



PAINT, POWDERED, THERMOSETTING POLYESTER INTERIOR

WSS-M70J5-C1

1. SCOPE

The material defined by this specification is for thermosetting polyester or polyester hybrid powder coatings as applied to unprimed metal substrates. The powder coating shall provide good initial appearance with adequate durability and corrosion properties.

2. APPLICATION

This specification was released originally for powder coatings used on interior metal applications. All painted parts must meet WSS-M2P190-A/Latest. All paint applicators must meet the Interior Parts Painter Approval Process WSS-M2P195-A. These paint systems are typically used to decorate visible/non-visible metal surfaces (i.e. seat tracks, cargo shade components, brake pedals, etc.).

This material is only for beltline or below applications. No IP green house or package tray areas.

3. REQUIREMENTS

3.1 APPROVED SOURCES

This specification requires the use of approved sources. Only the sources identified on the Ford Approved Source List (ASL) can be used when this specification is listed on the drawing, CAD file, or other documents. The list of approved sources is located within Ford at www.mats.ford.com or available externally through a Ford Materials Engineer.

3.2 CONDITIONING AND TEST CONDITIONS

All test values are based on material conditioned for not less than 24 h prior to testing in a controlled environment of 23 +/- 2 °C and 50 +/- 5% relative humidity. Testing of the material should occur in the conditioning environment or soon after removal.

3.3 COMPOSITION

3.3.1 Specific Composition

When it is necessary to obtain specific data regarding powder coating formulations, suppliers will furnish such data on request.

3.3.2 Vehicle Solids

The vehicle solids shall be polyester resins modified with suitable cross linking, catalytic and flow control agents as necessary to meet the requirements of para 3.4 - 3.8.

3.3.3 Pigment

The pigment portion shall contain the necessary corrosion inhibiting pigments and/or flattening agents to meet the requirements of para 3.4 - 3.8.

Date	Action	Revisions	Rev. 00
2017 05 17	Released		



Documents

J. Bilko, NA
Document Sharing Hub



3.4 PHYSICAL PROPERTIES

3.4.1 Non-Volatile Solids (ASTM D3451)

3.4.1.1 3 h at 107 °C

97% min

3.4.1.2 30 min at 204 °C

95% min

3.4.2 Shelf Stability

The powder must be capable of satisfactory application without conditioning after 6 month storage at 20 +/- 5 °C.

3.4.3 Gel Time (ASTM D4217-02 at 204 °C)

Identified by supplier on
initial submission +/- 2 s

3.4.4 Particle Size Distribution (ASTM D5861)

75 - 95% smaller than 44 µm
None larger than 70 µm

3.4.5 Specific Gravity (ASTM D5965-A, ISO 8130-3)

1.45 - 1.80

3.5 PROCESSABILITY

3.5.1 Processing Matrix

Production representative electrostatic powder guns shall be used. Report fluidizing air pressure, electrostatic voltage, feed and conveyance (or equivalent) air pressures, and powder flow in oz (lb) / min.

3.5.2 Fluidization Characteristics

Evaluate the fluidization of the powder at different fluidization air pressures, particle size distributions, and humidity levels. The fluidization system must be production representative.

3.5.3 Inclined Flow Test (ASTM D4242)

Determine the time versus temperature profiles for flow and sintering properties as mutually agreed on between supplier and affected Materials Engineering.

3.5.4 Heat-up Rate

Supplier shall demonstrate the effect that heat-up rates will have on appearance of the final coating. Also, supplier will demonstrate whether an interrupted bake, as may occur at breaks or shift change, affects appearance attributes.

3.6 PREPARATION OF TEST PANELS

3.6.1 Testing Requirement/Specimen Preparation

Tests shall be performed on panels of appropriate substrate. See Table 1 for testing requirements and sample size.

Design Verification Testing (DV) is performed on panels by the paint supplier as defined in Table 1.





Product/Process Validation Testing (PV) is performed on production painted parts as outlined in the Paint Performance, Interior Parts Metal Substrates Specification WSS-M2P190-A/Latest.

3.6.2 Substrate

Cold rolled steel panels with zinc phosphate pretreatment.

The surface to be coated must be cleaned to ensure the absence of oil or alkaline residues, fingerprints, corrosion, dirt, moisture, and other foreign materials.

3.6.3 The candidate powder shall be electrostatically applied and cured per paragraph 3.6.4.

3.6.4 Bake Schedule

12 minutes at 204 °C
metal temp, min

Supplier shall determine Cure Window as described in Paragraph 3.9. This should be included in the submission package and DFMEA.

3.6.5 Cured Film Thickness, range (FLTM BI 117-01)

50.8 – 101.6 microns

Apply powder topcoat at 51 microns minimum or the optimal performance thickness as recommended by the supplier.

Note: This range is considered to be a requirement unless otherwise supported by testing data agreed to by Materials Engineering.

3.7 APPEARANCE

3.7.1 General

Color, gloss, grain, tactile effect and surface finish shall match master Trim Sample and/or Master Appearance Sample as approved by Corporate Design. The coating shall exhibit no craters, pinholes, solvent popping, seediness, abnormal roughness, excessive flow or any other detrimental defect.

3.7.2 Color (FLTM BI 109-01, Visual Assessment and/or SAE J1545, MA58 Three-Angle CMC)

Shall match the
Master Approved
Sample.

3.7.3 Gloss (FLTM BI 110-01, ASTM D523)

As released by Engineering:

A:	20° glossmeter	min 92
B:	60° glossmeter	76 - 84
C:	60° glossmeter	66 - 74
D:	60° glossmeter	58 - 66
E:	60° glossmeter	47 - 53
F:	60° glossmeter	33 - 38
G:	60° glossmeter	17 - 23
H:	60° glossmeter	7 - 13
J:	60° glossmeter	4 - 6
K:	60° glossmeter	2 - 4