



Authentic Decorative Interior Trim Materials

1 Scope

This specification is a raw material and component performance specification that covers the requirements for decorative authentic trim such as real wood trim and carbon fiber trim, as well as components made of decorative authentic materials. These materials are limited to areas where low levels of ultraviolet radiation and lower interior temperatures are experienced. This is based upon current chemistry limitations. The material used shall be processed to produce components of a quality such that all requirements of this specification are met.

1.1 Material Description. These materials are multilayer constructions where the decorative layer is protected with a topcoat and manufactured to a substrate. Some parts manufactured from these materials may require an aluminum, fiberglass, thermoplastic or approved equivalent layer incorporated into the lamination or as a substrate. This may help a formed part retain its shape, act as an anchor for metal mounting studs, or aid in the prevention of warpage or splintering upon impact. The bond between these layers must remain intact in all of the tests, and each unique composite shall be tested to the part construction portions of the specification.

1.1.1 The finish shall be a wear and soil resistant polyester, polyurethane, acrylic, or approved equivalent. The back and non-visible edges shall be sealed in a manner that will effectively prevent moisture absorption.

1.1.2 Certain applications such as post applied veneers, may require the use of a pressure sensitive adhesive on the side opposite the decorative veneer. If an adhesive is required, the adhesive must be uniform across the surface to which it is applied and shall be pressure sensitive over a temperature range of 0 °C to 55 °C. To protect the adhesive and facilitate handling, the adhesive mass shall be covered with a release liner which can be readily removed when the material is to be applied. The liner must adhere to the part during shipping and storage but must separate cleanly without loosening or removing adhesive.

1.1.3 Solar Glass. Requirements in this specification are based upon vehicles using solar glass (GMW3136 Type 4); vehicles using other types of glass will need to adjust requirements specifically for that program.

1.2 Symbols. Decorative authentic trim materials will be identified in the GM Materials Approved Source List with construction codes. These internal codes identify the decoration by the following elements:

- Technology
- Surface
- Topcoat Chemistry
- Backing Layer
- Grade

Which will be defined by the appropriate GM Materials Engineer during initial construction approval.

1.3 Applicability. Typical applications include, but are not limited to: door trim spears, door pull accents, switch plates, console trim, instrument panel trim, integrated center stack trim, gear shift knobs, steering wheel rims, and steering wheel trim.

1.4 Remarks. New authentic trim constructions (decorative layer, surface type, topcoat and chemistry) shall be approved before the intended program Integration Vehicle Engineering Release (IVER) date. Color properties must be completed to support GM vehicle build requirements. Contact the GM Materials Engineer to identify the specific program timing requirements.

1.4.1 All decorative trim components or parts for validation testing, and throughout production, shall be manufactured with authentic decorative raw materials previously approved to this specification.

1.4.2 Substrate materials, such as injection molded plastics, shall be manufactured from GM approved materials.

1.4.3 Any change to the material, constituent, or processing requires reapproval to this specification as well as component validation and Production Part Approval Process (PPAP). No changes to the material may be made without GM Approving Materials Engineer concurrence. It is the sole responsibility of the supplier to provide the GM Approving Materials Engineer, unsolicited, documentation of any change to the material and request reapproval.

2 References

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

2.1 External Standards/Specifications.

ASTM G24	ISO 105-F09	ISO 12219-4	ISO/IEC 17025
ISO 105-A03	ISO 105-X12		

2.2 GM Standards/Specifications.

GMW3059	GMW3235	GMW14270	GMW14729
GMW3136	GMW3417	GMW14296	GMW14829
GMW3205	GMW6992	GMW14334	GMW14892
GMW3208	GMW14124	GMW14444	GMW15634
GMW3221	GMW14130	GMW14445	GMW15635
GMW3232	GMW14162	GMW14698	GMW16853

2.3 Additional References.

- CG4110 Substance List, Waiver Form and GM Contact List
- GM Approval Master Sample
- GM Design Target or GM Master
- GM Supply Power at: <https://gmsupplypower.covisint.com>
- Subsystem Technical Specification (STS)

3 Requirements

3.1 Requirements on Test Specimens. All approvals must be based on testing specimens representative of production part construction and geometry except where noted that plaque testing is an acceptable alternative. When plaque testing is allowed, the process parameters in terms of layers and coating chemistry, process and thickness shall be as close to that of the production intent part as possible. All production part constructions and geometries must be tested for PPAP approval unless otherwise agreed upon by the releasing engineer.

All part test specimens shall be tested as fixtured in a manner representing in-car position at the discretion of the Approving GM Materials Engineer.

Initial authentic decorative trim finish qualification may be representative of only one production construction manner. Testing of the authentic decorative finish, shall begin upon the pattern receiving a visual approval status of at least a Limited Visual Approval.

Additionally, there may be other unique component testing requirements from appropriate part performance specifications such as, GMW14444, Analysis Design Verification Plan and Report, or the appropriate Engineering Subsystem Technical Specification that component systems manufactured of decorative trim will be required to meet.

3.1.1 Test Specimen. All tests shall be run on minimum of three (3) specimens; three (3) individual components, or individual plaques, or cut from unique individual samples, unless specified otherwise in the requirement. Report the average value if all individual readings meet requirements, otherwise report all individual values. All individual readings shall meet the requirements. An adequate number of specimens shall be retained, untested, from the lot produced for testing to be used in the evaluation of test results. All test specimens shall be first quality and nominal to the GM Design Target or GM Master.

3.1.2 Technology/Construction and Process Documentation. Appendix A , Data Sheet A1 is the Global Authentic Decorative Trim Construction Specification Sheet which is used to report each layer's composition including topcoat chemistry, sources with product codes, texture, and substrate with thickness and process criteria in a graphical representation of the layers. The document is available At GM Supply Power under Collaborate/Document Library and search by the specification number. A Construction Specification Sheet shall be completed for each construction and all subsequent patterns to ensure the definition of the construction code is correct for each pattern. The supplier's Process Flow Technical Data Sheet shall also be submitted for each technology and pattern or color changes. It documents the manufacturing steps used in producing the parts. The Process Flow Sheet may be a summary of the detailed Process Flow Charts required in the Supplier Quality Control Plan.

3.1.2.1 The Construction Specification Sheet and Process Flow Sheet shall accurately describe the article and the manufacturing process used to make any test specimens and the final production part process. These shall include a unique identifier, Product Code, for producing a production lot of the article for example: a piece number, run number, recipe card, formula identification, research and development (R&D) sequential code, travel sheet, etc. No changes to the article's construction or manufacturing process shall be made without first notifying the GM Materials Approving Engineer, establishing a test plan, and updating this documentation in accordance with PPAP requirements.

3.1.3 Facilities, Laboratory Accreditation. Laboratory testing is to be performed by a laboratory that conforms to ISO/IEC 17025, and is acceptable to the Approving GM Materials Engineer. The test report shall contain documentation showing proof of accreditation.

3.1.4 Standard Conditions, GMW3221, Code A. All test specimens shall be brought to equilibrium in standard conditions for temperature and moisture and tested in that state as defined in GMW3221 Code A, unless the test method indicates that standard conditioning is not required, or is different. Condition specimens for a minimum of 24 h prior to testing or until moisture equilibrium is reached. If specimens are tested outside the conditioned environment, they shall be tested within 10 minutes of removal.

3.2 Emissions Testing of Interior Materials and Parts. For all Code E designated parts per GMW14444, reference GMW16853 for emissions testing of interior materials and parts.

3.3 Color and Pattern, GMW6992. The color and pattern shall be evaluated and approved by the responsible engineering or design department as an acceptable match to the GM Approval Master Sample when viewed under conditions set forth in GMW6992.

3.3.1 When evaluating test plaques for color change following the exposures listed in this standard, it should be understood that wood is a natural product. As such, some color change will occur during these exposures. The evaluator should, be concerned with non-uniform color changes (i.e., blotchiness, streaking, etc.), loss of pattern or contrast, objectionable color changes, or other deleterious changes when reviewed by a technical observer and noticeable to a casual untrained observer. There shall be no loss of adhesion or signs of moisture intrusion along all edges of the tested specimens.

3.4 Construction Requirements. These requirements describe the initial testing to be completed when a new wood construction/species, carbon fiber fabric, manufacturing process, etc., is being considered.

The sections under Part Testing (3.4.1), may be done on surrogate geometry of the production intent composite in a color nominal to the desired color for initial construction approval. This testing shall be done on each production construction stack up for PPAP approval, unless other agreements are made with the Design Responsible Engineer and GM Materials Engineer.

The sections under Plaque Testing (3.4.2), may be done on plaques that are representative of the laminate composite and its production topcoat system (with careful consideration of coating thickness, cure, and sealing parameters).