



Standard Guide for Evaluating Mechanical and Physical Properties of Wood- Plastic Composite Products¹

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1. Scope

1.1 This guide covers test methods appropriate for evaluating a wide range of performance properties for wood-plastic composite (WPC) products. It was developed from evaluations of both experimental and currently manufactured products, and is not intended to suggest that all the tests listed are necessary or appropriate for each application of a WPC. The user must determine which test methods apply to the particular application being evaluated (see [Appendix X1](#)).

1.2 Details of manufacturing processes may be proprietary and are beyond the scope of this guide.

1.3 *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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

- [C1308](#) Test Method for Accelerated Leach Test for Diffusive Releases from Solidified Waste and a Computer Program to Model Diffusive, Fractional Leaching from Cylindrical Waste Forms
- [D9](#) Terminology Relating to Wood and Wood-Based Products
- [D143](#) Test Methods for Small Clear Specimens of Timber
- [D792](#) Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement
- [D883](#) Terminology Relating to Plastics
- [D1037](#) Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials
- [D1038](#) Terminology Relating to Veneer and Plywood

- [D1413](#) Test Method for Wood Preservatives by Laboratory Soil-Block Cultures
- [D1554](#) Terminology Relating to Wood-Base Fiber and Particle Panel Materials
- [D1761](#) Test Methods for Mechanical Fasteners in Wood
- [D1929](#) Test Method for Determining Ignition Temperature of Plastics
- [D2017](#) Test Method of Accelerated Laboratory Test of Natural Decay Resistance of Woods (Withdrawn 2014)³
- [D2047](#) Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine
- [D2394](#) Test Methods for Simulated Service Testing of Wood and Wood-Base Finish Flooring
- [D2395](#) Test Methods for Density and Specific Gravity (Relative Density) of Wood and Wood-Based Materials
- [D2481](#) Test Method for Accelerated Evaluation of Wood Preservatives for Marine Services by Means of Small Size Specimens (Withdrawn 2014)³
- [D2565](#) Practice for Xenon-Arc Exposure of Plastics Intended for Outdoor Applications
- [D2915](#) Practice for Sampling and Data-Analysis for Structural Wood and Wood-Based Products
- [D3345](#) Test Method for Laboratory Evaluation of Wood and Other Cellulosic Materials for Resistance to Termites
- [D4000](#) Classification System for Specifying Plastic Materials
- [D4060](#) Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser
- [D4092](#) Terminology for Plastics: Dynamic Mechanical Properties
- [D4442](#) Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials
- [D4495](#) Test Method for Impact Resistance of Poly(Vinyl Chloride) (PVC) Rigid Profiles by Means of a Falling Weight
- [D4761](#) Test Methods for Mechanical Properties of Lumber and Wood-Base Structural Material
- [D5379/D5379M](#) Test Method for Shear Properties of Composite Materials by the V-Notched Beam Method

¹ This guide is under the jurisdiction of ASTM Committee D07 on Wood and is the direct responsibility of Subcommittee D07.02 on Lumber and Engineered Wood Products.

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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.

³ The last approved version of this historical standard is referenced on www.astm.org.