



LIGHTING METALIZATION, PLASTIC SUBSTRATES

WSS-M5P8-C1

LIGHTING METALIZATION, METAL SUBSTRATES

WSS-M5P8-C2

1. SCOPE

This specification defines the performance requirements for metalized surfaces of reflective and inner lighting components. This coating system involves vapor deposition of metal in a vacuum, with an associated basecoat and topcoat, as required.

2. APPLICATION

This specification was released originally for the coatings used on reflector parabolas of exterior lighting. Two levels of types of substrates are defined as follows:

WSS-M5P8-C1	Plastic
WSS-M5P8-C2	Metal

Specific substrate and coatings (basecoat, metal, topcoat), the coating thicknesses, and respective cure schedules are to be determined by the Process Window DOE (Per Para 4.1) and specified on the Engineering Drawing or applicable Engineering Material Specification.

2.1 LIMITATIONS

- Coating systems described within are not to be used for first surface exterior applications.
- Flaming of the substrate may cause metallization performance failures.

3. REQUIREMENTS

Parts must conform to the color requirements defined by the Ford Color Harmony Team or equivalent.

3.1 APPROVED SOURCES

This specification is performance based and does not have approved sources.

3.2 FINISHED PARTS

Testing must be conducted on actual production parts. If regrind is used, testing at the maximum loading level is required and must meet the specification requirement.

Testing to be conducted at Design Verification (DV) or Process Validation (PV) per Table in Para 4.8 unless otherwise agreed to by Materials Engineering.

All tested production parts must be reviewed by Ford Materials Engineering for MCDCC sign-off.

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2018 02 26	Released		

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3.3 APPEARANCE

All parts shall be free from any objectionable blemishes on the reflective surface. A blemish is defined as the presence of any one, or combination of the following, but not limited to: orange peel, weld marks, substrate read through and crazing.

If a Minimum Reference/Acceptance Sample (Boundary Samples) exists, parts must conform to the end item mutually agreed upon by Product Development Engineering and Materials Engineering.

3.3.1 Color (FLTM BI 109-01 Visual Assessment) (SAE J1545, Three-Angle CMC)

Shall match the Master Approved Sample color panel or the initial sample as approved by Design Center.

3.4 INITIAL ADHESION (FLTM BI 106-01, Method B)

Grade 2 max

Where part dimensions limit equipment access and testing, include the maximum grid area in the available part surface area provided. No substitute-tested plaques may be provided.

3.5 RESISTANCE TESTS

(All tests to be conducted on components with no lens or assembly)

Acceptance Criteria

Reflective components tested as outlined in Section 3.5 shall conform to the following:

The finished part shall not warp, craze, crack, check or sustain a dimensional change greater than the tolerances specified on the engineering drawing. Parts shall show no indications of oxidation, peeling, blistering, tarnishing or other discoloration.

If defects are evident, stress relieving may be required as referenced in 4.2.

3.5.1 Resistance to Cycling, 3 cycles

2 h at 38 +/- 2 °C and 95 to 100 % humidity.

4 h at 60 +/- 2 °C.

2 h at -30 +/- 2 °C.

16 h at 60 +/- 2 °C.

3.5.2 Resistance to Humidity (120 h at 98 +/- 2% relative humidity and 38 +/- 1 °C)

3.5.3 Water Immersion, min 96 h (FLTM BI 104-01, Adhesion testing per 3.4)

No blistering, dulling, softening, loss of adhesion greater than 5% and/or any other film failure.

No loss of adhesion within 30 minutes of removal from water.