Designation: D 3748 – 03

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

This standard is issued under the fixed designation D 3748; 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 *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.*

NOTE 1—This practice and ISO Standard 9054 are not technically equivalent.

2. Referenced Documents

2.1 *ASTM Standards:* [2]

C 177 Test Method for Steady-State Heat-Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot Plate Apparatus

C 518 Test Method for Steady-State Heat-Flux Measurements and Thermal Transmission Properties by Means of Heat Flow Meter Apparatus

D 149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies

D 570 Test Method for Water Absorption of Plastics

D 618 Practice for Conditioning Plastics for Testing

D 638 Test Method for Tensile Properties of Plastics

D 648 Test Method for Deflection Temperature of Plastics Under Flexural Load

D 695 Test Method for Compressive Properties of Rigid Plastics

D 696 Test Method for Coefficient of Linear Thermal Expansion of Plastics between -30°C and 30°C with a Vitreous Silica Dilatometer

D 790 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

D 883 Terminology Relating to Plastics

D 1622 Test Method for Apparent Density of Rigid Cellular Plastics

3. Significance and Use

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

4. Terminology

4.1 *Definitions:*

4.1.1 *cellular plastics*—plastics containing numerous small cavities (cells), interconnecting or not, distributed throughout the mass. These cells cannot be mechanically assembled, but are produced through the "in situ" plastics processing methods.

4.1.2 *density, apparent*—the mass, in air, of a unit volume of a material.

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

4.1.4 *rigid*—having an apparent flexural modular greater than 689.5 MPa [100 000 psi] when tested at 23°C in accordance with Test Methods D 790.

4.1.5 *skin*—a relatively dense layer at the surface of a cellular polymeric material.

4.1.6 For definitions of other terms used in this practice, refer to Terminology D 883.

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.

[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.**