



PAINT PERFORMANCE, INTERIOR PARTS METAL SUBSTRATES

WSS-M2P190-A

1. SCOPE

This specification defines the performance requirements for decorative coatings or finishes including paint, autophoretic, electrodeposition coating and powder coating on metal and metal plated substrates for interior use.

2. APPLICATION

This specification was released originally to define performance requirements for various interior applications such as seat tracks, towel bars, speaker grilles, brake pedals, and shift controls.

3. REQUIREMENTS

Material specification requirements are to be used for initial qualification of materials.

All parts must also meet the appropriate part performance specification and Subsystems Design Specification.

Testing must be conducted on parts. See Table 1 and 2 for sample size and testing required. A visible component is defined as one that needs color approval and will go through the AAR process. A visible component is also defined as a non color approved part that is visible to the end customer when seated in the vehicle or standing out of the vehicle during normal operation. This includes but is not limited to components that are in interior compartments and can be viewed when a vehicle component has been actuated.

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 COMPONENTS

3.2.1 Test Specimen Preparation

Tests shall be performed on actual components processed through the production or production intent process. Where this is not possible, panels can be used on the production or production intent process.

Panels must be used when part geometry does not allow testing to be performed. Panels must be approved through Materials Engineering prior to testing.

3.2.2 Substrate

Cold rolled steel, hot rolled steel, aluminum and magnesium or as specified on the Engineering Document.

3.2.3 Surface Preparation

The surface to be coated shall be cleaned by an acceptable automated process, e.g. cleaning line, to remove any stamping oils, dust, dirt or debris.

Date	Action	Revisions	Rev 3
2013 11 14	Revised	See Summary of Revisions	L. Sinclair, NA
2008 09 16	Revised	See Summary of Revisions for details	L. Sinclair/Global Paint Team
2006 03 13	Activated		L. Sinclair





3.2.4 Film Thickness

Film thickness of all applicators must be sufficient to meet the performance and appearance requirements of this specification. The minimum film thickness must be stated on the print. The film thickness of all test specimens shall be reported on the PSW and laboratory report. The minimums below are considered to be requirements unless otherwise supported by data and agreed to by Materials Engineering.

Autophoretic	14.5 micron min
Electrodeposition coating	20.0 micron min
Powder Coating*	50.0 micron min

* - Powder Coatings require pretreatment.

3.2.5 Aging

Test panels or test specimens prepared for investigations according to this specification must be aged for at least 72 hours at 23 +/- 2 °C prior to testing.

3.2.6 Production Repair

Repaired parts must also meet the requirements of this specification. All repair materials and processes used must be approved by the affected Product Engineering Office. Maximum film thickness and maximum number of repairs will be specified in a mutually agreed control plan.

3.3 APPEARANCE

Color, gloss, tactile effect and surface finish shall match master 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.

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

Shall match the Master Approved Sample.

3.3.2 Gloss (FLTM BI 110-01, ASTM D 523)

As released by Engineering:

A:	20° Glossmeter, min	92
B:	60° Glossmeter	76 - 84
C:	60° Glossmeter	66 - 74
D:	60° Glossmeter	68 - 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
L:	60° Glossmeter	0.5 - 2.0
N:	60° Glossmeter	1.8 - 2.4



3.4 RESISTANCE PROPERTIES

3.4.1 Interior Corrosion Resistance (RQT-001101-002492 (18-0040), Table 4, Modified CETP 00.00-L-467)

- Normal chamber L-467 humidity / temperature cycles
- Apply the 0.5% salt solution on first and eighth day of the test
- Showroom Review after first day (one complete day starting with salt spray solution application).
- High Visibility Review (6 YIS) after eleventh day

Showroom Appearance

No white or red corrosion. No blistering, softening, dulling, loss of adhesion, or cracking permitted.

Final Appearance:

No white or red corrosion

Exception for seat tracks and seat mounting hardware: Red rust allowed at welds, crimps, edges of coated components, and drive areas of fasteners. No undercutting of coating from allowable areas of red rust.

3.4.2 Adhesion Grade 0 max (FLTM BI 106-01, Method B)

No flaking or chipping allowed.

3.4.3 Water Resistance (FLTM BI 104-01, 96h)

Must meet adhesion requirement in 3.4.2 after 96 h.

No blistering, softening, dulling, or loss of adhesion when tested for adhesion within 30 minutes of removal from water on all paint systems.

3.4.4 Abrasion Resistance (SAE J948, CS-10 wheels)

Abrasion resistance shall be determined on smooth test panels if it is impossible to test a specimen taken from a component. The control plan shall state the film thickness.

The film shall show no abrasion through to the substrate.

500 g load
1,000 cycles min and
1,000 cycles/25 μ m paint thickness



- 3.4.5 Resistance to Cleaning Agents Rating 4 min
(FLTM BN 107-01, 10 cycles, AATCC
Evaluation Procedure 2)

Test Modifications: Saturate white cotton cloth with the cleaners listed.

Cleaners (see also paragraph on Cleaning Agents)

- 1) Window cleaner
- 2) All purpose cleaner

- 3.4.6 Cure Test Rating 3 min.
(FLTM BN107-01, ISO 105-A02/AATCC
Evaluation Procedure 2)

Test Procedure: Perform a 10 cycle double rub with 1 part MEK/17 parts toluene applying moderate pressure with wetted cheesecloth.

- 3.4.7 Long Term Heat Exposure Rating 4 min
(ISO 105 A-02/AATCC evaluation Procedure 1)

Test three previously unexposed part as follows:

- 3.4.7.1 Horizontal or vertical parts AT OR ABOVE THE BELT-LINE (e.g. speaker grilles, shift levers):

7 days at 100 +/- 2 °C

- 3.4.7.2 Horizontal or vertical parts BELOW THE BELT-LINE (e.g. speaker grilles, shifter levers):

7 days at 90 +/- 2 °C

- 3.4.7.3 Horizontal or vertical parts in NON-SUN LOADED FLOOR LEVEL LOCATIONS (e.g. track rails, mounting feet, brake pedals).

7 days at 80 +/- 2 °C

Appearance Evaluation: No evidence of cracks, blisters or change in gloss when compared with original unaged sample.

After long term heat exposure and 24 h water immersion the parts must meet the requirements in 3.4.2 for adhesion properties.