PERFORMANCE, SPRAYABLE COATING, ACOUSTIC, INTERIOR AND EXTERIOR, BODY PANELS **WSS-M99P30-A2/A3/A4**

1. SCOPE

The scope of this specification encompasses solvent free, non-dimensional materials which demonstrate good:

- Noise, vibration, and harshness (NVH) characteristics
- Stone-chip protection
- Corrosion protection
- Paint compatibility (where needed)

2. APPLICATION

The materials released to this specification were originally released for robotic or hand-application to visible and non-visible areas such as: wheel housing, door skins, floor pans, and dash panels.

A2 Suffix designates materials, which are applied to electrocoated surfaces (prior to topcoat)
A3 Suffix designates materials, which are applied after the body has been painted (post topcoat)
A4 Suffix designates materials, which are applied to oily metal substrates (prior to electrocoat)

NVH materials are required to perform in a number of applications and closure designs. Each design and/or application has unique requirements. Compliance with this materials specification does not guarantee the damping material will function for all potential applications on a vehicle. Selection of the appropriate material should therefore be based on jury evaluations or other NVH test procedures as well as the required functional trial.

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).

Date	Action	Revisions Rev 03	
2017 03 13	Editorial	Separated from A5	S. Short, NA
2013 09 04	Revised	Removed “Not for European use” from title	B. Witkowski, NA
2002 01 30	Activated		C. Lin

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3.4 MANUFACTURING PERFORMANCE REQUIREMENTS

3.4.1 Rheology

(SAE J1524, rotational rheometer with 40 mm diameter parallel plates, 500 micron gap, 50 Pa/sec ramp, stress controlled rheometers use stress range 0 - 3500 Pa, strain controlled rheometers use strain range 0 - 100 sec-1, evaluate material to highest stress or strain as the formulation will allow, report material batch/lot number, identify rheometer make and model, for each test condition report yield stress and submit plots for shear stress vs. shear rate, submit plot for viscosity vs. temperature at mid-range shear rate. If a two-component material, report each component and mixed)

3.4.1.1 Initial (as received)

- Test at 23 +/- 2 °C
- If different than ambient, test at application temperature +/- 2 °C
- Test over range 10 to 50 °C at increments of 10 °C

3.4.1.2 Accelerated Aging

Test and record after 3 days at 54 °C

3.4.1.3 Storage, 30, 60 and 90 days

Store at 23 +/- 2 °C, 50 +/- 5% R.H.

The rheology variation for any one supplier shall be +/- 30%, based on the recorded rheology of the original approved production sample. The flow curves established for initial approval shall constitute the reference standard and shall be kept on file at the designated material laboratory. All samples shall produce flow curves that correspond to the reference standard when tested under the same conditions.

3.4.2 Percent Solids, wt and vol % +/- 0.5
(ASTM D 2834)

The weight and volume tolerance for any one supplier shall be +/- 0.05, based on the recorded weight of their original approved production sample. Reference Para 5.1.1.

3.4.3 Weight Per Volume, kg/L +/- 0.05
(ASTM D 816)

The weight tolerance for any one supplier shall be +/- 0.05 kg/L, based on the recorded weight of their original approved production sample. Reference para 5.1.2.

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3.4.4 Viscosity at 25 °C, % +/- 5
(SAE J 1524, VIS-2, 1.32 mm orifice, 280 kPa)

3.4.4.1 Initial (as received)

- Test at 16 °C, 25 °C, and 43 °C.

3.4.4.2 Accelerated Aging

- Test at 25 °C after 14 days at 32 °C
- Test at 25 °C after 90 days at 23+/-2 °C, 50 +/- 5% R.H.

The viscosity tolerance for any one supplier shall be +/- 5 %, based on the recorded viscosity of their original approved production sample. Reference para 5.1.3.

3.4.5 Volatile Organic Content, % +/- 0.05
(EPA Method 24, Method B)

The VOC Content tolerance for any one supplier shall be +/- 0.05%, based on the recorded VOC of their original approved production sample.

3.4.6 Production Dispensing Approval and Materials Process Window

The supplier shall perform necessary tests to verify that production-dispensing systems can maintain and control material flow rate and application pattern. A design of experiments (DOE) shall be conducted establishing the process window for material quality and dispense equipment controls. Factors included in DOE are material viscosity range (initial and after aging), assembly plant temperature variations (16 - 43 °C), production application thickness, and application attitude (horizontal, vertical, inverted). Responses to the DOE shall include dimensional measurements (width/thickness) on the applied material pattern, dispensed weight/volume, and material movement after application (subject to plant conditions). A formal report shall be submitted to materials and manufacturing activity. This report shall describe equipment type/manufacture and set up parameters including dispensing tip, applied distance/angle, material flow rate, dispensed velocity, and system pressures.

3.4.7 Wash Resistance (A4 mat'ls only) No wash off
(FLTM BV 116-03, Direct and Indirect, 2000psi
Report Weight Loss.)

3.4.8 E-coat compatibility Shall not contaminate
(A4 mat'ls only) primer bath or cause
(FLTM BV 119-01) e-coat film irregularities

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