



# DOT 4 Brake Fluid

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830  
Issue date: 12-7-2018 Revision date: 12-7-2018 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 4 Brake Fluid  
Product code : PW.30.00  
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  
Use of the substance/mixture : Brake fluid

##### 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](mailto:vib@putoline.com)

#### 1.4. Emergency telephone number

| Country        | Organisation/Company   | Address                                  | Emergency number   | Comment |
|----------------|--|--|--|---------|
| Ireland        | National Poisons Information Centre<br>Beaumont Hospital                                     | PO Box 1297<br>Beaumont Road<br>9 Dublin | +353 1 809 2566<br>(Healthcare professionals-<br>24/7)<br>+353 1 809 2166 (public,<br>8am - 10pm, 7/7) |         |
| United Kingdom | National Poisons Information Service<br>(Cardiff Centre)<br>Gwenwyn Ward, Llandough Hospital | Penarth<br>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]

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.

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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 thoroughly after handling.  
P280 - Wear eye protection.  
P301+P310 - IF SWALLOWED: Immediately call a 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.  
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable

### 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<br>(EC-No.) 205-592-6<br>(EC Index-No.) 603-183-00-0<br>(REACH-no) 01-2119475107-38 | 25 – 50  | Eye Dam. 1, H318  |
| 2,2'-oxydiethanol                   | (CAS-No.) 111-46-6<br>(EC-No.) 203-872-2<br>(EC Index-No.) 603-140-00-6<br>(REACH-no) 01-2119457857-21 | 2,5 – 10 | Acute Tox. 4 (Oral), H302<br>STOT RE 2, H373                    |
| 2-(2-butoxyethoxy)ethanol           | (CAS-No.) 112-34-5<br>(EC-No.) 203-961-6<br>(EC Index-No.) 603-096-00-8<br>(REACH-no) 01-2119475104-44 | 2,5 – 5  | Eye Irrit. 2, H319  |
| 2-(2-methoxyethoxy)ethanol          | (CAS-No.) 111-77-3<br>(EC-No.) 203-906-6<br>(EC Index-No.) 603-107-00-6<br>(REACH-no) 01-2119475100-52 | 2,5 – 5  | 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 eye contact : Eye irritation.

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

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### 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.

#### 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.

### 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.

##### 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".

#### 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.  
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

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### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

##### 2,2'-oxydiethanol (111-46-6)

###### United Kingdom - Occupational Exposure Limits

|                              |                                       |
|------------------------------|---------------------------------------|
| Local name                   | 2,2'-Oxydiethanol                     |
| WEL TWA (mg/m <sup>3</sup> ) | 101 mg/m <sup>3</sup>                 |
| WEL TWA (ppm)                | 23 ppm                                |
| Regulatory reference         | EH40/2005 (Fourth edition, 2020). HSE |

##### 2-(2-butoxyethoxy)ethanol (112-34-5)

###### Ireland - Occupational Exposure Limits

|  |   |
|--|---|
| Local name                             | 2-(2-Butoxyethoxy)ethanol                             |
| OEL (8 hours ref) (mg/m <sup>3</sup> ) | 67,5 mg/m <sup>3</sup>                                |
| OEL (8 hours ref) (ppm)                | 10 ppm  |
| OEL (15 min ref) (mg/m <sup>3</sup> )  | 101,2 mg/m <sup>3</sup>                               |
| OEL (15 min ref) (ppm)                 | 15 ppm  |
| Notes (IE)                             | IOELV (Indicative Occupational Exposure Limit Values) |
| Regulatory reference                   | Chemical Agents Code of Practice 2020                 |

###### United Kingdom - Occupational Exposure Limits

|                               |                                       |
|-------------------------------|---------------------------------------|
| Local name                    | 2-(2-Butoxyethoxy)ethanol             |
| WEL TWA (mg/m <sup>3</sup> )  | 67,5 mg/m <sup>3</sup>                |
| WEL TWA (ppm)                 | 10 ppm                                |
| WEL STEL (mg/m <sup>3</sup> ) | 101,2 mg/m <sup>3</sup>               |
| WEL STEL (ppm)                | 15 ppm                                |
| Regulatory reference          | EH40/2005 (Fourth edition, 2020). HSE |

##### 2-(2-methoxyethoxy)ethanol (111-77-3)

###### Ireland - Occupational Exposure Limits

|  |  |
|--|--|
| Local name                             | 2-(2-Methoxyethoxy)ethanol   |
| OEL (8 hours ref) (mg/m <sup>3</sup> ) | 50,1 mg/m <sup>3</sup>   |
| OEL (8 hours ref) (ppm)                | 10 ppm   |
| Notes (IE)                             | Sk (Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body), IOELV (Indicative Occupational Exposure Limit Values) |
| Regulatory reference                   | Chemical Agents Code of Practice 2020  |

###### United Kingdom - Occupational Exposure Limits

|                              |   |
|------------------------------|---|
| Local name                   | 2-(2-Methoxyethoxy) ethanol   |
| WEL TWA (mg/m <sup>3</sup> ) | 50,1 mg/m <sup>3</sup>  |
| WEL TWA (ppm)                | 10 ppm  |
| 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) |
| Regulatory reference         | EH40/2005 (Fourth edition, 2020). HSE   |

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

#### EU - Occupational Exposure Limits

|                                |                      |
|--------------------------------|----------------------|
| IOELV TWA (mg/m <sup>3</sup> ) | 50 mg/m <sup>3</sup> |
| IOELV TWA (ppm)                | 9 ppm                |

#### 8.2. Exposure controls

##### Appropriate engineering controls:

Ensure good ventilation of the work station.

##### Hand protection:

Protective gloves

| Type            | Material             | Permeation        | Thickness (mm) | Penetration | Standard   |
|-----------------|----------------------|-------------------|----------------|-------------|------------|
| Reusable gloves | Nitrile rubber (NBR) | 6 (> 480 minutes) | ≥ 0.35         |             | EN ISO 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                         |
| Colour                                     | : colourless to slightly yellow. |
| Odour                                      | : characteristic.                |
| Odour threshold                            | : No data available              |
| pH   | : 7 – 11,5                       |
| Relative evaporation rate (butylacetate=1) | : No data available              |
| Melting point                              | : Not applicable                 |
| Freezing point                             | : -50 °C                         |
| Boiling point                              | : > 250 °C                       |
| Flash point                                | : > 100 °C                       |
| Auto-ignition temperature                  | : > 300 °C                       |
| Decomposition temperature                  | : > 300 °C                       |
| Flammability (solid, gas)                  | : Not applicable                 |

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|   |                                    |
|---|------------------------------------|
| Vapour pressure                                 | : < 0,1 mbar                       |
| Relative vapour density at 20 °C                | : No data available                |
| Relative density                                | : No data available                |
| Density   | : 1,06 – 1,07 @ 20°C               |
| Solubility                                      | : Water: completely miscible       |
| Partition coefficient n-octanol/water (Log Pow) | : No data available                |
| Viscosity, kinematic                            | : 5 – 10 mm <sup>2</sup> /s @ 20°C |
| 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

## 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-butoxyethoxy)ethanol (112-34-5)

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

#### 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           |

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|                                   |  |
|-----------------------------------|--|
| Skin corrosion/irritation         | : Not classified<br>pH: 7 – 11,5                 |
| Serious eye damage/irritation     | : Causes serious eye irritation.<br>pH: 7 – 11,5 |
| 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 4 Brake Fluid

|                      |                                  |
|----------------------|----------------------------------|
| Viscosity, kinematic | 5 – 10 mm <sup>2</sup> /s @ 20°C |
|----------------------|----------------------------------|

## 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. |
| Hazardous to the aquatic environment, short-term (acute)  | : Not classified  |
| Hazardous to the aquatic environment, long-term (chronic) | : Not classified  |
| Not rapidly degradable                                    |   |

### 2-(2-butoxyethoxy)ethanol (112-34-5)

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

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

|                                |   |
|--------------------------------|---|
| LC50 fish                      | > 2200 mg/l ( <i>Leuciscus idus</i> , 96h)          |
| EC50 Daphnia                   | > 500 mg/l ( <i>Daphnia magna</i> , 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 ( <i>Selenastrum capricornutum</i> , 72h) |

### 12.2. Persistence and degradability

#### 2-(2-butoxyethoxy)ethanol (112-34-5)

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

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

|                |                        |
|----------------|------------------------|
| Biodegradation | 85 % [28d, OECD 301 D] |
|----------------|------------------------|

### 12.3. Bioaccumulative potential

#### 2,2'-oxydiethanol (111-46-6)

|   |       |
|---|-------|
| Partition coefficient n-octanol/water (Log Pow) | -1,98 |
|---|-------|

#### 2-(2-butoxyethoxy)ethanol (112-34-5)

|   |      |
|---|------|
| Partition coefficient n-octanol/water (Log Kow) | 0,56 |
|---|------|

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

|   |      |
|---|------|
| Partition coefficient n-octanol/water (Log Pow) | 0,51 |
|---|------|

### 12.4. Mobility in soil

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

|                 |            |
|-----------------|------------|
| Surface tension | 0,0612 N/m |
|-----------------|------------|

|   |      |
|---|------|
| Partition coefficient n-octanol/water (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<br>This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII |
|--|---|

### 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 13\* - brake fluids

## SECTION 14: Transport information

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

| ADR                                     | IMDG           | IATA           | ADN            | RID            |
|---|----------------|----------------|----------------|----------------|
| <b>14.1. UN number</b>                  |                |                |                |                |
| Not applicable                          | Not applicable | Not applicable | Not applicable | Not applicable |
| <b>14.2. UN proper shipping name</b>    |                |                |                |                |
| Not applicable                          | Not applicable | Not applicable | Not applicable | Not applicable |
| <b>14.3. Transport hazard class(es)</b> |                |                |                |                |
| Not applicable                          | Not applicable | Not applicable | Not applicable | Not applicable |
| <b>14.4. Packing group</b>              |                |                |                |                |
| Not applicable                          | Not applicable | Not applicable | Not applicable | Not applicable |
| <b>14.5. Environmental hazards</b>      |                |                |                |                |
| Not applicable                          | Not applicable | Not applicable | Not applicable | Not applicable |



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No supplementary information available

### 14.6. Special precautions for user

#### Overland transport

Not applicable

#### Transport by sea

Not applicable

#### Air transport

Not applicable

#### Inland waterway transport

Not applicable

#### Rail transport

Not applicable

### 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:

| Reference code | Applicable on  |
|----------------|--|
| 3.             | 2,2'-oxydiethanol ; 2-(2-butoxyethoxy)ethanol ; 2-(2-methoxyethoxy)ethanol ; 2-[2-(2-butoxyethoxy)ethoxy]ethanol                     |
| 3(b)           | DOT 4 Brake Fluid ; 2,2'-oxydiethanol ; 2-(2-butoxyethoxy)ethanol ; 2-(2-methoxyethoxy)ethanol ; 2-[2-(2-butoxyethoxy)ethoxy]ethanol |
| 54.            | 2-(2-methoxyethoxy)ethanol   |
| 55.            | 2-(2-butoxyethoxy)ethanol  |

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

#### 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

### Full text of H- and EUH-statements:

|                     |  |
|---------------------|--|
| Acute Tox. 4 (Oral) | Acute toxicity (oral), Category 4                              |
| 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                              |
| STOT RE 2           | Specific target organ toxicity — Repeated exposure, Category 2 |
| H302                | Harmful if swallowed.  |

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|       |  |
|-------|--|
| H318  | Causes serious eye damage.   |
| H319  | Causes serious eye irritation.                                     |
| H361d | Suspected of damaging the unborn child.                            |
| H373  | May cause damage to organs through prolonged or repeated exposure. |

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.