



SURFACE VEHICLE RECOMMENDED PRACTICE

J1706™

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Superseding J1706 JUN2017

Production, Handling, and Dispensing
of SAE J1703 Motor Vehicle Brake Fluids
and SAE J1704 Borate Ester-Based Brake Fluids

RATIONALE

This SAE Recommended Practice has been revised to replace the RM66-06 reference fluid with the RM66-07 reference fluid.

1. SCOPE

This SAE Recommended Practice is intended to provide basic recommended practices for aid in the development and use of safe and efficient practices for all operations involving the production, handling, and dispensing of SAE J1703 motor vehicle brake fluids and SAE J1704 borate ester-based brake fluids.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J75	Motor Vehicle Brake Fluid Container Compatibility
SAE J1703	Motor Vehicle Brake Fluid
SAE J1704	Motor Vehicle Brake Fluid Based Upon Glycols, Glycol Ethers, and the Corresponding Borates
SAE J1707	Service Maintenance of SAE J1703 and SAE J1704 Brake Fluids in Motor Vehicle Brake Systems

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Documents

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3. CONTAMINATION

SAE J1703 and SAE J1704 brake fluids are susceptible to various types of contamination which can be detrimental to the safe and efficient performance of brake actuating systems.

3.1 Water Contamination

SAE J1703 and SAE J1704 brake fluids are hygroscopic and absorb moisture when exposed to the atmosphere. The degree of moisture absorption is dependent upon a number of variables. Among these are the relative hygroscopicity of the brake fluid, the area of the surface exposed to the atmosphere, the time of exposure, and the temperature and relative humidity of the atmosphere. Water contamination can also occur from condensation resulting from atmospheric temperature changes or the mechanical entrance of the free water. This water contamination will lower the equilibrium reflux boiling point (ERBP), increase the low temperature viscosity, and impact inhibition of corrosion and elastomer compatibility performance. The following graphs obtained with the RM 66-07 reference fluid exemplarily represent the boiling point decrease (see Figure 1) and the low temperature viscosity increase (see Figure 2) of brake fluids in general.

3.1.1 ERBP Performance of RM-66-07 Reference Fluid versus Water content

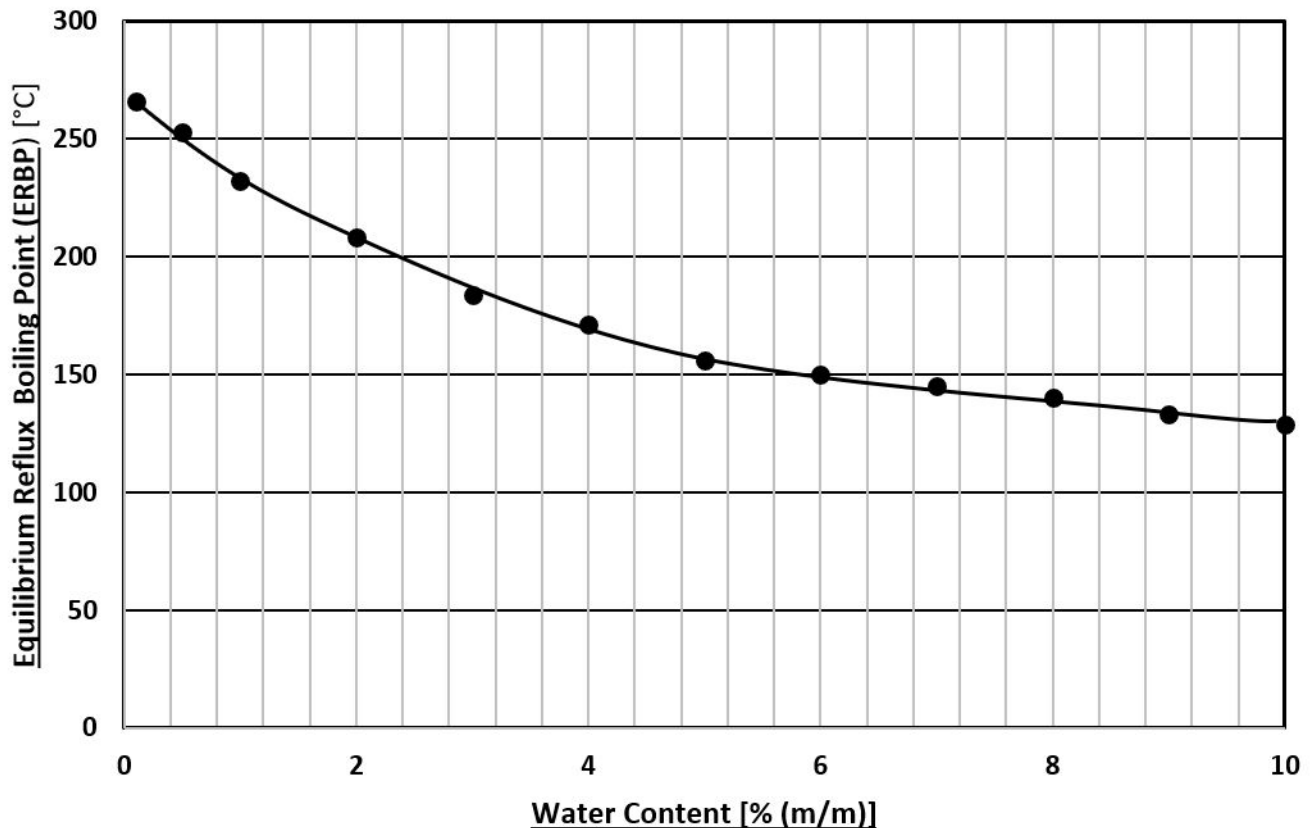


Figure 1 - Equilibrium reflux boiling point (ERBP)

3.1.2 Experimental Design

3.1.2.1 ERBP Performance of RM-66-07 Reference Fluid versus Water Content

Various amounts of water were added to RM-66-07 reference fluid. The ERBP temperature on each sample was determined by the method described in the SAE J1703 standard. ERBP temperature values were plotted graphically versus Water content. All work was performed by ABIC Testing Laboratories, Inc.

The actual ERBP values and water contents are shown in Table 1.