



Decorative Film Composite Flooring

1 Scope

1.1 Material Description. This specification covers the material requirements for Decorative Film Composite Flooring. This flooring is typically defined as a composite

1.2 Symbols.

- Type 1: Polyethylene Terephthalate (PET)
- Type 2: Thermoplastic Olefin (TPO)

1.3 Applicability. Typical applications include decorative film composite flooring. Typical film types include PET or TPO. Polyvinyl Chloride (PVC) is not recommended and not included in this specification.

1.4 Remarks. Surrogate data for production intent materials and processes must be demonstrated to meet the requirements of this specification prior to sourcing, and at the latest, prior to the intended program Integration Vehicle Engineering Release (IVER). Contact the appropriate GM Materials Engineer.

2 References

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

2.1 External Standards/Specifications.

ASTM C393	ISO 105-A02	ISO 5084
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2.2 GM Standards/Specifications.

GMW3059	GMW3402	GMW14124	GMW14698
GMW3182	GMW3417	GMW14130	GMW14892
GMW3208	GMW6992	GMW14162	GMW16853
GMW3221	GMW14093	GMW14270	
GMW3232	GMW14102	GMW14444	

2.3 Additional References. None.

3 Requirements

3.1 Requirements on Test Specimens. All samples are to be conditioned prior to each requirement test to GMW3221, Code A. Finished samples shall be subjected to all testing after a minimum aging period of 72 h following the baking or drying cycle.

3.2 Construction Requirements. For each new construction color, the supplier must submit the following:

- Construction Specification Sheet along with any additional supportive documentation such as product data sheets. See Appendix A, Data Sheet A1.
- Construction Data Form along with supportive test reports. See Appendix A, Data Sheet A2.
- A Process Control Plan.

3.3 Testing. Perform all testing as indicated in Table 1. Testing is for any new construction and/or new appearance should be done on production level process plaques or parts. Use Appendix A, Data Sheet A2 to report all New Construction or New Appearance test results. An electronic copy of the laboratory test report(s) must also be submitted.

Table 1: Testing Requirements

Test	Standard	Requirement	New Construction	New Appearance, Approved Construction
			Number of Samples	
Mass per Area	GMW3182	Report	Three (3)	Three (3)
Film Thickness	ISO 5084	Report each layer and total	Three (3)	Three (3)
Appearance	Visual check to the master standard under the conditions of GMW6992	No objectionable defects ^{Note 1} , all test samples must match standard	One (1)	One (1)
Abrasion Resistance	GMW3208	H-18 wheel, 500 g load, 6000 cycles total. No objectionable color contrast visible at 1000 cycles. No wear through film at 6000 cycles. Re-condition wheels every 500 cycles.	Three (3) Test Film Only	Three (3) Test Film Only
Resistance to Scuffing and Marring	GMW14130	There shall be no more than a slight scuffing or marring when tested with 750 g weight.	Three (3)	Three (3)
Flammability	GMW3232	GMW3232 Submit data in GMW3232 PROT8EFENG form	Samples defined per standard.	Samples defined per standard.
Odor	GMW16853	See GMW16853	One (1)	One (1)
Fogging	GMW16853	See GMW16853	One (1)	One (1)
Emissions	GMW16853	See GMW16853	One (1)	One (1)
Colorfastness to Artificial Light	GMW14162, Method D, 263 kJ/m ²	No objectionable defects ^{Note 1} Rating ≥ 4 per ISO 105-A02	Three (3)	Three (3)

Test	Standard	Requirement	New Construction	New Appearance, Approved Construction
			Number of Samples	
Natural Weathering	GMW3417-L1-F1-G1-T3 10 000 TNR Langleys	No objectionable defects ^{Note 1} Rating ≥ 4 per ISO 105-A02	One (1)	One (1)
Water Spotting	GMW14102, 400 x 400 mm specimens Specimen 1: 1 mL distilled water Specimen 2: 1 mL saturated Sodium Chloride (NaCl) solution	Clean with a damp cloth after 1 h and evaluate. No spot formation or other changes in serviceability allowed.	Three (3) per Solution	Three (3) per Solution
Cleanability and Soil Resistance	GMW3402 Except E, L, M	Rating ≥ 4 per ISO 105-A02	One (1) per Cleaner	One (1) per Cleaner
Environmental Cycling	Two (2) cycles of GMW14124 Cycle M with high temperature set point of 85 °C.	There shall be no warping, bridging, delamination, edge peel or other objectionable defects ^{Note 1} .	Three (3)	Three (3)
Scratch and Mar Resistance (Initial)	GMW14698, 1 mm hemispherical tip, 13 N load	No penetration of film surface when evaluated with and without 10x magnification. No obvious visually apparent marring.	Three (3)	Three (3)
Scratch and Mar Resistance (After Oven Age)	168 h in 85 °C Oven, Recover 1 h at room temperature followed by GMW14698, 1 mm hemispherical tip, 13 N load	No penetration of film surface when evaluated with and without 10x magnification. No obvious visually apparent marring.	Three (3)	Three (3)
Impact Resistance	GMW14093, Code 3 Impact ≥ 4 Joules	Test pieces shall be examined visually without magnification. After completion of test, the component shall show no breakage or cracks.	Three (3)	Three (3)
Adhesion	GMW14892	Minimum peel strength of 525 N/m, or cohesive failure as defined in GMW14892.	Samples defined per standard.	Samples defined per standard.