

**ANTI-FLUTTER, VISCOELASTIC EXPANDING PERFORMANCE
REQUIREMENT, HEAT CURING****WSS-18P11-B2****1. SCOPE**

This material defines the performance requirements for a die cut or extruded sealer that expands upon exposure to heat. This material can be supplied with or without a pressure sensitive adhesive coating (PSA) or a release liner.

2. APPLICATION

The specification was released originally for materials used in the body shop area as an anti-flutter material for roof bow and closure applications. The materials utilized are viscoelastic in nature and provide additional damping over traditional anti-flutter materials commonly used in closure applications. This material can be supplied with or without an aggressive pressure sensitive adhesive which promotes adhesion to oily, uncleaned cold rolled and galvanized steel. This material expands during the electrocoat bake schedules per para. 3.4.5.

Material cure is critical to long term material performance. It is recommended that time/temperature data packs be placed on a vehicle in the intended locations to determine the time at temperature requirements for a given application prior to release. The on-vehicle material time at electrocoat oven temperatures must fall within the cure window for the approved material.

After release, periodic follow up time/temperature checks are recommended to insure cure performance is maintained. The Manufacturing Properties and Engineering Performance requirements defined in this specification are based on laboratory sample testing and define the minimum acceptance criteria for adhesive/polymer material performance. The function and design requirements for the engineered part are defined by the component SDS (Sub-system Design Specification), key life test requirements, or vehicle program requirements. Prior to use, the engineered part must be evaluated under the intended application processing parameters.

The choice of substrates, stamping lubricants, stamping and assembly plant processing conditions and specific design application may affect engineered part performance. Compliance with this specification does not guarantee the engineered part 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 (such as door slam) as well as the required functional trial.

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 SYSTEM COMPATIBILITY

Initial material approval was based on a specific material system which included the substrate, stamping lubricants and adhesive/polymer. The originally approved material system was oven cured using specific production process parameters. The choice of substrates, stamping lubricants, stamping and assembly plant processing conditions and specific design application may affect adhesive /polymer / engineered part performance. If any of these parameters are changed, the material performance must be validated using the new parameters.

Date	Action	Revisions
2009 10 14	Activated	Initial release for –B2 parameters

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**3.3 DIMENSIONS**

As specified on the engineering drawing.

3.4 MATERIAL PROPERTIES

- 3.4.1 Density +/- 0.1 kg/m³
(ISO 845/ASTM D 3574, Test A, interior density)

The density variation for any one supplier shall be +/- 0.1 kg/m³, based on the recorded density of their original approved production sample.

- 3.4.2 Water Absorption, max 5%
(FLTM BV 117-01, Method A,
8 h soak time, cure material per
paragraph 3.4.5)

- 3.4.3 Volume Expansion, Min 300%
Max 700%
(FLTM BV 108-02)

The volume change variation for any one supplier shall be +/- 10%, based on the recorded volume change of their original approved production sample.

- 3.4.4 Volatile Organic Compounds (VOC) Content +/- 0.05 kg/L
(EPA Method 24, Procedure B)

The VOC Content variation for any one supplier shall be +/- 10%, based on the recorded VOC Content of their original approved production sample.

- 3.4.5 MATERIAL CURE SCHEDULE
(FLTM BV 150-05, 'Min and Max' cure cycles, per respective region).

Record chosen cycle in the Initial Sample Report.

Critical performance characteristics shall include, but are not limited to, the following:

- Volume Expansion, para 3.4.3
- Adhesion, para 3.5.6

3.5 MANUFACTURING PROPERTIES

- 3.5.1 Differential Scanning Calorimetry Report
(20 +/- 1 mg sample size, 5 °C/min heating rate, 25 - 250 °C
Temperature range, submit Heat Flow vs. Temperature curve)
Report onset of reaction

- 3.5.2 Bridging, max 3 mm
(SAE J243, ADS-9, Section 3.3, Method D,
non-flow fixture, substrates per para 4.1,
bake conditions per para 3.4.5)

- 3.5.3 Phosphate Wash Resistance (For PSA/Tacky only) Pass
(FLTM BV 116-03, 2000psi, 23 °C, substrates per para 4.1)
Panel Preparation:
Cut a 100 x 150 strip at production thickness of and apply a 300 x 300
mm panels prepared for each substrate per para 4.1.
Pass a 2.2 kg roller over samples per ASTM D1000.
Condition at 23 +/- 2 °C for 1 hour prior to performing wash test.

