

## UNICO TEC (PTY) LTD

<b>DOT 4 BRAKE FLUID</b>	<b>TECHNICAL DATA SHEET</b>	Date of issue	03/02/2022
		Date Revised	13/12/2022
		Revision no	02
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### IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Trade name	: Brake and Clutch Fluid DOT 4
Product name	: Brake Fluid DOT 4
Product type	: Hydraulic Brake fluid
Supplier	: Unico Manufacturing Co. (PE) (Pty) Ltd.
Address	: 6 Celebes Road, Island View, Durban, South Africa
Contact number	: +27 (31) 466 1541/2
Emergency contacts	: Vishen Kanhai +27 64 752 2197

### DESCRIPTION

**Engmans DOT4** is a glycol ether based DOT4 brake fluid, which is not classified as a hazardous compound, while maintaining a high performance. It is our contribution for safe handling and filling of brake fluids in professional and home application. The product complies with all specification requirements of the current version of the FMVSS Nr. 116 (DOT4), ISO 4925 (class4) and SAE J 1704.

**Composition** - Mixture of glycol ethers, additives and stabilizers.

**Low viscosity** – suitable for driving assistance systems such as ESP and ABS.

**High temperature stability** – high boiling point and wet boiling point.

**Excellent corrosion protection** – for all metal parts.

**Compatibility** – with other DOT3, DOT4 and DOT5.1 brake fluids. Engmans DOT 4 is compatible with other glycol ether-based brake fluids, such as DOT3, DOT4 and DOT5.1 fluids.

The product is not compatible to mineral based fluids (LHM) or silicon-based fluids such as DOT5.

**Low moisture uptake** – ensures high performance throughout the product use time.

### TYPICAL PROPERTIES

Parameter	Method	SPECIFICATION
Appearance @ 20°C	Visual	Yellow Clear homogenous liquid
pH	FMVSS 116 Part D6.4 / SAE J 1703	7.0 -11.5
Water Content	ASTM E203/Karl Fischer DIN51777	≤0.15 % (m/m)
Reserve Alkalinity	ASTM D 1121	≥ 3.5ml
Density @20°C	ASTM D4052/ DIN 51757	1.050 -1.080 kg/L

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Viscosity @ -40°C	ASTM D7042	≤880 mm <sup>2</sup> /s
Viscosity @ 100°C	ASTM D445	≥1.5 mm <sup>2</sup> /s
Equilibrium Reflux boiling point - DOT 4*	FMVSS 116 Part A 6.1 /SAE J1704	≥ 260° C
Wet Equilibrium Reflux boiling point -DOT 4*	FMVSS 116 Part A 6.2 /SAE J1704	≥ 156° C

**TESTS FOR CONFORMANCE WITH FEDERAL MOTOR VEHICLE  
SAFETY STANDARD 116 FOR DOT 4 MOTOR VEHICLE BRAKE FLUID**

Test	Requirements	Method (para.)
<b>Original Equilibrium Reflux Boiling Point</b>	Min. 230°C (446°F)	S5.1.1
<b>Wet Equilibrium Reflux Boiling Point</b>	Min. 155°C (311°F)	S5.1.2
<b>Viscosity</b>		
@ -40°C (-40°F)	Max. 1800 mm <sup>2</sup> /s.	S5.1.3
@ 100°C(212°F)	Min. 1.5 mm <sup>2</sup> /s.	S5.1.3
<b>pH</b>	7-11.5	S5.1.4
<b>Brake Fluid Stability</b>		S5.1.5
<b>High Temperature Stability Boiling Point Change</b>	Max. 3°C (5.4°F) + 0.05/1°F that original ERBP* exceeds 225°C (437°F)	S5.1.5.1
ERBP: Equilibrium Reflux Boiling Point		
<b>Corrosion 120 ± 2 hours @ 100°C± 2°C (212°F± 3.6°F)</b>		S5.1.6
<i>Weight Change in mg./sq. cm.</i>		
Tinned Iron	Max. 0.2	
Steel	Max. 0.2	
Aluminum Max. 0.1 0.01 Passes	Max. 0.1	

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Cast Iron	Max. 0.2	
Brass	Max. 0.4	
Copper	Max. 0.4	
Pitting or etching of strips discernible without magnification	None	
Gelling of fluid /water mixture at 23 ± 5°C (73.4F ± 9°F)	None	
Crystallization deposit on glass jar walls or on metal strips	None	
pH of water/fluid mixture	7-11.5 9.2	
Sedimentation	Max. 0.10%	
Disintegration of rubber cup as evidenced by stickiness, blisters or sloughing	None	
<b>Fluidity and Appearance at Low Temperatures</b>		
144 hours ± 4 hours @ -40°C ± 2°C (-40°F ± 3.6°F)		
Time for air bubble to top	Max. 10 seconds	
6 hours ± 12 minutes @ -50°C ± 2°C (-58°F ± 3.6°F)		
Time for air bubble to top	Max. 35 seconds	

### International standards

The compliance to the following norms has been evaluated internally and are approved externally. Testing reports are available on request:

- Federal motor vehicle safety standard (FMVSS) no. 116
- ISO 4925 class4
- SAE J1704

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### **Storage and Shelf Life**

Brake fluids are hygroscopic and absorb moisture when exposed to the atmosphere. Water contamination will lower the boiling point and increase the viscosity. Engmans DOT 4 should be stored at room temperature (20 – 25°C) in a clean and dry place in the closed original container. The shelf life is three years .

### **Safety**

Despite conventional DOT4 brake fluids, Engmans DOT 4 is classified as non-hazardous. For details, please see Material Safety Data Sheet. Follow the recommendations for action described in the SAE J 1706 when handling brake fluids.

### **Packaging**

Engmans DOT 4 can be supplied in tank containers, 1000 kg IBCs or 220 kg drums.

*DISCLAIMER: The information contained in this publication is, to the best of our knowledge, true and accurate, but any recommendations or suggestions which may be made are without guarantee, since the conditions of use are beyond our control. Furthermore, nothing contained herein shall be construed as a recommendation to use any product in conflict with existing patents covering any material or its use.*