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Australian Standard 1960—1983

MOTOR VEHICLES—BRAKE FLUIDS (NON-PETROLEUM TYPE)

[Title allocated by Defence Cataloguing Authority:
BRAKE FLUID, AUTOMOTIVE (Non-petroleum type)
... NSC 9150]

STANDARDS ASSOCIATION OF AUSTRALIA
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The following interests are represented on Committee CH/4:

Australian Automobile Association

Australian Automobile Chamber of Commerce

Australian Chemical Industry Council

Australian Institute of Petroleum Ltd

Department of Defence

Department of Transport and Construction

Federal Chamber of Automotive Industries

Royal Australian Chemical Institute

Society of Automotive Engineers, Australasia

Telecom Australia

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AUSTRALIAN STANDARD

MOTOR VEHICLES—BRAKE FLUIDS (NON-PETROLUEM TYPE)

AS 1960—1983

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PREFACE

This edition of this standard was prepared by the Association's Committee on Brake Fluids for Motor Vehicles to supersede AS 1960—1976, Motor Vehicle Brake Fluids. It specifies requirements for automotive brake fluids of the non-petroleum type for use in the hydraulic braking systems of motor vehicles.

In this edition, a Grade 3 and a Grade 4 fluid have been added, since it was considered that the marketplace required these grades. This edition covers fluids equivalent to the FMVSS116 DOT 3, DOT 4 and DOT 5 types. Brake fluids currently available which comply with the requirements of Grade 1 (equivalent to DOT 3), Grade 2 and Grade 3 (equivalent to DOT 4) are usually of the polyglycol type. Brake fluids which comply with the requirements of Grade 4 (equivalent to DOT 5) may be either of the polyglycol or silicone types. Other compositions are not excluded.

In revising AS 1960—1976, cognizance was taken of the following International Standards issued by the International Organization for Standardization (ISO):

ISO 3871 Road vehicles—Labelling of containers for petroleum or non-petroleum base brake fluid

ISO 4925 Road vehicles—Non-petroleum base brake fluid

ISO 4926 Road vehicles—Hydraulic brake systems—Non-petroleum base reference fluids.

It was noted that ISO 4925 was based on the SAE J1703 and FMVSS116 standards and that criteria were compatible with the Australian standard.

CONTENTS

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
MOTOR VEHICLES—BRAKE FLUIDS (NON-PETROLEUM TYPE)

1 SCOPE. This standard specifies requirements for the characteristics, testing and packaging of four grades of automotive brake fluid of the non-petroleum type, for use in the hydraulic braking systems of motor vehicles.

NOTES:

1. These grades are currently met by brake fluids having—
   (a) a polyglycol type base or
   (b) a silicone type base (see Appendix A, Paragraph A2).
2. Appendix A provides guidance on the care and handling of brake fluids.

2 APPLICATION. The application of this standard in the selection and use of these fluids shall be made in conjunction with the recommendations of the manufacturer of the motor vehicle in which the fluid is to be used.

3 REFERENCED DOCUMENTS. The following documents are referred to in this standard:

FMVSS116 Motor Vehicle Brake Fluids

SAE J1703 Motor Vehicle Brake Fluid

NOTE: All standards are taken to be the current edition unless otherwise indicated.

4 DEFINITIONS. For the purpose of this standard, the following definitions apply:

4.1 Blister—a cavity or sac on the surface of a brake cup.

4.2 Chipping—a condition in which small pieces are missing from the outer surface of a brake cup.

4.3 Scuffing—a visible (to the naked eye) erosion of a portion of the outer surface of a brake cup.

4.4 Sloughing—degradation of a brake cup as evidenced by the presence of carbon black loosely held on the brake cup surface, such that a visible black streak is produced when the cup, with a weight of 500 ± 10 g mass on it, is drawn over a sheet of white bond paper placed on a firm flat surface.

4.5 Stickiness—a condition on the surface of a brake cup such that fibres will be pulled from a wad of USP or BP absorbent cotton when it is drawn across the surface.

5 CLASSIFICATION. The fluid shall be supplied in the following grades, according to certain characteristics as given in Table 1:

Grade 1
Grade 2
Grade 3
Grade 4

NOTE: These grades are classified on the basis of differing requirements for the equilibrium reflux boiling point (ERBP), wet ERBP and kinematic viscosity (see Table 1).

6 BRAKE FLUID CHARACTERISTICS. The physical and chemical properties of the fluid shall be such as will enable the fluid, when tested as prescribed in Clause 7, to comply with Table 1.

7 METHODS OF TEST. The fluid shall be tested for compliance with this standard by the test methods specified in Table 1.

NOTES:

1. The methods are from two sources, viz—
   (a) FMVSS116 Motor Vehicle Brake Fluid (Docket 71-13 Notice 12 Dec. 1976)
   (b) SAE J1703, Jan. 80, Motor Vehicle Brake Fluid
2. The referee materials required to perform these tests are available from the Society of Automotive Engineers, Inc. 400 Commonwealth Drive, Warrendale, Pa 15096, USA.

8 PACKAGING.

8.1 Containers. Brake fluid shall be stored and transported in containers which are sound, clean, dry and capable of suitable sealing and resealing. Tamperproof seals shall be provided on all containers up to 1 L capacity.

The material of the containers and seals shall be such that they will not be adversely affected by the fluid and shall have no adverse effect on the fluid.

8.2 Marking. The following information shall be clearly and indelibly marked on the container, or on a label suitably affixed to the container (see also Appendix A):

(a) Trade name or trademark of manufacturer or supplier.

(b) Product description, including grade and base fluid type—

e.g. SAA Grade 1 (polyglycol type)

(c) Batch number where the container is of capacity 20 L or greater.

(d) A safety warning in respect of the following items:

Effect of fluid contamination
Effect of moisture uptake after opening.
Statement as to toxicity. Statutory caution if applicable.
Necessity to
—clean master cylinder and container caps before removal and refitting.
—follow vehicle manufacturer's recommendations when adding fluid.
—ensure that fluids of different type are not mixed.
—do not refill container or use for other liquids.

(e) Colour of the fluid, if colour has been used by the manufacturer for ease of identification, or to differentiate between grades.

NOTE: Manufacturers who place the number of this Australian standard on motor vehicle brake fluid containers, on packaging or on literature related thereto should ensure that the product is manufactured to comply with the standard.

Attention is particularly drawn to the scheme for independent assurance provided by the AS Mark which is a registered certification trademark owned by the Standards Association of Australia and which is available for use with suitable Australian standards.

The presence of the AS Mark on or in relation to a product is an assurance that the goods have been produced under a system of supervision, control and testing applied during manufacture and