



**SEALER, VINYL BASED, SELF-LEVELING, HEAT CURE, PAINTABLE,
PUMBABLE FOR ELECTROCOATED SUBSTRATES**

WSS-M4G177-B4

**SEALER, VINYL BASED, SELF-LEVELING, HEAT CURE, PAINTABLE,
EXPANDING, PUMBABLE FOR ELECTROCOATED SUBSTRATES**

WSS-M4G177-B5

1. SCOPE

The material defined by this specification is a lead free vinyl based, self-leveling, paintable, heat curing sealer with (-B5) or without (-B4) expanding properties.

2. APPLICATION

This specification was released originally for sealing exterior body seams, such as drip rail to roof ditch including a molding, and is intended for use over freshly baked electrocoat primer. Acceptable paintability is achieved with or without primer surfacer on sealer.

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 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 SOLIDS

(ASTM D 2834, except heat at 102 +/- 1 °C for 3 h in a mechanical convectional oven. Save sample for next test, para 3.4)

96% min

3.4 ASH

(ISO 3491, Method A, 760 +/- 30 °C)

36% max

The ash content tolerance for any one supplier shall be +/- 5% based on the recorded ash content for their originally approved production sample.

3.5 WEIGHT PER VOLUME

(ASTM D 816)

1.35 -1.68 kg/L

The weight tolerance for any one supplier shall be +/- 0.02 kg/L, based on the recorded weight of their original approved production sample.

Date	Action	Revisions	Rev. 01
2014 05 16	Act/Revised	Released B5 and Revised B4. See Summery of Rev.	W. Jamschke, FH
2009 08 19	Activated	Released WSS-M4G177-B4	M. Mehndru, NA

**3.6 VISCOSITY**

(SAE J 1524, VIS-2, 1.32 mm orifice, 280 kPa)

Final approval of a specific material viscosity for production shipments shall be made by the affected manufacturing activity. In all cases, the viscosity shall be within process limits as identified on the material control plan.

The viscosity tolerance for any one supplier shall be +/- 10%, based on the recorded viscosity of the original approved production sample.

3.6.1 As Received 4 - 30 s
(Unagitated, Method A)

3.6.2 Aged, max 50 s increase max
(Material aged in closed from initial viscosity
container for 72 h at 40 +/-
1 °C, conditioning Method A)

The supplier shall provide a viscosity profile versus temperature at 16 °C, 20 °C, 23 °C, 27 °C, 43 °C, and after 2 weeks at 32°C

Final approval of a specific material viscosity for production shipments shall be made by the affected manufacturing activity. In all cases, the viscosity shall be within specification limits.

3.7 FLOW RATE (Initial at 23 +/- 2 °C and 20 – 300 mm
after 90 days storage at 23 +/- 2 °C and
32 +/- 2 °C)

The flow rate tolerance for any one supplier shall be +/- 10%, based on the recorded flow rate of the original approved production sample.

Test Method:

Block the 6.4 mm groove in the flow rate fixture (Fig. 1) 150 mm from the top edge.

Fill the 150 mm upper portion of the groove with material specified in this specification.

Remove the block, allow material to flow for 30 minutes, then subject the test assembly to the minimum bake per para 4.3.

Remove test assembly from heat exposure and measure the total amount of flow.

Final approval of a specific material flow rate for production shipments shall be made by the affected manufacturing activity. In all cases, the flow rate shall be within limits identified on the Material Control Plan.

**3.8 ADHESION**

Shall not be peeled off in a continuous film.

Test Method:

Apply a ribbon of material, 25 x 200 x 3 mm on two electrocoated panels, identified per para 4.2.

Subject one test panel to the minimum bake and the other test panel to the maximum bake identified per para 4.3.

Evaluate adhesion by cutting a 25 mm wide strip across the ribbon. Using the tip of a square spatula, lift the material, then attempt to hand peel material at 90° from substrate.

Save test panels for heat resistance test, para 3.9, and corrosion resistance test, para 3.10.

3.9 HEAT RESISTANCE TEST
(336 hours at 70°C)

No evidence of blistering,
cracking, charring or other
deleterious effects

Test Method:

Examine the test material prepared for Adhesion Test, per para 3.8, for any of the above conditions.

**3.10 LABORATORY ACCELERATED CYCLIC
CORROSION TEST**
(CETP 00.00-L-467, 6 weeks)

No corrosion or
adhesion loss

Evaluate material adhesion as described in para 3.8. Observe for any evidence of corrosion originating directly under material.

3.11 MANDREL BEND TEST
(FLTM BV 122-01, substrates per
para 4.2, material bake schedule
per para 4.3, heat age test specimen
14 days at 70 +/- 1 °C before test)

No cracking or
adhesion failure

3.11.1 Test at 23 +/- 2 °C

3.12 COMPATIBILITY WITH PRODUCTION PAINTS - INITIAL REQUIREMENTS

No tackiness, staining, discoloration, or other objectionable appearance defects in the paint over the sealer.

Note: Evidence of any defects as stated above shall be reviewed with Paint Engineering, and Materials Engineering.

3.12.1 Xenon Arc Weatherometer
(SAE J2527 modified [Type "S" borosilicate inner and outer filters,
0.55 W/m² radiant exposure 500 h exposure])

3.12.2 336 h Heat Age at 70 +/- 2°C

Test Method: