



SPRAYABLE BED LINER, TWO COMPONENT, POLYOL

WSS-M99P40-A

SPRAYABLE BEDLINER, TWO COMPONENT, ISOCYANATE

WSS-M99P40-A2

1. SCOPE

This specification defines the material and performance of a spray applied polyol based elastomeric film (WSS-M99P40-A1) and an isocyanate hardener (WSS-M99P40-A2) for use on exterior pickup box inner tubs where a low gloss texture appearance, high flexibility, high durability, and impact resistance are required. This system is specified for assembly plants and component suppliers, covering all processes including in-department and pre-delivery repairs.

2. APPLICATION

This specification was released originally to define the performance of sprayable bed liner materials applied to painted surfaces. It is specified for vehicle pickup box inner tubs, running boards, inner floor panels, and other parts visible after assembly.

3. REQUIREMENTS

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

Bed liner material applied at the assembly plant shall conform to the full requirements of this specification. In-department and pre-delivery paint repairs shall meet the requirements of this specification.

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.

3.3 COMPOSITION

3.3.1 Vehicle

Thermosetting, two-component polyurea elastomer system that provides excellent exterior durability, mechanical properties and chemical resistance.

3.3.2 Ultraviolet Light Absorber and Stabilizer

Material shall contain absorber and/or hindered amine in sufficient amount to provide good long-term durability.

Date	Action	Revisions
2009 03 05	Revised	Para 3.6.1 modified; Para 3.7.3.2 added T. Honey
2008 10 08	Revised	Changed text in red to black and removed strikethrough text T. Honey
2008 03 12	Activated	Honey, J. Tardiff

**3.4 PHYSICAL PROPERTIES LIQUID STATE****3.4.1 Weight per Volume
(ASTM D 816)**

Elastomer Resin – Component A1 1.00 +/- 0.10 kg/L

Catalyst – Component A2 1.10 +/- 0.05 kg/L

**3.4.2 Viscosity, typical range
(Brookfield Viscosity ASTM D1824
#4 Spindle, 20 RPM, 30 sec)**

Elastomer Resin – Component A1 1100 - 1700 cps

Catalyst – Component A2 20 – 32 Stokes
(Bubble Time Method ASTM D1545) 1850 - 2950 cps**3.4.3 Storage Stability, max 10% Change**

The supplier shall provide a viscosity profile versus time from initial through 90 days storage at 23 +/-2 °C and 32 +/-2 °C. Measurements shall be taken at weekly intervals. Curves shall be made available to Materials Engineering prior to addition on the Approved Source List.

**3.4.4 Volatile Organic Compound
(EPA Reference Method 24)**

Elastomer Resin – Component A1 0.4 kg/L max.

Catalyst – Component A2 0.1 kg/L max.

Mixed Product As Applied 0.05 kg/L max.

3.5 MANUFACTURING PROPERTIES**3.5.1 Material Consistency**

Shall be a smooth homogenous mixture, free from entrapped air, foreign materials and any property detrimental to normal production operation.

3.5.2 Color

Each component is distinctly different in color. The mixed material shall meet manufacturing process control requirements. Final approval of material color for production shipments shall be made by the affected manufacturing activity and identified on the supplier control plan.



3.6 ENGINEERING REQUIREMENTS (FREE FILM)

- 3.6.1 Compression Set
(ASTM D 395, Method A (>90 IRHD), Type I cylindrical disk test samples, 1.5 mm applied to steel panel and stacked 8 tall to achieve total material thickness of 12.5 +/- 0.5 mm, Diameter 29.0 +/- 0.5 mm, Compressive force: 1780 N (400 lbf), Report compression set as a percentage of the original thickness.

3.6.1.1 Compression Set, % Deflection

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| • 70 hrs at 23 °C | 6.0 +/- 1.0% |
| • 70 hrs at 50 °C | 30.0 +/- 1.0% |
| • 70 hrs at 65 °C | 35.0 +/- 1.0% |
| • 70 hrs at 85 °C | 42.0 +/- 1.0% |

Samples are to be conditioned for 24 hrs at 23 +/- 2 °C and 50 +/- 5% RH.

- 3.6.2 Cured Flammability
(ISO 3795/FMVSS 302)

Burn Rate, max	100 mm/minute
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The specimen size required for material approval is 355 x 100 x 2.0 +/- 0.1 mm with a smooth surface.

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| 3.6.3 Hardness, Durometer A
(ISO 868/ASTM D 2240) | 95 +/- 5 |
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| 3.6.4 Tensile Strength, min
(ISO 37/ASTM D 412,
Die C, 500 mm/min test speed) | 14 MPa |
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3.6.4.1 Elongation at Break, min	120%
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| 3.6.5 Tear Strength, min
(ISO 34, Method B, procedure a/
ASTM D 624, Die C, 500 mm/min test speed) | 60 kN/m |
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| 3.6.6 Water Absorption, max
(ISO 62/ASTM D 570) | 1.0% by wt. |
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| 3.6.7 Brittleness Point, max
(ISO 812, Type B specimen/
ASTM D 2137, Method A) | -40 °C |
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| 3.6.8 Heat Aged
(ISO 188/ASTM D 573, 150 +/- 50
air changes/h, 1000 h at 100 +/- 2 °C) | |
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Hardness Change, max	5%
Tensile Strength Change, max	10%
Elongation Change, max	10%

