GM	WORLDWIDE ENGINEERING STANDARDS	Material Specification	GMW17261

Interior Paint for Driver Air Bags

1 Scope

1.1 Material Description. The requirements listed in this specification must be met by all interior paint systems used in all GM vehicle interiors. Paint systems must follow the steps in Figure 1 to complete the paint approval process of a part.

Figure 1: Paint Approval Process of a Part

Note: APOPS = Approved Paint on Parts.

1.2 Symbols.

1.2.1 Paint Haptics. For a paint material approval, the paint system is required to be listed as approved in the GM Materials File (MATSPC) system. Paint systems approved to this specification shall be required to carry a type suffix to indicate the haptic feel that it has to the human skin. The suffix system shall be:

- Type C: Hard Touch
- Type D: Semi-soft Touch
- Type F: Satin Touch per GMHM012 Master

Type F haptic feel must be approved by the GM Design Quality Paint Development Lead prior to evaluating the paint system performance. Paint types with an assigned GM haptic master shall have all paint system performance testing (Table 1, Column 1A) reviewed by the region that originated the haptic master prior to MATSPC approval. After the system approval, color approvals are approved by any GM region.

1.3 Applicability. This specification covers requirements for an interior, waterborne or solventborne, one (1) or two (2) component paint system for use on driver air bag parts. All substrates must be tested per GMW16172 to confirm paintability.

1.4 Remarks. Substrates can be pretreated by priming, fluorination, chlorination, plasma, flame, etc. A single pretreatment is required to achieve initial paint approval. The initial paint approval shall be linked to the specific pretreatment as listed on MATSPC. Additional pretreatments using the specific approved paint must be evaluated per Table 1, Column 1B and added to the comments section of the initial MATSPC approval. All new colors must be evaluated per Table 1, Column 2.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

ASTM D3763	ISO 2808	ISO 6603-2	ISO 20433
ISO 105-A02			

© Copyright 2015 General Motors Company All Rights Reserved

Documents
Document Sharing Hub
Copyright General Motors Company
Provided by IHS Markit under license with General Motors Company
Reproduction, distribution or publication of these standards is expressly prohib
Licensee=/, User=,
Not for Resale,
Full document details: GMW GMW17261 2015

2.2 GM Standards/Specifications.

GMW3059	GMW14162	GMW14729	GMW16172
GMW3208	GMW14334	GMW14797	GMW16622
GMW3221	GMW14445	GMW14829	GMW16727
GMW3417	GMW14698	GMW15891	GMW16853

2.3 Additional References.

- GMHM012 Master Plaque (available at www.thierry-corp.com)
- GMGA001 Darwin grain (available at www.thierry-corp.com)

2.3.1 Cleaners.

- Ammoniated Window Cleaner (North America)
- Armor-All (North America)
- Armor-All Protectant (North America)
- Fantastik (North America)
- Formula 409 (North America)
- Sonax Interior Cleaner 321200 (Europe)
- Sonax Stain Remover 653200 (Europe)
- Sonax Window Cleaner 338241 (Europe)

3 Requirements

3.1 Sample Conditioning. All samples are to be conditioned prior to each requirement test to GMW3221, Code B. Painted samples shall be subjected to all testing after a minimum aging period of 72 h following the baking or drying cycle.

3.2 Paint System Requirements. The paint system tested on the panels must be identical to the production intent paint system.

3.3 Sample Preparation and Identification. The plastic substrates and paint system shall be identified per 3.3.1 and 3.3.2.

3.3.1 Plastic Substrates. Use only substrates as defined in Table 1.

- Vendor
- Compound number

3.3.2 Paint System.

- Vendor
- Pretreatment type, primer name, or adhesion promoter name
- Paint formulation
- Processing conditions, including all reduction parameters, surface preparation, flash and cure times and temperatures and dry film thickness for each film of paint applied

3.4 Testing. Perform all testing as indicated in Table 1 and Table 2.

3.4.1 GM Confirmation Testing. For all Table 1, Column 1A Material Approvals (in addition to 3.4), three (3) panels per combination listed in Table 1 must be submitted for sunscreen and insect repellent resistance testing to be performed by GM Materials Engineering.

3.4.2 Test Report. Use the appropriate table in Appendix A, Tables A1, A2, A3 and/or A4 to record all test results.

All testing to be completed on flat plaques unless noted as **Grain** in Table 2. Grained plaque testing to be done over GMGA001 Darwin grain. If GMGA001 is not available, consult with GM Materials Engineering for a similar regional animal grain with similar grain depth and a random pattern.

© Copyright 2015 General Motors Company All Rights Reserved

Documents
Document Sharing Hub
Copyright General Motors Company
Provided by IHS Markit under license with General Motors Company
Reproduction, distribution or publication of these standards is expressly prohib
Licensee=/, User=,
Not for Resale,
Full document details: GMW GMW17261 2015

Table 1: Required Testing Combinations

	Purpose:	Combinations to Test:
Column 1A	Paint System Approval	Substrate: GMW16622
		Colors: If Type D or F: Red and Blue Paint at Primary Gloss C (PGC) Gloss If Type C: Red and Blue Paint at Primary Gloss F (PGF) Gloss
Column 1B	Additional Pretreatment Approval	GMW16622 Agreed Upon Color
Column 2	Color Approval	Requested Color and Substrate

Table 2: Testing Results

Test	Standard	Requirement	1A	1B	2
			Number Samples		
Film Thickness	ISO 2808	Paint supplier specify range [Note 2]. Report actual values of samples.	1 [Note 1]	1	1
Appearance	Visual check	No objectionable defects, must match standard	1 [Note 1]	1	1
Cure	GMW15891, 92% minimum denatured ethyl alcohol	Rating ≤ 1	1 [Note 1]	1	1
Initial Adhesion	GMW14829, Method A	Rating ≤ 1	3 [Note 1] Flat and Grain	3	3
Humidity	Perform the following cycle: 144 h per GMW14729, Recover 1 h at room temperature, perform GMW14829, Method A	Rating ≤ 1, No objectionable defects	3 [Note 1] Flat and Grain	3	3
Oven Age + Humidity	Perform the following cycle: 168 h in Oven [Note 3], Recover 1 h at room temperature, 24 h per GMW14729, Recover 1 h at room temperature, perform GMW14829, Method A	Rating ≤ 1, No objectionable defects	3 [Note 1] Flat and Grain	3	3
Effects of Cleaners and Lotions	For each cleaner [Note 4], apply ten (10) drops for 1 minute to paint at room temperature. Per ISO 20433, perform ten (10) double strokes of approximately 50 mm in length. Evaluate color transfer to the crock cloth and color change on the test plaque.	Rating ≥ 4 per ISO 105-A02	1[Note 1]	N/A	1
Sunscreen and Insect Repellent Resistance	GMW14445 followed by GMW14698, 1 mm hemispherical tip, 5 N load	Rating ≤ 2 No penetration of surface when evaluated with and without 10x magnification	3[Note 1] Flat and Grain	3	3
Color Crock	ISO 20433 Dry Rubbing Method, ten (10) double strokes	Rating ≥ 4 per ISO 105-A02	1 [Note 1]	N/A	1

© Copyright 2015 General Motors Company All Rights Reserved

Documents
Document Sharing Hub
Copyright General Motors Company
Provided by IHS Markit under license with General Motors Company
Reproduction, distribution or publication of these standards is expressly prohib
Licensee=/, User=,
Not for Resale,
Full document details: GMW GMW17261 2015

Test	Standard	Requirement	1A	1B	2
			Number Samples		
Wear Resistance	GMW3208, CS-10 wheel, 500 g load, 1000 cycles per nominal 25 µm dry film build	No wear through to substrate or adverse effects. If primer used, no wear through to primer	1 Note 1	N/A	1
Scratch and Mar Resistance - Initial	GMW14698, 1 mm hemispherical tip, 5 N load	No penetration of surface when evaluated with and without 10x magnification. No obvious visually apparent marring	1 Note 1	1	1
Scratch and Mar Resistance - After Oven Age	168 h in Oven Note 3, Recover 1 h at room temperature followed by GMW14698, 1 mm hemispherical tip, 5 N load	No penetration of surface when evaluated with and without 10x magnification. No obvious visually apparent marring	1 Note 1	1	1
Perspiration Resistance	GMW14334, Method C followed by GMW14698, 1 mm hemispherical tip, 5 N load	Rating ≥ 4 to 5 per ISO 105-A02 No objectionable defects No penetration of surface when evaluated with and without 10x magnification	1 Note 1	N/A	N/A
Odor	GMW16853	See GMW16853	1	1 Note 5	N/A
Fogging	GMW16853	See GMW16853	1	1 Note 5	N/A
Emissions	GMW16853	See GMW16853	1	1 Note 5	N/A
Colorfastness to Artificial Light	GMW14162, Method D, 1240 kJ/m^2 or GME Only: GMW14162, Method B, 44 MJ/m^2	Delta E ≤ 3.0 No objectionable defects Rating ≥ 4 per ISO 105-A02 or GME Only: No objectionable defects Rating ≥ 4 to 5 per ISO 105-A02	3 Note 1	1	1
Humidity after Colorfastness to Artificial Light	Following Colorfastness to Artificial Light, perform the following cycle: 24 h per GMW14729, Recover 1 h at room temperature per GMW14829, Method A	Rating ≤ 1 No objectionable defects	3 Note 1	1	1
Natural Weathering (Material)	GMW3417-L2-F1-G1-T6, 150 000 Temperature Normalized Radiation (TNR) Langleys, Interim reports at 75 000 TNR Langleys	Delta E ≤ 3.0 No objectionable defects Rating ≥ 4 per ISO 105-A02	1 Note 1	N/A	N/A
Natural Weathering (Color)	GMW3417-L1-F1-G1-T6 Note 6 105 000 TNR Langleys, Interim report at 55 000 TNR Langleys	Delta E ≤ 3.0 No objectionable defects Rating ≥ 4 per ISO 105-A02	N/A	N/A	1
Humidity after Natural Weathering (Material + Color)	Following exposure, perform the following cycle: 24 h per GMW14729, Recover 1 h at room temperature per GMW14829, Method A	Rating ≤ 1 No objectionable defects	1 Note 1	N/A	1
Color Crock after Natural Weathering (Material)	Following 1 year exposure, perform ISO 20433 Dry Rubbing Method	Rating ≥ 4 per ISO 105-A02	1 Note 1	N/A	N/A

© Copyright 2015 General Motors Company All Rights Reserved

Documents
Document Sharing Hub
Copyright General Motors Company
Provided by IHS Markit under license with General Motors Company
Reproduction, distribution or publication of these standards is expressly prohib
Licensee=/, User=,
Not for Resale,
Full document details: GMW GMW17261 2015