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.

Designation: D5516 – 17

Standard Test Method for Evaluating the Flexural Properties of Fire-Retardant Treated Softwood Plywood Exposed to Elevated Temperatures[1]

This standard is issued under the fixed designation D5516; 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 test method is designed to determine the effect of exposure to high temperatures and humidities on the flexure properties of fire-retardant treated softwood plywood. In this test method, plywood is exposed to a temperature of 77°C (170°F).

1.2 The purpose of the test method is to compare the flexural properties of fire-retardant treated plywood relative to untreated plywood. The results of tests conducted in accordance with this test method provide a reference point for estimating strength temperature relationships. This test method is intended to provide an accelerated test at elevated temperatures and controlled humidities of plywood sheathing treated with the same chemical formulation(s) and processing conditions as plywood used commercially.

1.3 The values stated in SI units are to be regarded as standard. The values given in parentheses are mathematical conversions to inch-pound units that are provided for information only and are not considered standard.

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 and health 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]

D9 Terminology Relating to Wood and Wood-Based Products

D1165 Nomenclature of Commercial Hardwoods and Softwoods

D2915 Practice for Sampling and Data-Analysis for Structural Wood and Wood-Based Products

D3043 Test Methods for Structural Panels in Flexure

D4933 Guide for Moisture Conditioning of Wood and Wood-Based Materials

D6305 Practice for Calculating Bending Strength Design Adjustment Factors for Fire-Retardant-Treated Plywood Roof Sheathing

E84 Test Method for Surface Burning Characteristics of Building Materials

E176 Terminology of Fire Standards

E2768 Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test)

2.2 *Other Standards:*

AWPA C-27 Plywood-Fire Retardant Treatment by Pressure Processes[3]

AWPA U1 Use Category System: User Specification for Treated Wood[3]

NFPA 703 Standard for Fire Retardant Impregnated Wood and Fire Retardant Coatings for Building Materials[4]

PS 1 U.S. Product Standard for Structural Plywood[5]

[1] This test method is under the jurisdiction of ASTM Committee D07 on Wood and is the direct responsibility of Subcommittee D07.07 on Fire Performance of Wood.

Current edition approved April 15, 2017. Published June 2017. Originally approved in 1991 as ES 20 – 91. Last previous edition approved in 2009 as D5516 – 09. DOI: 10.1520/D5516-17.

[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] Available from American Wood Protection Association (AWPA), P.O. Box 361784, Birmingham, AL 35236-1784, http://www.awpa.com.

[4] Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02169-7471, http://www.nfpa.org.

[5] Available from the U.S. Department of Commerce, 1401 Constitution Ave., NW Washington, DC 20230, http://ts.nist.gov/Standards/Conformity/vps.cfm.

Copyright © ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. United States