



Standard Test Method for Combustible Properties of Treated Wood by the Fire-Tube Apparatus¹

This standard is issued under the fixed designation E 69; 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 covers fire-tube test procedures for fire tests for combustible properties of wood treated to reduce flammability. This test method relates to properties of treated wood, as such, rather than to the performance of a fabrication used as an element of construction. Performance under this test method shall be as prescribed in requirements applicable to materials intended for specific uses.

1.2 This test method is a fire-test-response standard.

1.3 The SI values given in parentheses are provided for information purposes only.

1.4 *This standard should be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use.*

1.5 *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:

D 9 Terminology Relating to Wood²

E 176 Terminology of Fire Standards³

3. Terminology

3.1 **Definitions**—For definitions of terms found in this test method, refer to Terminologies D 9 and E 176.

4. Significance and Use

4.1 The purpose of this test method is to provide a relative measurement of the combustibility of fire-retardant-treated wood specimens based on their percentage loss in weight under controlled fire exposure conditions **(1)**.⁴ In addition, other possible data include rate of weight loss, time of flaming and afterglowing, increase in temperature, and maximum vertical flame progress.

4.2 This test method is not sufficiently large scale to evaluate the suitability of a given treated product for building construction, but it is a convenient method to use for purposes of development or as a quality-control test during manufacture.

4.3 This test method gives a procedure for sampling and preparation of test specimens from a lot of treated material in which complete penetration is a requirement. A procedure is also given for the sampling of charges at a treating plant for purposes of quality control of the treatment process.

4.4 This test method has proven useful for evaluating comparative fire performance effectiveness of fire-retardant chemicals and treatment formulations for wood and wood products **(2-5)**.

4.5 In this test method, the specimens are subjected to one or more specific sets of laboratory test conditions. If different test conditions are substituted or the anticipated end-use conditions are changed, it may not be possible by or from this test method to predict changes in the fire-test-response characteristics measured. Therefore, the results are valid only for the fire test exposure conditions described in this procedure.

5. Apparatus

5.1 The apparatus for conducting the fire-tube test shall consist of the fire-tube assembly and accessory equipment as follows:

5.1.1 **Fire-Tube Assembly**—A specially constructed balance designed to indicate directly the percentage loss of weight suffered by the test specimen when exposed to a standardized flame for a given duration. Essential construction details of the apparatus assembly are shown in Fig. 1 and Fig. 2.

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.

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² *Annual Book of ASTM Standards*, Vol 04.10.

³ *Annual Book of ASTM Standards*, Vol 04.07.

⁴ The boldface numbers in parentheses refer to the list of references at the end of this test method.