



ETHYLENE/PROPYLENE RUBBER (EPDM) STANDARD PART O-RING

WSE-M2D475-A1

1. SCOPE

The material defined by this specification is a ethylene/propylene rubber compound with good resistance to heat, ozone, weathering, water and coolant.

2. APPLICATION

This specification was released originally for material used as a standard part O-ring. This material has excellent resistance to ozone, water, engine coolants and compression set.

3. REQUIREMENTS

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.4 MATERIAL TESTING

3.4.1 Preparation of Test Specimens

Whenever possible, all test specimens shall be die-cut from the finished parts. When not feasible, specimens cut from molded test sheets manufactured from the same material and with equivalent cure to molded parts are recommended. The test sheets shall have the following dimensions:

150 x 150 mm, min x 2.0 +/- 0.2 mm

3.5 ORIGINAL PROPERTIES

3.5.1	Hardness, International (ISO 48/ASTM D 1415)	70 +/- 5
3.5.2	Hardness, Durometer A (ISO 868/ASTM D 2240, instantaneous, plied-up specimen. Hand held durometers shall not be used)	70 +/- 5
3.5.3	Tensile Strength, min (ISO 37/ASTM D 412, Die C)	12.0 MPa
3.5.4	Elongation at Break, min (Test Method according to para 3.5.4)	230%
3.5.5	Modulus at 100% Elongation (Test Method according to para 3.5.4)	5.0 - 7.5 MPa
3.5.6	Ozone Resistance, max (FLT M BP 101-01, Procedure A)	Rating 0

Date	Action	Revisions
2004 10 15	Revised	Inserted 3.0; Deleted 3.1, 3.2, 3.3, 3.8, 3.9 & 4
1993 11 16	Released	NEO1E10127076108



ENGINEERING MATERIAL SPECIFICATION

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3.5.7	Compression Set, max (ISO 815/ASTM D 395, Method B, except 25% compression, plied-up specimens, 70 h at 125 +/- 2 °C)	20%
3.5.8	Low Temperature Flexibility Test, Trio, max (ASTM D 1329)	-38 °C
3.6	HEAT AGED (ISO 188/ASTM D 573, 150 +/- 50 air changes/h, 1000 h at 125 +/- 2 °C)	
3.6.1	Hardness Change	0 to +10
3.6.2	Tensile Strength Change	+/- 10%
3.6.3	Elongation at Break Change, max	-30%
3.6.4	Modulus at 100% Elongation	6.5 - 12 MPa
3.7	IMMERSION IN CURRENTLY RELEASED PRODUCTION ENGINE COOLANT (FLTM BO 130-01, 1000 h at 125 +/- 2 °C, see para 5.1)	
3.7.1	Hardness Change	+/- 6
3.7.2	Tensile Strength Change, max	-10%
3.7.3	Elongation at Break Change, max	-12%
3.7.4	Volume Change	0 to +5%

5. GENERAL INFORMATION

The information given below is provided for clarification and assistance in meeting the requirements of this specification.

- 5.1** For information on currently approved service fluids and other materials required for use in this specification contact:

Materials Laboratory 15/GM-D01-D
Research and Engineering Centre
Ford Motor Company Ltd
Laindon, Basildon
Essex SS15 6EE, England

Fluids Materials Section
Coolants/Greases
Engine Engineering
P.O. Box 2053
21500 Oakwood Blvd.
Dearborn, MI 48121, USA

Materials Engineering
Product Engineering Office
Ford Motor Co. of Australia Ltd
Princes Highway, Norlane
Victoria 3214, Australia

5.2 RECYCLING CODE

>EPDM<