

**SILICONE RUBBER ENGINE COOLANT AND
COMPRESSION STRESS RELAXATION RESISTANT****WSS-M2D376-A2****1. SCOPE**

The material defined by this specification is a glycol-based silicone rubber compound with good resistance to engine oil.

2. APPLICATION

This specification was released originally for material used as an intercooler gasket at temperatures up to peak temperatures of 210 °C. The material has excellent resistance to compressive stress relaxation at temperatures up to 175 °C. The material also has excellent resistance to splitting or bursting under combined conditions of compressive strains up to 60% and temperature up to 210 °C.

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 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 2.0 +/- 0.2 mm

3.5 ORIGINAL PROPERTIES

3.5.1	Hardness, International (ISO 48)	55 - 65
3.5.2	Hardness, Durometer A (ISO 868, instantaneous, plied-up specimen. Hand held durometers shall not be used)	55 - 65
3.5.3	Tensile Strength, min (ISO 37, Type 1 Dumb-bell)	6 MPa
3.5.4	Elongation at Break, min (Test acc. To para 3.5.3)	200%

Date	Action	Revisions
2004 09 14	Revised	Para 3.0 inserted; para 3.1, 3.2, 3.3, 3.10 & 4 deleted
2000 02 16	Activated	



3.5.5	Modulus at 100% Elongation, min (Test acc. To para 3.5.3)	1.5 to 3.0 MPa
3.5.6	Compression Set, max (ISO 815, Sample A except 25% compression plied-up specimen, 70 h at 175 +/- 2 °C)	50%
3.5.7	Ozone Resistance, max (FLTM BP 101-01,)	Rating 0
3.5.8	Low Temperature Brittleness, min (ASTM D 1329)	-40 °C
3.6	HEAT AGEING (ISO 188/ASTM D 573, 150 +/- 50 air changes/h, 1,000 h at 175 +/- 2 °C)	
3.6.1	Hardness Change, max	0 to +10
3.6.2	Tensile Strength Change, % max	+/- 10
3.6.3	Elongation Change, % max	-30%
3.7	HEAT AGEING (ISO 188/ASTM D 573, 150 +/- 50 air changes/h, 168 h at 210 +/- 2 °C)	
3.7.1	Hardness Change, max	0 to +10
3.7.2	Tensile Strength Change, % max	+/- 10
3.7.3	Elongation Change, % max	-30%
3.8	IMMERSION IN CURRENTLY RELEASED PRODUCTION ENGINE OIL (ISO 1817/ASTM D 471, 168 h at 125 +/- 2 °C see para 5.1)	
3.8.1	Hardness Change, max	-15
3.8.2	Tensile Strength Change, max	-30%
3.8.3	Elongation at Break Change, max	-50%
3.8.4	Volume Change, max	+10%
3.8.5	Compression Stress Relaxation (FLTM BP 116-02 at 20% compression)	

Test Method: Measure the initial back-force (Fo) after 30 minutes at 23 +/- 2 °C. Age at 175 +/- 2 °C and take back-force (Ft) measurements at 23 +/- 2 °C after 24, 48, 96, 168 h and thereafter every 168 h until a total elapsed test time of 1,000 h has been completed.