



Standard Specification for Mercury-in-Glass, Maximum Self-Registering Clinical Thermometers¹

This standard is issued under the fixed designation E667; 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 specification covers mercury-in-glass, reusable maximum self-registering clinical thermometers of the types commonly used for measuring body temperatures of humans and of animals. Requirements are given for bulb and stem glasses, mercury, legibility and permanency of markings, dimensions, temperature scale ranges, and graduations, as well as for thermometer stability, ease of resetting, retention of temperature indication, and for accuracy of scale reading. Appropriate methods of testing to determine compliance are provided. Also included is a glossary of terms used in the standard and an appendix with additional information on thermometer glasses and stability.

1.2 All values of temperature in this standard are with reference to the International Temperature Scale of 1990.

1.3 This specification was developed to provide nationally recognized marketing classifications and quality requirements for mercury-in-glass, maximum self-registering clinical thermometers. It is also intended to provide producers, distributors, and users with a common understanding of the characteristics of this product.

1.4 The following precautionary statement pertains only to the test method portion, Section 6 of this specification: *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

¹ This specification is under the jurisdiction of ASTM Committee F04 on Medical and Surgical Materials and Devices and is the direct responsibility of F04.33 on Medical/Surgical Instruments.

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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.

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E344 Terminology Relating to Thermometry and Hydrometry

3. Terminology

3.1 *Definitions*—The definitions given in Terminology E344 apply to this specification.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *bore, n*—hole or lumen in the stem.

3.2.2 *calibration date, n*—date on which the scale is affixed to a thermometer.

3.2.3 *ceramic marking, n*—marking produced by fusing a ceramic colorant onto the glass surface.

3.2.4 *constriction, n*—obstruction in the bore of a clinical thermometer which permits the passage of mercury from the bulb when the bulb is heated, but which restricts its passage back to the bulb when heat is removed.

3.2.5 *fire cracks, n*—cracks in glass caused by local temperature shock.

3.2.6 *flat magnifying lens, n*—thermometer stem glass in which the numerals, graduations, and lens lie on the same relative surface.

3.2.6.1 *Discussion*—It is so named for its approximately flat cross section (See Fig. 1.)

3.2.7 *fractures, n*—internal or external breaks or cracks in the glass.

3.2.7.1 *Discussion*—Internal fractures usually occur in the area between the bulb and the constriction.

3.2.8 *graduations, n*—series of lines on the stem of the thermometer that designate the temperature scale intervals.

3.2.9 *hard shaker thermometer, n*—thermometer in which the constriction is overly severe thereby restricting the passage of mercury back to the bulb causing the thermometer to fail the ease-of-resetting requirements.

3.2.10 *index, n*—upper point of the mercury column whose position, when noted with respect to the corresponding numerals and graduations, indicates the temperature of the mercury within the bulb.