

Information on the likely routes of exposure

Acute toxicity

Based on available data, the classification criteria are not met.
Although acute toxicity of this product is low, if significant amounts are absorbed there is a risk of renal damage which could lead to kidney failure or even death. Other symptoms of overexposure include Central Nervous System effects, abdominal discomfort, metabolic acidosis and headache or nausea.

Product / Substance name CAS / EC no.	Dose descriptor	Value / Dose	Exposure route	Test animals	Remarks
TRW Brake Fluid DOT 4 -	LD50	>5000 mg/kg	Oral	Rat	Based on read across data toxicity is low. Sparse experience indicates toxicity in man could be greater.
TRW Brake Fluid DOT 4 -	LD50	>3000 mg/kg	Dermal	Rabbit	Based on read across data toxicity is low
TRW Brake Fluid DOT 4 -	-	-	Inhalation	-	Not applicable due to low vapour pressure of product

Skin corrosion/irritation

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

Serious eye damage/irritation

Causes serious 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. Suspected of damaging the unborn child.

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.

Information on other hazards

Other information
Long term effects:
Irritation effects: This product contains substances, which may cause irritation upon exposure to skin, eyes or lungs.
Exposure may result in an increased absorption potential of other hazardous substances at the area of exposure.

SECTION 12: Ecological information

Toxicity

Acute toxicity
Product is of low ecotoxicity

Acute fish toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
TRW Brake Fluid DOT 4 -	LC50	>100 mg/l	96 hr	Oncorhynchus Mykiss

Acute algae toxicity

Product / Substance name CAS / EC no.	Measurement type	Duration of exposure	Species	Remark
TRW Brake Fluid DOT 4 -	EC50	72 hr	Algae	Not determined but expected to be virtually non-toxic

Acute crustacean toxicity

Product / Substance name CAS / EC no.	Measurement type	Duration of exposure	Species	Remark
TRW Brake Fluid DOT 4 -	EC50	48 hr	Daphnia	Not determined but expected to be virtually non-toxic

Persistence and degradability

Product is inherently biodegradable and is expected to be readily biodegradable based on ingredients (OECD 302B). If admitted into adapted biological water treatment plants no adverse effects of the degrading action of the live sludge are expected.

Bioaccumulative potential

Not expected to Bio-accumulate. Log POW for all main ingredients <2.0

Mobility in soil

Mobility

Product is soluble in water and will be mobile in soil until degraded. Volatilisation from water to air not expected.

Results of PBT and vPvB assessment

Results of PBT and vPvB assessment

This mixture/product does not contain any substances known to fulfil the criteria for PBT and vPvB classification.

Endocrine disrupting properties

No data available

Other adverse effects

None known.

TRW Brake Fluid DOT 4

SECTION 13: Disposal considerations

Disposal methods

Disposal considerations

Dispose of in accord with local and national regulations. Recycling or incineration with energy recovery are recommended.
RCRA Hazardous waste ("P" and "U" list) (40 CFR 261): None of the components are listed

Packaging

Packaging containing residues of the product must be disposed of similarly to the product.

SECTION 14: Transport information

UN number

UNRTDG: Not Regulated
DOT: Not Regulated

UN proper shipping name

ADR / RID / ADN proper shipping name

Not Regulated

IMDG proper shipping name

Not Regulated

IATA proper shipping name

Not Regulated

Transport hazard class(es)

Label

Not Regulated

ADR / RID Class

Not Regulated

IMDG Class

Not Regulated

IATA Class

Not Regulated

ADN Class

Not Regulated

Packing group
Not Regulated

Environmental hazards
No

IMDG Marine Pollutant
No

Special precautions for user
Not applicable.

Transport in bulk according to IMO instruments
Not applicable.

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

EU regulations
Not applicable.

National regulations
No data available

Chemical safety assessment
No

SECTION 16: Other information

Phrase meaning
Eye Irrit. 2 - Eye irritation, hazard category 2
Repr. 2 - Reproductive toxicity, hazard category 2
Eye Dam. 1 - Serious eye damage, hazard category 1
Acute Tox. 4 - oral - Acute toxicity, oral, hazard category 4
Repr. 1B - Reproductive toxicity, hazard category 1B
H302 Harmful if swallowed.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H360D May damage the unborn child
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child

TRW Brake Fluid DOT 4

Other

Additional information

Disclaimer:

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. This Safety Data Sheet has been updated to reflect the requirements of OSHA's Hazard Communication Standard (HCS) 2024.