



RUBBER, SILICONE (VMQ) VERY HIGH TEMPERATURE RESISTANT

WSD-M2D453-A

1. SCOPE

The material defined by this specification is a silicone rubber (VMQ) with short-term resistance to very high temperatures up to 300 °C.

2. APPLICATION

This specification was released originally for material used as spark plug boots capable of long-term operation at temperatures up to 175 °C and withstanding peak temperatures up to 300 °C. The material remains flexible down to -40 °C and has moderate resistance to oils.

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, Durometer A (ASTM D 2240, instantaneous, plied-up specimen. Hand held durometers shall not be used)	48 to 60
3.5.2	Tensile Strength, min (ISO 37, Type 1 dumb-bell)	6 MPa
3.5.3	Elongation at Break, min (Test Method according to para 3.5.2)	350%
3.5.4	Modulus at 100% Elongation (Test Method according to para 3.5.2)	1.0 - 2.5 MPa
3.5.5	Tear Strength, min (ISO 34, Method B, procedure (a))	18 kN/m

Date	Action	Revisions
2004 09 30	Revised	Inserted 3.0; Deleted 3.1, 3.2, 3.3, 3.10 & 4; Corrected numbering 3.5.9
1993 07 26	Released	C10320585



3.5.6	Brittleness Point, max (ISO 812, Type B specimen)	-40 °C
3.5.7	Ozone Resistance, max (FLTM BP 101-01, Procedure A)	Rating 0
3.5.8	Compression Set, max (ISO 815, Sample A except 25% compression, plied-up specimens, 70 h at 175 +/- 2 °C)	40%
3.5.9	Dielectric Strength, min (IEC 243/ASTM D 149 in insulating oil)	
3.5.9.1	Short Time	17.5 kV/mm
3.6	HEAT AGED (ISO 188, 150 +/- 50 air changes/h, 70 h at 315 +/- 2 °C)	
3.6.1	Hardness Change, max	+25
3.6.2	Tensile Strength , min	3.0 MPa
3.6.3	Elongation at Break, min	150%
3.6.4	Visual Evaluation	
	No surface tackiness or cracks when folded flat against itself.	
3.7	HEAT AGED (ISO 188, 150 +/- 50 air changes/h, 1000 h at 175 +/- 2 °C)	
3.7.1	Hardness Change, max	+15
3.7.2	Tensile Strength, min	5.0 MPa
3.7.3	Elongation Change, min	250%
3.7.4	Visual Evaluation	
	No surface tackiness or cracks when folded flat against itself.	
3.8	IMMERSION IN OIL No. 1 (ISO 1817, 70 h at 150 +/- 2 °C)	
3.8.1	Hardness Change, max	-15
3.8.2	Tensile Strength, min	5.0 MPa
3.8.3	Elongation at Break, min	250%
3.8.4	Volume Change	+10%
3.8.5	Visual Evaluation	
	No surface tackiness or cracks when folded flat against itself.	

