Designation: ~~D731 – 10~~ D731 – 18

Standard Test Method for Molding Index of Thermosetting Molding Powder[1]

This standard is issued under the fixed designation D731; 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 the measurement of the molding index (plasticity) of thermosetting plastics ranging in flow from soft to stiff by selection of appropriate molding pressures within the range from 3.7 to 36.5 MPa (530 to 5300 psi).

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

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

~~NOTE 1—There is no known ISO equivalent to this test method.~~

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]

D256 Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics
D883 Terminology Relating to Plastics
D957 Practice for Determining Surface Temperature of Molds for Plastics
E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

3. Terminology

3.1 Definitions are in accordance with Terminology D883, unless otherwise specified.

3.2 *Definitions of Terms Specific to This Standard:*

3.3 *plasticity*—a measure of the resistance of a molten thermosetting material to flow under heat and pressure. A measure of the apparent viscosity of the material.

4. Summary of Test Method

4.1 A cup mold is mounted in a semi-automatic type press. A predetermined quantity of test sample is charged into the mold, controlled at a temperature dependent upon the test material. The minimum force required to mold a cup having a flash or fin thickness within a specified tolerance is determined. This force along with the mold closing time is reported as molding index.

5. Significance and Use

5.1 This test method provides a guide for evaluating the moldability of thermosetting molding powders. This test method does not necessarily denote that the molding behavior of different materials will be alike and trials may be necessary to establish the appropriate molding index for each material in question.

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[1] This test method is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.30Thermal Properties.30 on Thermal Properties (Section D20.30.08).

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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.

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

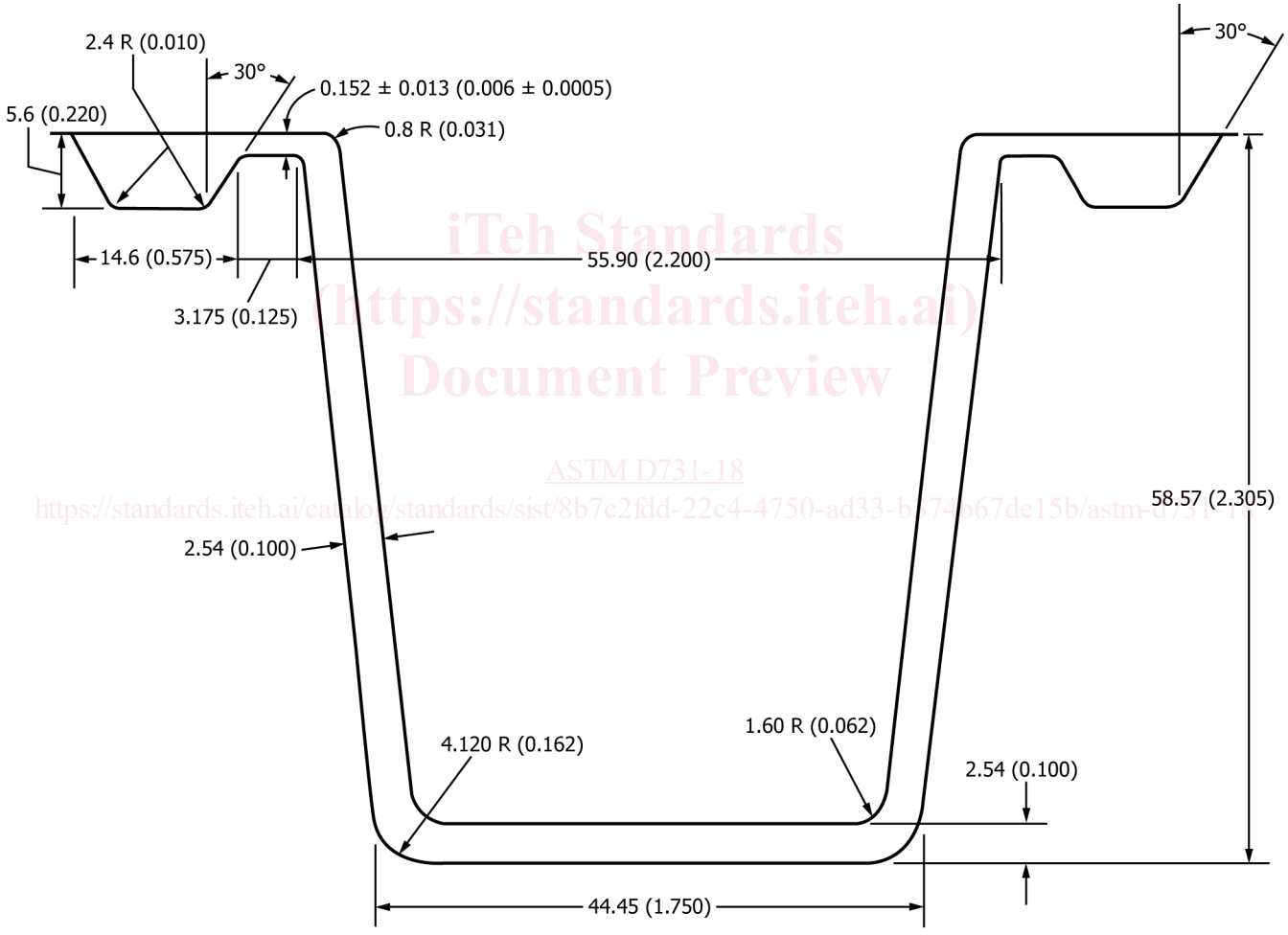
5.2 The sensitivity of this test diminishes when the molding pressure is decreased below 5.3 MPa (764 psi), so pressures lower than this are not ordinarily recommended. This is due to the friction of moving parts and the insensitivity of the pressure switch actuating the timer at these low pressures.

6. Apparatus

6.1 *Mold*—A cup mold[3] of the flash type, to produce a molded cup as shown in Fig. 1, operated under controlled pressure and temperatures and provided with stops so that flash or fin thickness cannot be less than 0.14 mm (0.0055 in.). The area of the mold casting creating the molded flash shall be located on top of the cup, flat, perpendicular to the axis of the cup, and in the form of an annular ring 3.17 mm (0.125 in.) in width.

6.2 *Pyrometer*—A calibrated pyrometer, traceable to a national standard (for example, NIST), and accurate to ±1°C shall be used to determine the temperature of the mold surfaces. For properly measuring mold temperatures, reference Practice D957.

6.3 *Heating System*—Any conventional means for heating the press platens, provided the heat source is constant enough to maintain the molding temperature within ±1°C of the specified temperature (see 9.2).



Note:

All surfaces polished to SPE/SPI #2 Finish
Steel: D-2 Hardened to 62 RC
Dimensions in mm (inches)
Tolerance ± 0.25 (0.001) Except where noted

FIG. 1 Cup Mold

[3] A detailed drawing of the mold design is available from ASTM Headquarters. Order Adjunct: ADJD0731.