



Standard Practice for Determining Surface Temperature of Molds for Plastics¹

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^{ε1} NOTE—Editorially removed Referenced Documents section, since the listed standard (D 958) was not referenced within this standard. Also, editorially added the word “material” to 4.1 for clarity in May 2006.

1. Scope

1.1 This practice is intended for determining the temperature at a specified point or points on the surface of the cavity and base of a mold for plastics. By determining the temperature at as many points as deemed necessary, the overall temperature condition of the surface can be determined.

1.2 The values stated in SI units are to be regarded as standard. The values in brackets are given 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 and health practices and determine the applicability of regulatory limitations prior to use.*

NOTE 1—There is no similar ISO standard.

2. Summary of Practice

2.1 With the use of a calibrated surface pyrometer, the overall temperature condition of a mold for plastics can be determined by taking readings at a specified point or many points on the mold surface.

3. Significance and Use

3.1 The properties of molded parts and the ease of producing satisfactory specimens are influenced by the temperature of the mold. It is desirable to know the actual mold temperature which may be different from the mold temperature control medium.

3.2 The user should be aware of temperature differences across the mold/thermocouple interface and at leads and should take precautions to minimize such differences.

4. Apparatus

4.1 *Pyrometer*—A calibrated surface pyrometer traceable to a National Institute of Standards and Technology (NIST) standard material and accurate to within $\pm 1.5^\circ\text{C}$ shall be used.

5. Procedure

5.1 The size, shape, and contours of a mold will determine the location and number of points at which temperature readings should be observed. Take temperature readings at as many points as deemed necessary to determine the temperature condition of the mold surface. At a minimum, it is suggested that temperature be measured at the mold center, near the edge, and at least two different but intermediate points between the center and edge.

5.2 Place the thermocouple of the pyrometer at any specified point on the surface of the cavity and base of the mold, making certain that good contact is maintained between the two (see Note 2). Maintain contact until the scale reaches equilibrium. Record the temperature reading on the scale at this point.

NOTE 2—Wax may be used to ensure intimate contact between the mold surface and the thermocouple of the pyrometer. This is accomplished by allowing a small portion of wax, or any suitable material with a low melting point, to melt at the point where the temperature reading is to be taken. The thermocouple is then placed in the puddle of molten material.

6. Keywords

6.1 base; cavity; mold temperature; pyrometer

¹ This practice is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.09 on Specimen Preparation.

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