



Standard Test Methods for Specific Gravity of Wood and Wood-Based Materials¹

This standard is issued under the fixed designation D 2395; 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 Department of Defense.

1. Scope

1.1 These test methods cover the determination of the specific gravity of wood and wood-based materials to generally desired degrees of accuracy and for specimens of different sizes, shapes, and moisture content conditions. The method title is indicative of the procedures used or the specific area of use.

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1.2 *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

- D 9 Terminology Relating to Wood and Wood-Based Products
- D 2555 Practice for Establishing Clear Wood Strength Values
- D 4442 Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials
- D 4444 Test Methods for Use and Calibration of Hand-Held Moisture Meters
- E 1547 Terminology Relating to Industrial and Specialty Chemicals

3. Terminology

3.1

¹ These test methods are under the jurisdiction of ASTM Committee D07 on Wood and are the direct responsibility of Subcommittee D07.01 on Fundamental Test Methods and 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.

3.1.1 *green volume, n*—the solid wood volume before any shrinkage occurs due to drying to moisture content below the fiber saturation point (about 30 %).

3.1.2 *moisture content, n*—in this standard, the amount of water contained in wood, expressed as a percentage of the mass of oven-dry wood.

3.1.2.1 *Discussion*—In general, the amount of water in wood can be expressed on two different bases: as a percentage of the mass of oven-dry wood, or a percentage of the total mass of wood and water. To avoid misunderstandings, it must be clear which basis is being used. In the forest industry and the wood products industry, the moisture content is usually expressed as a percentage of the mass of oven-dry wood.

3.1.3 *specific gravity, n*—in this standard, the ratio of the oven-dry mass of a specimen to the mass of a volume of water equal to the volume of the specimen at a specified moisture content.

3.1.3.1 *Discussion*—As both the mass and volume of wood vary with the amount of moisture contained in the wood, specific gravity as applied to wood is an indefinite quantity unless the conditions under which it is determined are clearly specified. The specific gravity of wood is based on the oven-dry mass, but the volume may be that in the oven-dry, partially dry, or green condition. For further discussion, see **Appendix X2**.

3.1.3.2 *specific gravity at X % moisture content, n*—specific gravity based on oven-dry mass of wood and its volume at a specified moisture content (X %) between the oven-dry condition and the fiber saturation point (volume at 12 % moisture content is frequently used).

3.1.3.3 *specific gravity, basic, n*—specific gravity based on oven-dry mass of wood and its green volume.

3.1.3.4 *specific gravity, oven-dry, or on oven-dry basis, n*—specific gravity based on oven-dry mass of wood and its oven-dry volume.

4. Summary of Test Methods

4.1 The accuracy of the specific gravity value obtained on a representative specimen will depend upon the accuracy of the measurements made. If the specimens are carefully prepared and regular in shape, the volume determined by Method A can be quite exact. The volume of irregularly shaped specimens can best be determined by immersion in water and if due care