



Engineering Material Specification

Material Name

ASBESTOS PAPER BASE, PHENOLIC LAMINATE - OIL RESISTANT *mp W*

Specification Number

ESW-M3D81-A

NO PART X REF.

1. SCOPE

The material defined by this specification is an asbestos paper base, laminate impregnated with a thermosetting resin suitable for use in oil at high temperatures.

2. APPLICATION

This specification was released originally for material used in thrust washers for automatic transmissions.

3. REQUIREMENTS

3.1 TENSILE STRENGTH, min (ASTM D 638)

With Grain
Against Grain

9500 psi (66 MPa)
7000 psi (49 MPa)

3.2 FLEXURAL STRENGTH, min (ASTM D 790, flat with grain)

16 000 psi (110 MPa)

3.3 COMPRESSIVE STRENGTH, min (ASTM D 695)

40 000 psi (276 MPa)

3.4 IMPACT STRENGTH, Izod, min (ASTM D 256, notched)

0.75 ft lb/in (40 J/m)

3.5 HARDNESS - ROCKWELL "M" (ASTM D 785)

105 - 111

3.6 SPECIFIC GRAVITY, min (ASTM D 792)

1.65

3.7 OIL IMMERSION

Production parts manufactured from material covered by this specification must meet the following oil immersion test.

ASTM #1 Oil at $190 \pm 3^\circ\text{C}$ for 1 h.
Sample shall not check, warp or blister.

Automatic transmission fluid (M-2C33-F and ESP-M2C138-CJ) at $190 \pm 3^\circ\text{C}$ for 1 h.
Sample shall not check, warp or blister.

Date	Part No.	Revisions
1975 11 15		Metricated and Retyped per D792117-23
1964 01 27		Released CPS-405371

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