



ENGINEERING MATERIAL SPECIFICATION

SILICONE RUBBER, SEAL, OIL PAN

ESE-M2D236-A

1. SCOPE

The material defined by this specification is a high heat resistant silicone rubber.

2. APPLICATION

This specification was released originally for material used for static applications only, such as oil pan seals.

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).

3.1 SLAB STOCK

3.1.1 Original Properties

Tensile Strength, min
(ASTM D 412, Die C) 4.2 MPa

Elongation, min
(ASTM D 412, Die C) 100%

Hardness, Durometer A
(ASTM D 2240) 65 - 75

3.1.2 Heat Aging (ASTM D 865, 70 h at 225 +/- 2 °C)

Tensile Strength Change -35 to +30%

Elongation Change, max -40%

Hardness, Durometer A Change, max +10

3.1.3 Immersion in ASTM #1 Oil (ASTM D 471, 70 h at 150 +/- 2 °C)

Tensile Strength Change, max -20%

Elongation Change, max -20%

Hardness, Durometer A Change -12 to 0

Volume Change 0 to +10%

Date	Action	Revisions
2004 07 23	Revised	Para 3.0 inserted; para 3.1, 3.4, 3.5, 3.6, 3.8 & 4 deleted
1995 02 02		Revised para 3.1.4 NEO1E10127076154
1973 10 22	Released	E3C-012407



3.1.4	Immersion in IRM 903* Oil (ASTM D 471, 70 h at 150 +/- 2 °C)	
	Hardness, Durometer A Change, max	-25
	Volume Change, max	+50%
	Tensile Strength Change, max	-50%
	Elongation Change, max	-30%
3.1.5	Compression Set, max (ASTM D 395, Method B, 70 h at 150 °C)	30%
3.1.6	Cold Test at -40 °C (FLTM BP 106-03)	No cracks permitted

*IRM 903 oil replaces ASTM oil #3.

3.2 FINISHED PART

3.2.1	Hardness, Durometer A	
	Original	65 - 75
	Heat Aged Change, max (ASTM D 865, 70 h at 225 °C)	+10
3.2.2	Immersion in ASTM #1 Oil (ASTM D 471, 70 h at 150 °C)	
	Hardness, Durometer A Change	-10 to 0
	Volume Change	0 to +10%
3.2.3	Immersion in ASTM #3 Oil (ASTM D 471, 70 h at 150 °C)	
	Hardness, Durometer A Change, max	-20
	Volume Change, max	+50%
3.2.4	Silicone Volatiles, max (FLTM AV 102-01 as received at Ford Motor Company)	0.5%

3.3 COMPOUND

The elastomer shall be a silicone rubber.

3.7 ADDITIONAL REQUIREMENTS

Specific requirements for material and/or manufactured parts shall be specified on the Engineering drawing, Engineering parts specification and/or performance specifications. All critical areas with respect to these properties shall be clearly designated on the engineering drawing.