



DOT 5.1 Brake Fluid

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Date of issue: 18-7-2018 Revision date: 18-7-2018 Version: 1.0

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

1.1. Product identifier

Product form : Mixture
Trade name : DOT 5.1 Brake Fluid
Product code : PW.30.03
Product group : Trade product

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

1.2.1. Relevant identified uses

Intended for general public
Main use category : Industrial use, Professional use, Consumer use
Use of the substance/mixture : brake fluids

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Putoline Oil
Dollegoorweg 15
7602 EC Almelo - Netherlands
T 0031 (0)546 81 81 65
vib@putoline.com

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	National Poisons Information Service (Cardiff Centre) Gwenwyn Ward, Llandough Hospital	Penarth CF64 2XX Cardiff	0344 892 0111	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP] Mixtures/Substances: SDS EU 2015: According to Regulation (EU) 2015/830 (REACH Annex II)

Serious eye damage/eye irritation, Category 2 H319
Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Causes serious eye irritation.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS07

Signal word (CLP) : Warning
Hazard statements (CLP) : H319 - Causes serious eye irritation.
Precautionary statements (CLP) : P101 - If medical advice is needed, have product container or label at hand.
P102 - Keep out of reach of children.
P264 - Wash hands, forearms and face thoroughly after handling.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
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.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

DOT 5.1 Brake Fluid

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
2-[2-(2-butoxyethoxy)ethoxy]ethanol	(CAS-No.) 143-22-6 (EC-No.) 205-592-6 (EC Index-No.) 603-183-00-0 (REACH-no) 01-2119475107-38	10 - 50	Eye Dam. 1, H318
2-(2-butoxyethoxy)ethanol, diethylene glycol monobutyl ether	(CAS-No.) 112-34-5 (EC-No.) 203-961-6 (EC Index-No.) 603-096-00-8 (REACH-no) 01-2119475104-44	1 - 5	Eye Irrit. 2, H319
1,1'-iminodipropan-2-ol, di-isopropanolamine	(CAS-No.) 110-97-4 (EC-No.) 203-820-9 (EC Index-No.) 603-083-00-7 (REACH-no) 01-2119475444-34	1 - 5	Eye Irrit. 2, H319
3,6,9,12-tetraoxahexadecan-1-ol	(CAS-No.) 1559-34-8 (EC-No.) 216-322-1	1 - 5	Eye Irrit. 2, H319
2-(2-methoxyethoxy)ethanol, diethylene glycol monomethyl ether	(CAS-No.) 111-77-3 (EC-No.) 203-906-6 (EC Index-No.) 603-107-00-6 (REACH-no) 01-2119475100-52	0,1 - 1	Repr. 2, H361d

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after 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.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation	: Inhalation may affect the nervous system causing headache, possibly dizziness, nausea, weakness, loss of coordination and unconsciousness.
Symptoms/effects after eye contact	: Eye irritation.
Symptoms/effects after ingestion	: Ingestion may cause nausea, vomiting and diarrhea.

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 spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media	: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire	: Toxic fumes may be released. Incomplete combustion releases dangerous carbon monoxide, carbon dioxide and other toxic gases.
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5.3. Advice for firefighters

Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures	: Ventilate spillage area. Avoid contact with skin and eyes.
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6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
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6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	: Take up liquid spill into absorbent material.
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DOT 5.1 Brake Fluid

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated place. Keep cool.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

2-[2-(2-butoxyethoxy)ethoxy]ethanol (143-22-6)

EU	IOELV TWA (mg/m ³)	50 mg/m ³
EU	IOELV TWA (ppm)	9 ppm

2-(2-butoxyethoxy)ethanol, diethylene glycol monobutyl ether (112-34-5)

EU	Local name	2-(2-Butoxyethoxy)ethanol
EU	IOELV TWA (mg/m ³)	67,5 mg/m ³
EU	IOELV TWA (ppm)	10 ppm
EU	IOELV STEL (mg/m ³)	101,2 mg/m ³
EU	IOELV STEL (ppm)	15 ppm
EU	Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
United Kingdom	Local name	2-(2-Butoxyethoxy)ethanol
United Kingdom	WEL TWA (mg/m ³)	67,5 mg/m ³
United Kingdom	WEL TWA (ppm)	10 ppm
United Kingdom	WEL STEL (mg/m ³)	101,2 mg/m ³
United Kingdom	WEL STEL (ppm)	15 ppm
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE

2-(2-methoxyethoxy)ethanol, diethylene glycol monomethyl ether (111-77-3)

EU	Local name	2-(2-Methoxyethoxy)ethanol
EU	IOELV TWA (mg/m ³)	50,1 mg/m ³
EU	IOELV TWA (ppm)	10 ppm
EU	Notes	skin
EU	Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
United Kingdom	Local name	2-(2-Methoxyethoxy) ethanol
United Kingdom	WEL TWA (mg/m ³)	50,1 mg/m ³
United Kingdom	WEL TWA (ppm)	10 ppm
United Kingdom	Remark (WEL)	Sk (Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity)
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

DOT 5.1 Brake Fluid

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Hand protection:					
Protective gloves					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves	Nitrile rubber (NBR), Neoprene rubber (HNBR)	5 (> 240 minutes), 6 (> 480 minutes)	>=0,35		EN 374
Eye protection:					
Safety glasses					
Type	Use	Characteristics	Standard		
Safety glasses	Droplet	clear	EN 166		
Skin and body protection:					
Wear suitable protective clothing					
Respiratory protection:					
In case of insufficient ventilation, wear suitable respiratory equipment					

Personal protective equipment symbol(s):



Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: clear.
Colour	: Yellow.
Odour	: characteristic.
Odour threshold	: No data available
pH	: 7 - 11,5 (concentrated solution)
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: < -50 °C
Freezing point	: No data available
Boiling point	: > 260 °C (760 mm Hg)
Flash point	: > 120 °C [closed cup; ISO 2719]
Auto-ignition temperature	: > 300 [DIN 51794]
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: < 2 mbar
Relative vapour density at 20 °C	: No data available
Relative density	: 1,03 - 1,09 (20°C) [DIN 51757]
Solubility	: Water: completely miscible Ethanol: completely miscible
Log Pow	: < 2 (OECD 117 method)
Viscosity, kinematic	: 5 - 10 mm ² /s (40 °C) - ASTM D7279
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

DOT 5.1 Brake Fluid

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

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

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

2-[2-(2-butoxyethoxy)ethoxy]ethanol (143-22-6)

LD50 oral rat	5170 mg/kg
LD50 oral	5170 mg/kg bodyweight
LD50 dermal rabbit	3540 mg/kg
LD50 dermal	3540 mg/kg bodyweight
LC50 inhalation rat (Dust/Mist - mg/l/4h)	> 2400 mg/l

2-(2-butoxyethoxy)ethanol, diethylene glycol monobutyl ether (112-34-5)

LD50 oral rat	3384 mg/kg
LD50 dermal rabbit	2700 mg/kg

1,1'-iminodipropan-2-ol, di-isopropanolamine (110-97-4)

LD50 oral rat	6720 mg/kg
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Skin corrosion/irritation : Not classified
pH: 7 - 11,5 (concentrated solution)

Serious eye damage/irritation : Causes serious eye irritation.
pH: 7 - 11,5 (concentrated solution)

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

DOT 5.1 Brake Fluid

Viscosity, kinematic	5 - 10 mm ² /s (40 °C) - ASTM D7279
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SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Acute aquatic toxicity : Not classified

Chronic aquatic toxicity : Not classified

2-[2-(2-butoxyethoxy)ethoxy]ethanol (143-22-6)

LC50 fish 1	> 2200 mg/l (Leuciscus idus, 96h)
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DOT 5.1 Brake Fluid

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

EC50 Daphnia 1	> 500 mg/l (Daphnia magna, 48h)
EC50 other aquatic organisms 1	> 5000 mg/l (Microorganisms, 16 h)
EC50 other aquatic organisms 2	> 500 mg/l
ErC50 (other aquatic plants)	2490 mg/l (Selenastrum capricornutum, 72h)

2-(2-butoxyethoxy)ethanol, diethylene glycol monobutyl ether (112-34-5)

LC50 fish 1	1300 mg/l Lepomis macrochirus; 96 h
LC50 fish 2	2750 mg/l Leuciscus idus melanotus; 48 h (DIN 38412)
EC50 Daphnia 1	> 101 mg/l
EC50 96h algae (1)	> 101 mg/l
NOEC (acute)	> 100 mg/l Desmodesmus subspicatus (green algae); 96 h (OCDE Guideline 201)

12.2. Persistence and degradability

DOT 5.1 Brake Fluid

Persistence and degradability	Biodegradable.
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2-[2-(2-butoxyethoxy)ethoxy]ethanol (143-22-6)

Biodegradation	85 % [28d, OECD 301 D]
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2-(2-butoxyethoxy)ethanol, diethylene glycol monobutyl ether (112-34-5)

Persistence and degradability	Readily biodegradable.
Biodegradation	76 % (28 d) [OECD 301 D]

12.3. Bioaccumulative potential

DOT 5.1 Brake Fluid

Log Pow	< 2 (OECD 117 method)
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2-[2-(2-butoxyethoxy)ethoxy]ethanol (143-22-6)

Log Pow	0,51
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2-(2-butoxyethoxy)ethanol, diethylene glycol monobutyl ether (112-34-5)

Log Kow	0,56
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12.4. Mobility in soil

2-[2-(2-butoxyethoxy)ethoxy]ethanol (143-22-6)

Surface tension	0,0612 N/m
Log Koc	≈ 10

12.5. Results of PBT and vPvB assessment

Component

2-[2-(2-butoxyethoxy)ethoxy]ethanol (143-22-6)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
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12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
European List of Waste (LoW) code	: 16 01 14* - antifreeze fluids containing dangerous substances

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

DOT 5.1 Brake Fluid

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.2. UN proper shipping name				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.3. Transport hazard class(es)				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				

14.6. Special precautions for user

Overland transport

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

Inland waterway transport

Not regulated

Rail transport

Not regulated

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

15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:	
54. 2-(2-methoxyethoxy)ethanol (DEGME)	2-(2-methoxyethoxy)ethanol, diethylene glycol monomethyl ether
55. 2-(2-butoxyethoxy)ethanol (DEGBE)	2-(2-butoxyethoxy)ethanol, diethylene glycol monobutyl ether
3. Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008	2-[2-(2-butoxyethoxy)ethoxy]ethanol - 2-(2-butoxyethoxy)ethanol, diethylene glycol monobutyl ether - 1,1'-iminodipropan-2-ol, di-isopropanolamine - 2-(2-methoxyethoxy)ethanol, diethylene glycol monomethyl ether
3(b) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10	DOT 5.1 Brake Fluid - 2-[2-(2-butoxyethoxy)ethoxy]ethanol - 2-(2-butoxyethoxy)ethanol, diethylene glycol monobutyl ether - 1,1'-iminodipropan-2-ol, di-isopropanolamine - 2-(2-methoxyethoxy)ethanol, diethylene glycol monomethyl ether - 3,6,9,12-tetraoxahexadecan-1-ol

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Directive 2012/18/EU (SEVESO III)

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

DOT 5.1 Brake Fluid

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LD50	Median lethal dose
LC50	Median lethal concentration
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
STP	Sewage treatment plant
TLM	Median Tolerance Limit
SDS	Safety Data Sheet
vPvB	Very Persistent and Very Bioaccumulative

Full text of H- and EUH-statements:

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
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H361d	Suspected of damaging the unborn child.

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product