



SLEEVE, HIGH TEMPERATURE, ABRASION RESISTANT

WSS-M12G91-A

1. SCOPE

The material defined by this specification is a heat resistant sleeve consisting of polyetheretherketone (PEEK) guard filaments and polyphenylene sulfide (PPS) support filaments. The material is designed to provide abrasion protection to hoses and wires. The material can be used continuously in applications up to 200 °C or intermittently to 230 °C.

2. APPLICATION

This specification was released originally for material used for fuel cross over lines.

3. REQUIREMENTS

3.1 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

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

3.2 MONOFILIAMENTS

3.2.1	Melt Temperature, (ASTM D 3418) polyphenylene sulfide polyetheretherketone	275 - 290 °C 330 - 340 °C
3.2.2	Filament Tensile Strength at Break, min (ASTM D 2256, Condition 1) polyphenylene sulfide polyetheretherketone	10.2 n 22.2 n
3.2.3	Filament Elongation at break, % min (ASTM D 2256, Condition 1) polyphenylene sulfide polyetheretherketone	15 18
3.2.4	Low Temperature Brittleness Test, min (ASTM D 746, age braided sleeve at – 70 °C for 4 h then wrap around a mandrel 4 times the sleeve diameter. No break or damage allowed)	Pass
3.2.5	Abrasion Resistance, min (SAE ARP 1536A, 2.5 lb. Weight, 15,500 cycles)	Pass

Date	Action	Revisions
2003 08 29	Activated	



Documents

A. Reaume

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- 3.2.6 Heat Aging Performance
(ISO 188/ASTM D 573, 150 +/- 50 air changes/h, 1000 h at 200 +/- 2 °C. Unaged property values shall be determined at the time of the aged properties determination)
- 3.2.6.1 Filament Tensile Strength change at break, max - 25%
(Test Method per para 3.3.3)
- 3.2.6.2 Filament Elongation change at break, max - 25%
(Test Method per para 3.3.4)
- 3.2.7 Heat Aging Performance
(ISO 188/ASTM D 573, 150 +/- 50 air changes/h, 168 h at 230 +/- 2 °C. Unaged property values shall be determined at the time of the aged properties determination)
- 3.2.7.1 Filament Tensile Strength change at break, max - 50%
(Test Method per para 3.3.3)
- 3.2.7.2 Filament Elongation change at break, max - 50%
(Test Method per para 3.3.4)
- 3.2.8 Chemical Resistance, max - 30%
- Soak the filaments in the chemical at the temperature and time prescribed below. At the end of the exposure allow the samples to attain lab conditions then perform tensile testing on new and exposed samples. Report percent change in tensile strength at break, after exposure. See ASTM D 471 for fluids and exposure techniques. Use ASTM D 2256 for testing.
- 3.2.8.1 ASTM Fuel C w/ 10% ethanol, 23 °C +/- 2 °C 168 hours
- 3.2.8.2 Brake fluid (Dot 4), 50 °C +/- 2 °C, 168 hours
- 3.2.8.3 ASTM Service Fluid 105, 150 °C +/- 2 °C, 168 hours
- 3.2.8.4 Engine coolant, 120 °C +/- 2 °C, 50/50, WSS-M97B51-A1 or equivalent, 168 hours
- 3.2.8.5 Windshield Washer Solvent, 23 °C +/- 2 °C, WSB-M8B16-A3 or equivalent, 168 hours

3.3 FLAMMABILITY (SAE J369)

Burn Rate, max

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