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Standard Specification for Laboratory Glass Volumetric Flasks, Special Use¹

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1. Scope

1.1 This specification covers requirements for glass volumetric flasks of precision grades suitable for laboratory purposes and of specialty use. Each flask shall be marked with the letter “A” to signify compliance with applicable construction and accuracy requirements. Flasks may be marked with an identification number (serial number) at the option of the manufacturer.

NOTE 1—Specifications for standard volumetric flasks are given in Specification E288.

NOTE 2—Specifications for microvolumetric flasks in sizes from 1 to 25 mL are given in Specification E237.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 *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

E237 Specification for Laboratory Glass Microvolumetric Vessels (Volumetric Flasks and Centrifuge Tubes)

E288 Specification for Laboratory Glass Volumetric Flasks

E438 Specification for Glasses in Laboratory Apparatus

E542 Practice for Calibration of Laboratory Volumetric Apparatus

E694 Specification for Laboratory Glass Volumetric Apparatus

E920 Specification for Commercially Packaged Laboratory Apparatus

¹ This specification is under the jurisdiction of ASTM Committee E41 on Laboratory Apparatus and is the direct responsibility of Subcommittee E41.01 on Laboratory Ware and Supplies.

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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.

E921 Specification for Export Packaged Laboratory Apparatus

E1133 Practice for Performance Testing of Packaged Laboratory Apparatus for United States Government Procurements

E1157 Specification for Sampling and Testing of Reusable Laboratory Glassware

3. Styles

3.1 *Style 1*—Bates, sugar, wide neck, size 100 mL

3.2 *Style 2*—Kohlraush, enlarged cup, sizes 100, 200, and 500 mL

3.3 *Style 3*—Sugar, two graduations, sizes 100 to 110 and 200 to 220 mL

4. General Requirements

4.1 *Calibration*—flasks calibrate in accordance with the methods outlined in Practice E542.

4.2 *General*—See Specification E694 for general requirements not covered in this specification.

5. Design

5.1 *Shape*—Style 1 and 3 flask necks shall be designed with re-inforced rims for acceptance of rubber stopper or may be flared. Style 2 shall have a neck with an enlarged cup beaded to accept a rubber stopper. Flask shapes shall permit complete emptying and thorough cleaning. The area of the bottom or base shall be of sufficient size so the flask, when empty, shall stand on an inclined plane of 15° to the horizontal.

5.2 *Volumetric Tolerances*—Flasks shall be in accordance with tolerances appearing in Table 1.

5.3 *Markings*—All markings shall be permanent and legible.

5.3.1 *Capacity Line*—The capacity line shall be sharply defined and of uniform width in a plane parallel to the base of the flask. The line shall be applied by one of the following methods; etched and filled with a permanent pigment; engraved; by application of a stain fired into the glass without etching or by application of an enamel which is fused on the glass without etching. Lines shall be in accordance with Specification E694 for thickness and lengths.