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Standard Guide for Testing Materials for Aerospace Plastic Transparent Enclosures¹

This standard is issued under the fixed designation F790; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide is intended to summarize the standard test methods available on individual and composite materials utilized in fabrication of aerospace plastic transparent enclosures. As such, it is intended to specifically include transparent thermoplastics, transparent elastomers, and reinforced plastics, whether thermoplastic or thermosetting.

1.2 This guide is intended as an aid in the search for test methods pertinent to Aerospace Plastic Transparent Enclosures. It should be understood that all methods listed may not apply to all enclosures.

1.3 The standards included refer to the properties or aspects listed in [Table 1](#). The properties or aspects are listed in alphabetical order and the descriptions used are intended to facilitate the search.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

[C117 Test Method for Materials Finer than 75- \$\mu\$ m \(No. 200\) Sieve in Mineral Aggregates by Washing](#)

¹ This guide is under the jurisdiction of ASTM Committee F07 on Aerospace and Aircraft and is the direct responsibility of F07.08 on Transparent Enclosures and Materials.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

- [D149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies](#)
- [D150 Test Methods for AC Loss Characteristics and Permittivity \(Dielectric Constant\) of Solid Electrical Insulation](#)
- [D256 Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics](#)
- [D257 Test Methods for DC Resistance or Conductance of Insulating Materials](#)
- [D412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension](#)
- [D542 Test Method for Index of Refraction of Transparent Organic Plastics](#)
- [D543 Practices for Evaluating the Resistance of Plastics to Chemical Reagents](#)
- [D570 Test Method for Water Absorption of Plastics](#)
- [D624 Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers](#)
- [D638 Test Method for Tensile Properties of Plastics](#)
- [D695 Test Method for Compressive Properties of Rigid Plastics](#)
- [D696 Test Method for Coefficient of Linear Thermal Expansion of Plastics Between –30°C and 30°C with a Vitreous Silica Dilatometer](#)
- [D746 Test Method for Brittleness Temperature of Plastics and Elastomers by Impact](#)
- [D785 Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials](#)
- [D790 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials](#)
- [D792 Test Methods for Density and Specific Gravity \(Relative Density\) of Plastics by Displacement](#)
- [D953 Test Method for Bearing Strength of Plastics](#)
- [D1003 Test Method for Haze and Luminous Transmittance of Transparent Plastics](#)
- [D1004 Test Method for Tear Resistance \(Graves Tear\) of Plastic Film and Sheet](#)
- [D1044 Test Method for Resistance of Transparent Plastics to Surface Abrasion](#)
- [D1238 Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer](#)