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Standard Specification for Glass Volumetric (Transfer) Pipets[1]

This standard is issued under the fixed designation E 969; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers volumetric pipets of two classes. Class A, Precision Pipet and Class B, General Purpose.

NOTE 1—Specifications for micropipets are given in Specification E 193.

1.2 Product with a stated capacity not listed in this standard may be specified class A tolerance when product conforms to the tolerance range of the next smaller volumetric standard product listed in Table 1.

2. Referenced Documents

2.1 *ASTM Standards:* [2]

E 193~~Specification for Micropipets~~ Specification for Laboratory Glass Micropipets

E 438~~Specification for Glasses in Laboratory Apparatus~~[2]

~~E542Practice for Calibration of Volumetric Apparatus~~[2]

~~E694Specification for Laboratory Volumetric Apparatus~~[2] Specification for Glasses in Laboratory Apparatus

E 920 Specification for Commercially Packaged Laboratory Apparatus

E 921 Specification for Export Packaged Laboratory Apparatus

E 1133 Practice for Performance Testing of Packaged Laboratory Apparatus for United States Government Procurements

E 1157 Specification for ~~the~~ Sampling and Testing of Reusable Laboratory Glassware

3. General Requirements

3.1 *Borosilicate Glass*—Borosilicate glass for pipets shall conform to the glass requirements of Type 1, Class A or B of Specification E 438.

3.2 *Calibration*—Pipets shall be calibrated to deliver (symbol TD) the intended capacity at 20°C. The pipet shall be filled about 20 mm above the capacity line. The water is lowered slowly to the capacity line. Delivery of the contents into a receiving vessel is made with the tip in contact with the wall of the vessel and no after-drainage period is allowed. Accuracy shall be within the limits specified in Table 1.

4. Design

4.1 *Shape*—The pipets shall consist in general of a suction tube and a delivery tube separated by a bulb; all three parts shall be permanently attached together. Any cross-section of the pipet taken in a plane perpendicular to the longitudinal axis shall be circular. The shape shall permit complete emptying and thorough cleaning.

4.1.1 *Bulb*—The shape shall permit complete emptying without any hold up, and easy cleaning.

4.2 *Dimensions*—The length of the suction tube shall be 150 to 190 mm and the minimum wall thickness of both suction and delivery tubes shall be 0.90 mm. Pipets must comply with the essential dimensions given in Table 1.

4.3 *Delivery Tips*—Delivery tips shall be made with a gradual taper of 1.5 to 3 cm. The end of the tip shall be perpendicular to the longitudinal axis of the tip. The outside edge of the tip may be bevelled slightly and the end and the bevel shall be ground or fire-polished. Sudden constriction at the orifice would impair smooth flow characteristics of the delivery stream and is not acceptable.

4.3.1 *Tempered Tips*—May be supplied at option of manufacturer. The tempered tip, when tested in index oil which matches the refractive index of the glass being used, shall have a temper between 75 and 220 nm (millimicrons).

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[1] This specification is under the jurisdiction of ASTM Committee ~~E-41~~E41 on Laboratory Apparatus and is the direct responsibility of Subcommittee E41.01 on Apparatus. Current edition approved Nov. ~~10, 1995.~~1, 2007. Published December ~~1995.~~2007. Originally ~~published as E969–83.~~approved in 1983. Last previous edition ~~E969–94.~~approved in 2002 as E 969 – 02.

[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* ~~, Vol 14.04.~~volume information, refer to the standard's Document Summary page on the ASTM website.