

Enclosure 1 to SI 34 03 96 (150), edition 02/2019

Glycol-based brake fluids used in BMW Group brake systems must fulfil the following requirements among other things:

- High boiling point
- Great low-temperature resistance
- Low compressibility
- Corrosion protection of all metallic parts within the brake system
- Adequate lubrication properties
- Compatibility with all rubber parts/elastomers used in the brake system

These requirements are fulfilled by the brake fluids, quality DOT 4 approved by the BMW Group.

Silicone-based brake fluid is more compressible and, due to the inability to absorb moisture, can already lead to the formation of fuel vapour lock at more than 100°C or icing up at very low temperatures. Due to these findings from long-term driving tests conducted by the BMW Group, it is *not approved*.

Glycol-based brake fluid absorbs moisture - hygroscopicity - over the components used (expansion tank, brake hoses etc.) from the atmosphere. Because of the water absorption, the initial boiling point of the brake fluid drops and as a result the active safety of the entire system. At extreme loads of the brake system, for example, quickly driving downhill, fuel vapour lock can develop in the brake fluid due to the thermal load. In the worst case, this means a total failure of the entire brake system! Therefore, make sure to always observe the brake fluid change intervals!

The fuel vapour locks inevitably first occur in the areas of the brake caliper that are exposed to high thermal stress and exposed with regard to heat dissipation, so that changing the expansion tank content alone is ineffective.

Of course, when changing the brake fluid, the brake fluid in the clutch system should also be changed by draining or bleeding via the *clutch slave cylinder*.

To help with an economical exchange of the entire fluids contained in the brake system, the filling and bleeder units tested and approved by the BMW Group are available to you, which can be obtained via the BMW Group Parts.

The units offered there always separate the brake fluid from the compressed air part through a diaphragm, so that no air humidity can be absorbed. The change should take place via the expansion tank of the tandem brake master cylinder. Attention must be paid that each vent valve of the individual wheel brake cylinders or brake caliper remains open until clear and bubble-free brake fluid emerges. Never pour this brake fluid back into the unit!

Particular attention must also be paid to the storage of the brake fluid. The ageing process already starts upon exposure to the atmosphere, in other words immediately after opening the new container.

In order to keep the boiling point of stored brake fluids as high as possible over a long period of time, the following must be observed:

- Keep all containers tightly closed
- Choose small container sizes to ensure it is used up quickly
- Avoid refilling into other collecting vessels

Enclosure 2 to SI 34 03 96 (150), edition 02/2019

Due to its constitution, brake fluid can be easily confused with mineral oil products.

Attention: Never fill or store brake fluid in drink bottles. Danger of poisoning and possibly danger to life!

After skin has come into contact with brake fluid, immediately wash affected areas with water and soap. If eyes are also affected, rinse them with lots of clear water. If accidentally ingested, induce vomiting and immediately visit the nearest hospital.

If brake fluid comes into contact with a painted surface, it must be immediately rinsed with water, since it attacks the paint. Never rub in. Brake fluid must not come into contact with grease or oil. Clean hands from grease and oil prior to handling brake fluid. Furthermore, make sure that grease cannot get into the brake system.

Used brake fluid must not be disposed of in the rubbish, mixed with used oil, or disposed of in the sewer. It falls under the law for the disposal of hazardous waste and must be disposed of separately from other used oils at the nearest hazardous waste collection centre.

Enclosure 3 to SI 34 03 96 (150), edition 02/2019

Use:

All vehicles with Dynamic Stability Control (DSC) *without* a pre-charge pump must be filled with new brake fluid *DOT 4 with low viscosity*.

All other vehicles can be filled with the new brake fluid DOT 4 with low viscosity; it is possible to mix DOT 4 and DOT 4 with low viscosity.

Identification of container:

Brake fluid **DOT 4 with low viscosity** , container size 0.25 - 5.0 litre: **Cap colour black**

<i>Trade name</i>	<i>BMW part number</i>	<i>Container size</i>
BMW brake fluid DOT 4 with low viscosity	83 13 0 443 023	0,25-litre can
BMW brake fluid DOT 4 with low viscosity	83 13 0 443 024	0,50-litre can
BMW brake fluid DOT 4 with low viscosity	83 13 0 443 026	1,0-litre can
BMW brake fluid DOT 4 with low viscosity	83 13 0 443 027	5,0-litre canister
BMW brake fluid DOT 4 with low viscosity	83 13 0 443 028	30.0-litre barrel
BMW brake fluid DOT 4 with low viscosity	83 13 0 443 029	60.0-litre barrel

Enclosure 4 to SI 34 03 96 (150), edition 02/2019

<i>Vehicles</i>	<i>Change interval</i>
Up to model year 1990	Annually
As of model year 1990 (except 750i E32)	every 2 years
BMW i: i01	every 2 years
Changeover brake fluid (except US version)	1. Change after 3 years, then every 2 years
As of model year 03/2011: R55, R56, R57, R60 E81, E82, E87, E88 E90, E91, E92, E93 E84, E89 As of model year 04/2011: E70, E71, E72 As of model year 07/2011: F12, F13 F20, F21 As of model year 09/2011: RR4 F01, F02, F03, F04 F07 F10, F11 As of model year 10/2011: F25 As of model year 11/2011: F30, F31	
all new series launches as of 2012	3 years, then every 2 years
US models as of production 07/2013 (except E7x, E8x and E9x)	1. Change after 3 years, then every 2 years
750iE32	Annually
BMW high-security vehicles E23	Semi-annually

BMW high-security vehicles E32, E38, E67, F03	Annually
Special vehicles for authorities	Annually
Vehicles with difficult conditions of use	Annually
Rolls-Royce up to 2012	every 2 years
Rolls-Royce starting from 2012	1. Change after 3 years, then every 2 years

Enclosure 5 to SI 34 03 96 (150), edition 02/2019

5.1 Brake cylinder paste

To install and preserve wheel brake cylinders, cylinder barrels, pistons and sleeves, the parts are clean prior to assembly and then treated with a thin coating of ATE brake cylinder paste.

<i>Trade name</i>	<i>BMW part number</i>	<i>Container size</i>
ATE brake cylinder paste	83 19 9 407 854	180 g tube
Syntheso Glep 1 lubricating grease	83 23 9 407 778	100 g tube

5.2 Brake pad paste

For usage, see Repair Instructions, Group 34

<i>Trade name</i>	<i>BMW part number</i>	<i>BMW part number</i>	<i>Container size</i>
	<i>Rest of the world</i>	<i>China</i>	
Brake block paste	83 19 2 158 851	83 19 2 180 000	3 gr. bag
Brake block paste	83 19 2 158 852	83 19 2 179 999	100 gr. bag
Brake block paste	83 23 0 140 233		5 g bag, TU*

TU = Trade Unit.

Note:

Lubrication instructions in the repair instructions and on the information sheet supplied with the set of brake pads must be observed.

5.3 Brake cleaner

<i>Trade name</i>	<i>BMW part number</i>	<i>Container size</i>
BMW brake cleaner	83 19 2 365 214	500 ml spray can
BMW brake cleaner	83 19 2 365 215	20-litre canister

5.4 Corrosion inhibitor for ABS pulse sensor

To avoid fretting corrosion between ABS pulse sensor and bore hole in the wheel suspension parts, the ABS pulse sensor and the bore hole are cleaned and treated prior to assembly with a thin coating of corrosion inhibitor.

<i>Trade name</i>	<i>BMW part number</i>	<i>Container size</i>
Staburags NBU 12/K	83 23 9 407 810	100 g tube