



Designation: E288 – 06

# Standard Specification for Laboratory Glass Volumetric Flasks<sup>1</sup>

This standard is issued under the fixed designation E288; 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 ( $\epsilon$ ) 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 requirements for glass volumetric flasks of precision and general-purpose grades suitable for laboratory purposes.

1.1.1 *Class A*—Each flask of precision grade 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.

1.1.2 *Class B*—General purpose flasks are of the same basic design as Class A flasks. However, volumetric tolerances for Class B flasks shall be within twice the specified range allowed for Class A flasks. These flasks need not be marked with their class designation.

NOTE 1—Specifications for micro volumetric flasks in sizes from 1 mL to 25 mL, inclusive, are given in Specification E237.

NOTE 2—The Twelfth General (International) Conference on Weights and Measures redefined the litre as a “special name for the cubic decimetre,” but agreed to permit continuance of the terms litre, millilitre, and mL, except in association with measurements of the highest precision. For volumetric glassware the difference between the old and new meanings of litre is negligible. Therefore, either mL or cm<sup>3</sup> may be marked on ware covered by this Specification.

1.1.3 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.

1.1.4 *Wide Mouth*—Requirements for insertion of tablet or capsule for assay dilution and to accommodate access of larger diameter pipets have created demand for introduction of volumetric flasks provided with larger opening. Product with a stated capacity with a wider mouth, not previously listed in this standard, may be specified class A tolerance when product conforms to the tolerance range of the volumetric standard product listed in Table 2. In order to avoid confusion, wide neck flask tolerance must be marked on each flask as a requirement.

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee E41 on Laboratory Apparatus and is the direct responsibility of Subcommittee E41.01 on Apparatus.

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## 2. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

- E237 Specification for Laboratory Glass Microvolumetric Vessels (Volumetric Flasks and Centrifuge Tubes)
- E438 Specification for Glasses in Laboratory Apparatus
- E542 Practice for Calibration of Laboratory Volumetric Apparatus
- E675 Specification for Interchangeable Taper-Ground Stopcocks And Stoppers
- E694 Specification for Laboratory Glass Volumetric Apparatus
- E920 Specification for Commercially Packaged Laboratory Apparatus
- 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. General Requirements

3.1 *Calibration*—Flasks shall be calibrated in accordance with the methods outlined in Practice E542.

## 4. Design

4.1 Flasks shall be designed in accordance with Specifications E438 and E694. Flask necks may be designed with either taper-ground joints to accept stopper sizes specified in Table 1 or they may have reinforced rims or screw threads for acceptance of cap style closures. The neck may be either straight sided or provided with a mixing bulb located above the graduation line (intermediate bulb style). Any cross section of the neck taken in a plane parallel to the base shall be circular; similar sections of the body shall be either circular or square. The shape shall permit complete emptying and thorough cleaning. The bottom or base shall be such that the volumetric flask will stand solidly on a level surface. The area of the

<sup>2</sup> 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.