



PAINT PERFORMANCE, ZINC RICH CONDUCTIVE ORGANIC COATING, SHEET METAL

WSS-M2P196-A1

1. SCOPE

This specification defines the performance requirements of two side zinc coated sheet metal, which has been coated with a pretreatment, and then overlaid (roller coated) with a conductive organic coating (on one side or both sides) to produce an organic coating.

2. APPLICATION

This specification was released originally for a coating that serves as galvanic couple protection between zinc coated steels and aluminum.

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 PRETREATMENT

A titanium-based pretreatment shall be used to give a satisfactory bond between the zinc coating and the conductive organic coating.

3.2.1 Pretreatment Coating Weight 7 +/- 5 mg/m²
(ASTM B659 or an agreed upon alternate method)

An average of at least 3 measurements shall be conducted at the edge, center, and edge of the head of the coil (Minimum of 9 measurements).

3.3 ZINC RICH CONDUCTIVE ORGANIC COATING

The coating shall comprise of an epoxy/urethane resin binder modified with metallic zinc particles. The control plan shall address coating composition and consistency of electrical conductivity.

3.3.1 Zinc-Rich Primer Organic Coating Thickness 3.1 +/- 0.6 microns

Cut a sample with a minimum coated surface area of 4500 mm². Remove the oil with isopropyl alcohol and air dry. Weigh to the nearest 1 mg. Remove all zinc-rich primer by repeated wiping with tissue soaked with 2-butanone (methyl ethyl ketone) solvent. Air dry and re-weigh. The thickness is calculated based on the organic coating's dry density of 2.46 g/cm³, according to the following equation:

$$\text{Thickness (microns)} = \frac{\text{Weight Loss (mg)}}{\text{Surface Area (mm}^2\text{)}} \times \frac{1000}{2.46}$$

Date	Action	Revisions	Rev. 00
2017 07 03	Released		



Documents

J. Cole, NA
Document Sharing Hub



3.4 COATED SURFACE FINISH

The material shall have a workmanlike appearance and shall not have defects of a nature or degree for the grade and quality ordered that will be detrimental to the fabrication of the finished part.

3.5 COATING ADHESION

- 3.5.1 Initial Coating Adhesion Grade 2 max
(FLTM BI 106-01, Method B)

Lightly hand sand coating surface (10 double rubs, moderate pressure) with P600 paper until dull, before scribe operation checking the adhesion.

- 3.5.2 Adhesion Strength, Overlap shear

- 3.5.2.1 Initial Report, MPa
(Prepare and test specimen coupons
(per WSS-M2G410-A para 3.5.1)

- 3.5.2.1 Aged - 30% max
(Subject to Laboratory Accelerated Corrosion Test
CETP 00.00-L-467 for 6 weeks. Condition at 23 +/- 2 °C
for 24h after exposure.)

3.6 CORROSION RESISTANCE

- 3.6.1 Scribe Creep 6 mm max
(FLTM BI 169-01, CETP 00.00-L-467)

Prepare specimen coupons per WSS-M2G410-A para 3.5.1. Scribe per the FLTM and then subject to 6 weeks of Laboratory Accelerated Corrosion.

- 3.6.2 Coating Bend Test
(ASTM B571)

No peeling, flaking, or interlayer separation of the coating is permitted

4 GENERAL INFORMATION

The information given below is provided for clarification and assistance in meeting the requirements of this specification. Contact gmfs@ford.com for questions concerning Engineering Material Specifications.

4.1 INITIAL SUPPLIER APPROVAL

For initial approval, the supplier must furnish the following information for each coating designation/coating line combination:

A control plan detailing how each requirement of Para 3 will be controlled on a continuing production basis.