

Tentative Specifications for

NATURAL RUBBER CUPS FOR USE IN HYDRAULIC ACTUATING CYLINDERS¹



A.S.T.M. Designation: D 818 - 45 T

ISSUED, 1945.²

These Tentative Specifications have been approved by the sponsoring committee and accepted by the Cooperating Societies in accordance with established procedures, for use pending adoption as standard. Suggestions for revisions should be addressed to the Headquarters of the A.S.T.M., 1916 Race St., Philadelphia 3, Pa., or the S.A.E., 29 W. 39th. St., New York 18, N.Y.

These specifications were prepared jointly by the Society of Automotive Engineers and the American Society for Testing Materials.

Scope

1. These specifications cover molded cups compounded from natural rubber for use in hydraulic actuating cylinders employing hydraulic brake fluid of non-mineral oil type.

NOTE.—These specifications do not include requirements relating to chemical composition, tensile strength and elongation of the rubber compounds and materials composing the cup. The preparation of suitable specimens for tensile strength and elongation tests from a cup herein specified is impracticable; furthermore, separate test slabs prepared from rubber compounds representing the cups are not considered suitable.

Resistance to Fluids at Elevated Temperature

2. After being subjected to the test for resistance to fluids at elevated temperatures as prescribed in Sections 13 to 16, the cups shall conform to the following requirements as to changes in dimensions and durometer hardness:

Change in volume.....	0 to +20 per cent
Change in outside diameter {	Lip..... 0 to +5.75 per cent (0 to +0.075 in.)
Base.....	0 to +5.75 per cent (0 to +0.075 in.)
Change in durometer hardness	-10 to +5 points

Effect of Fluid Pressure at Elevated Temperature (Heat Pressure Test)

3. After being subjected to the heat pressure test prescribed in Sections 17 to 20 the cups shall conform to the following requirements as to changes in dimensions and durometer hardness:

MEASUREMENTS AFTER 30 MIN.

Change in outside diameter {	Lip..... -2 to +2 per cent (-0.025 to +0.025 in.)
Base.....	+3 per cent max. (+0.040 in. max.)
Change in durometer hardness	-5 to +0 points

MEASUREMENTS AFTER 48 HR.

Change in outside diameter {	Lip..... -3 per cent to +2 per cent (-0.040 to +0.025 in.)
Base.....	+3 per cent max. (+0.040 in. max.)
Change in durometer hardness	-5 to +0 points

Stroking Test

4. (a) There shall be no leakage of fluid past the primary or secondary cups during the stroking test.

(b) After the stroking test, specimens shall be examined for wear and general condition which may affect their life and performance.

¹ Under the standardization procedure of the Society, these specifications are under the jurisdiction of the A.S.T.M. Committee D-11 on Rubber and Rubber-Like Materials.

² Accepted by Committee E-10 on Standards, June, 27, 1945.