



Standard Test Method for Constituent Content of Composite Prepreg by Soxhlet Extraction¹

This standard is issued under the fixed designation C613; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This test method covers a Soxhlet extraction procedure to determine the matrix content, reinforcement content, and filler content of composite material prepreg. Volatiles content, if appropriate, and required, is determined by means of Test Method [D3530](#).

1.1.1 The reinforcement and filler must be substantially insoluble in the selected extraction reagent and any filler must be capable of being separated from the reinforcement by filtering the extraction residue.

1.1.2 Reinforcement and filler content test results are total reinforcement content and total filler content; hybrid material systems with more than one type of either reinforcement or filler cannot be distinguished.

1.2 This test method focuses on thermosetting matrix material systems for which the matrix may be extracted by an organic solvent. However, other, unspecified, reagents may be used with this test method to extract other matrix material types for the same purposes.

1.3 Alternate techniques for determining matrix and reinforcement content include Test Methods [D3171](#) (matrix digestion), [D2584](#) (matrix burn-off/ignition), and [D3529M](#) (matrix dissolution and ignition loss). Test Method [D2584](#) is preferred for reinforcement materials, such as glass, quartz, or silica, that are unaffected by high-temperature environments.

1.4 The technical content of this standard has been stable since 1997 without significant objection from its stakeholders. As there is limited technical support for the maintenance of this standard, changes since that date have been limited to items required to retain consistency with other ASTM D30 Committee standards. The standard therefore should not be considered to include any significant changes in approach and practice

since 1997. Future maintenance of the standard will only be in response to specific requests and performed only as technical support allows.

1.5 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.6 *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.* Specific precautionary statements are given in Section 9 and [7.2.3](#) and [8.2.1](#).

2. Referenced Documents

2.1 ASTM Standards:²

- [D883 Terminology Relating to Plastics](#)
- [D2584 Test Method for Ignition Loss of Cured Reinforced Resins](#)
- [D3171 Test Methods for Constituent Content of Composite Materials](#)
- [D3529M Test Methods for Constituent Content of Composite Prepreg](#)
- [D3530 Test Method for Volatiles Content of Composite Material Prepreg](#)
- [D3878 Terminology for Composite Materials](#)
- [E122 Practice for Calculating Sample Size to Estimate, With Specified Precision, the Average for a Characteristic of a Lot or Process](#)
- [E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods](#)
- [E456 Terminology Relating to Quality and Statistics](#)
- [E1309 Guide for Identification of Fiber-Reinforced Polymer-Matrix Composite Materials in Databases](#)
- [E1471 Guide for Identification of Fibers, Fillers, and Core Materials in Computerized Material Property Databases](#)

¹ This test method is under the jurisdiction of ASTM Committee [D30](#) on Composite Materials and is the direct responsibility of Subcommittee [D30.03](#) on Constituent/Precursor Properties.

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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.