



SPRAYABLE WEAR RESISTANT COATING, TWO COMPONENT, POLYOL NON-VISIBLE APPLICATIONS

WSS-M99P40-A3

SPRAYABLE WEAR RESISTANT COATING, TWO COMPONENT, ISOCYANATE NON-VISIBLE APPLICATIONS

WSS-M99P40-A4

1. SCOPE

This specification defines the material and performance of a two component, spray applied elastomeric film, based on a polyol (WSS-M99P40-A3) and an isocyanate hardener (WSS-M99P40-A4) for use on parts that are not exposed to sunlight and require resistance to wear, abrasion, chemicals and stone impact.

2. APPLICATION

This specification was released originally to define the performance of a wear resistant, sprayable material applied to painted surfaces that do not experience continuous operating temperatures above 120 °C. It is specified for parts that need excellent abrasion, chip, impact and chemical resistance. The material is intended to be used in applications that are not exposed to sunlight after vehicle assembly. The material was initially released for coating the tank side of e-coated fuel tank straps.

2.1 LIMITATIONS

The material is not UV (ultra violet light) stable. It is not intended for applications where exposure to direct sunlight will occur.

Fastener joint testing is required if this material is applied onto load bearing surfaces. Material creep or loss of clamp load must be evaluated.

3. REQUIREMENTS

Material specification requirements are to be used for initial qualification of materials.

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 RHEOLOGY

Suppliers must submit flow characterization data to Ford Motor Company for flow modeling and process window determination. For a specified temperature range, the requested properties include, but are not limited to, viscosity, yield stress, apparent activation energy for viscosity and apparent activation energy for yield stress. This data constitutes the reference standard and shall be kept on file at the designated material laboratory.

Date	Action	Revisions	Rev. 0
2015 01 22	Released		



3.3 COMPOSITION AND CONSISTENCY

The material is a thermosetting, two-component polyurea elastomer system that provides excellent wear resistance, corrosion resistance, impact resistance and chemical resistance. The material shall be a smooth homogenous film, free from entrapped air, foreign materials and any properties detrimental to normal production operation.

3.4 REQUIREMENTS (FREE FILM)

3.4.1	Color	Black
3.4.2	Cured Flammability (ISO 3795/FMVSS 302)	
	Burn Rate	100 mm/minute max
	The specimen size required for material approval is 355 x 100 x 2.0 +/- 0.1 mm with a smooth surface.	
3.4.3	Hardness, Durometer A (ISO 868/ASTM D2240)	95 +/- 5
3.4.4	Tensile Strength, (ISO 37/ASTM D412, Die C, 500 mm/min test speed)	14 MPa min
	3.4.4.1 Elongation at Break	120% min
3.4.5	Tear Strength (ISO 34, Method B, procedure A/ ASTM D624, Die C, 500 mm/min test speed)	60 kN/m min
3.4.6	Water Absorption (ISO 62/ASTM D570)	1.0% by wt. max
3.4.7	Brittleness Point (ISO 812, Type B specimen/ ASTM D2137, Method A)	-40 °C max
3.4.8	Heat Aged (ISO 188/ASTM D573, 150 +/- 50 air changes/h, 1000 h at 100 +/- 2 °C)	
	Hardness Change	5% max
	Tensile Strength Change	10% max
	Elongation Change	10% max
3.4.9	Density (ISO 1183, Method A/ ASTM D 792, Method A1)	1.03 +/- 0.05 g/cm ³

3.5 RESISTANCE PROPERTIES (APPLIED TO SUBSTRATE)

Test panels are to be prepared with the intended facility application equipment over the intended substrate, pretreatment and paint layering system following the applicable Ford Motor Company material specifications. Apply a smooth application of material to 75 x 200 mm panels at the target horizontal film thickness.