Designation: D3748 – 14 (Reapproved 2019)

# Standard Practice for Evaluating High-Density Rigid Cellular Plastics[1]

This standard is issued under the fixed designation D3748; 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 practice covers the basic test procedures for determination of the physical properties and reporting of data for high-density rigid cellular plastics.

1.2 The values stated in SI units are to be regarded as standard.

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

NOTE 1—This standard and ISO 9054 address the same subject matter, but differ in technical content.

1.4 *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]

C177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus

C518 Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus

D149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies

D570 Test Method for Water Absorption of Plastics

D618 Practice for Conditioning Plastics for Testing

D638 Test Method for Tensile Properties of Plastics

D648 Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position

D695 Test Method for Compressive Properties of Rigid Plastics

D696 Test Method for Coefficient of Linear Thermal Expansion of Plastics Between −30°C and 30°C with a Vitreous Silica Dilatometer

D790 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

D883 Terminology Relating to Plastics

D1622/D1622M Test Method for Apparent Density of Rigid Cellular Plastics

## 3. Terminology

3.1 *Definitions:*

3.1.1 *high density*—greater than 320 kg/m$^3$ (0.32 g/cm$^3$) or 20 lb/ft$^3$ apparent density.

3.1.2 For definitions of other terms used in this practice, refer to Terminology D883.

## 4. Significance and Use

4.1 This practice provides appropriate testing methods, and a specific data reporting procedure for high-density rigid cellular plastics.

## 5. Sample Preparation

5.1 Prepare samples in one of two ways:

*(a)* process samples directly into proper size specimens, or

*(b)* prepare samples from larger sections as specified in each individual test.

5.2 Report the precise manner of sample preparation.

## 6. Conditioning

6.1 Condition specimens prior to testing in accordance with Procedure A of Practice D618.

## 7. Number of Test Specimens

7.1 Cellular plastics are often nonuniform in density distribution; therefore, a minimum of five specimens needs to be tested per testing method to obtain representative values.

[1] This practice is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.22 on Cellular Materials - Plastics and Elastomers.

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[2] For referenced ASTM standards, visit the ASTM Web Site, 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 web site.

***A Summary of Changes section appears at the end of this standard**