Recochem Inc.
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TECHNICAL DATA SHEET

HD Expert Brake and Clutch Fluid DOT 4

Premium performance high boiling point DOT 4 brake fluid

HD Expert Brake & Clutch Fluid DOT 4 is a very high boiling point fluid suitable for brake systems and hydraulic clutch systems requiring FMVSS No 166 DOT 4 fluid.

Applications

HD Expert Brake & Clutch Fluid DOT 4 is a premium performance borate ester or polyglycol ether type brake fluid which is suitable for all applications requiring a DOT 4 performance level brake fluid. This product may be substituted when a DOT 4 Fluid is required.

It is suitable for the following applications:

- Passenger cars
- Commercial road transport vehicles
- Motorcycles
- Hydraulic brake systems
- Hydraulic clutch systems,

where FMVSS No 116 DOT 4 fluid is mandatory.

Performance Features and Benefits

- **High Boiling Point**

HD Expert Brake & Clutch Fluid DOT 4 exceeds the normal requirements for Wet and Dry Equilibrium Reflux Boiling points (Wet ERBP and Dry ERBP). This helps prevent vapour lock under harsh braking conditions by dramatically reducing the likelihood of the brake fluid boiling.

- **Corrosion Prevention**

HD Expert Brake & Clutch Fluids are formulated to prevent corrosion of internal components under normal conditions of use and service.

- **Compatibility**

This product is fully compatible with other similarly formulated DOT 3 and DOT 4 brake fluids.

- **Optimal Lubricity**

HD Expert Brake & Clutch Fluid DOT 4 consists of premium components which avoid abrasion of the brake system by friction.

- **Seal Compatibility**

Elastomer seals are frequently used in braking systems to avoid fluid losses through gasket seals in the braking systems. HD Expert Brake & Clutch Fluid DOT 4 contains ingredients which sufficiently boost seal swell, and therefore prevent fluid losses by effective prevention.

Specifications and Approvals

HD Expert Brake & Clutch Fluid DOT 4 is suitable for use in applications where the following specifications are required: -

FMVSS No116	DOT 3, DOT 4
DIN ISO	4925 Class 4
JIS	K 2233 Class 4
AS/NZ	1960 Class 2
SAE	J 1703, 1704

Health & Safety

Guidance on Health and Safety is available on the appropriate Safety Data Sheet, which can be obtained from your Recochem representative.

Protect the Environment

Take used brake fluid products to an authorised collection point. Do not discharge into drains, soil or water.

Shelf Life

When stored undercover, away from moisture and direct sunlight, this product should be suitable for use for up to one year after the date of manufacture.

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Typical Physical and Chemical Characteristics

Brake & Clutch Fluid DOT 4	Method	Units	Performance
Kinematic Viscosity @ -40°C	FMVSS No 166 (5.13)	mm^2/s	1350
Kinematic Viscosity @ 100°C	FMVSS No 166 (5.13)	mm^2/s	>1.5
Boiling Point Original (Dry) Equilibrium Boiling Point	FMVSS No 166 (5.11)	Deg C	260
Boiling Point Wet Equilibrium Boiling Point	FMVSS No 166 (5.12)	Deg C	170

TEST PARAMETER	SPECIFICATIONS	TEST DATA
pH Value	7.0 – 11.5	8.9
K. Viscosity, mm2/s, @ - 40 ºC, max	1800	1500
K. Viscosity, mm2/s, @ 100 ºC, min	1.5	2.2
Fluidity and appearance at low-temperatures:		
-40°C within 144 hrs.		
Appearance	Clear	Clear
Flow Time (Sec)	10	1
-50 ºC within 6 hrs.		
Appearance	Clear	Clear
Flow Time (Sec)	35	2
Equilibrium Reflux Boiling Point °C ERBP	250	230
Wet Equilibrium Reflux Boiling Point °C ERBP	155	155
Stability under high temperature ºC, max	3	0.5
Effect on rubber: Specimen 51-1524 at 125 ºC within 72 hrs		
Volume Change (%)	0-10	4
Hardness (%)	-10	-2
Appearance after testing	No tackiness and flaking	No tackiness and flaking
Interaction with metals at 100 ºC within 120 hrs :		
Metal strip weight change, mg/sm2, max.		
Tinned iron	0.2	0
Aluminum	0.1	0
Alloy Cast iron	0.2	0
Steel	0.2	0.01
Copper	0.4	0.01
Brass	0.4	0.02
Metal strips interaction with liquid: Appearance	No macroscopic pitted or roughened signs of corrosion, absence of crystal formation	No macroscopic pitted or roughened signs of corrosion, absence of crystal formation
Brake fluid state appearance	Absence of any blobs or crystals on the strips and vessel walls. Darkening is permissible.	Absence of any blobs or crystals on the strips and vessel walls. Darkening is permissible.
pH index after test	7.0 -11.5	8.5
Compatibility with water		
-40ºC within 24 hrs		
Appearance	Transparent	Transparent
Flow time (sec), max	10	2
-60ºC within 24 hrs		
Appearance	Transparent	Transparent
Evaporability Volatiles, %, max	80	51
Residue on evaporation at 23 ºC	No solid particles	No solid particles
Residue on evaporation at -5 ºC	Mobile	Mobile

These characteristics are typical of current production. Whilst future production will conform to Recochem's specification, variations in these characteristics may occur.