



Designation: E1403 – 97 (Reapproved 2013)

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

This standard is issued under the fixed designation E1403; 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.

### 1. Scope

1.1 This specification provides standard dimensional requirements for flat-bottom and round-bottom glass boiling flasks.

NOTE 1—For packaging standards, choose among the following standards, E920, E921, E1133, and E1157.

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

### 2. Referenced Documents

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

- E438 Specification for Glasses in Laboratory Apparatus
- E671 Specification for Maximum Permissible Thermal Residual Stress in Annealed Glass Laboratory Apparatus
- E676 Specification for Interchangeable Taper-Ground Joints
- E677 Specification for Interchangeable Spherical Ground Joints
- 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. Classification

3.1 Boiling flasks shall be in the following types and sizes.

3.1.1 *Type I*—Flat bottomed

3.1.1.1 *Class 1*—Tooled top; long neck in the following sizes: 50 mL, 125 mL, 250 mL, 500 mL, 1 000 mL, 2 000 mL, 3 000 mL, 6 000 mL, and 12 000 mL.

3.1.1.2 *Class 2*—Ring neck, long neck in the following sizes: 500 mL, 1 000 mL, 2 000 mL, 6 000 mL, and 12 000 mL.

3.1.1.3 *Class 3*—Ring neck, long neck, wicker protector in the following size: 500 mL and 1000 mL.

3.1.1.4 *Class 4*—Standard Taper  $\bar{\S}$  neck, short neck in the following sizes: 50 mL, 125 mL, 250 mL, 300 mL, 500 mL, and 1000 mL.

3.1.1.5 *Class 5*—Standard Taper  $\bar{\S}$  neck, long neck in the following sizes: 250 mL, 500 mL, and 1000 mL.

3.1.2 *Type II*—Round Bottomed

3.1.2.1 *Class 1*—Tooled top, long neck in the following sizes: 25 mL, 50 mL, 100 mL, 250 mL, 500 mL, 1000 mL, 2000 mL, 5000 mL, and 6000 mL.

3.1.2.2 *Class 2*—Ring neck, short neck in the following sizes: 250 mL, 500 mL, 1 000 mL, 2 000 mL, 3 000 mL, 5 000 mL, 12 000 mL, and 22 000 mL.

3.1.2.3 *Class 3*—Standard Taper  $\bar{\S}$  neck, short neck in the following sizes: 5 mL, 10 mL, 25 mL, 50 mL, 100 mL, 250 mL, 500 mL, 1 000 mL, 2 000 mL, 3 000 mL, 5 000 mL, and 12 000 mL.

3.1.2.4 *Class 4*—Standard Taper  $\bar{\S}$  neck, long neck in the following sizes: 100 mL, 250 mL, 500 mL, and 1000 mL.

3.1.2.5 *Class 5*—Standard Taper  $\bar{\S}$  neck, short neck with side arm in the following sizes: 250 mL and 300 mL.

3.1.2.6 *Class 6*—Standard Taper  $\bar{\S}$  neck, short neck with thermometer well in the following sizes: 500 mL, 1000 mL, and 2000 mL.

3.1.2.7 *Class 7*—Ball and socket  $\bar{\S}$  neck, short neck in the following sizes 250 mL, 500 mL, 1000 mL, and 2000 mL.

3.1.3 *Type III*—Heart-shape bottomed

3.1.3.1 *Class 1*—Standard Taper  $\bar{\S}$  neck, short neck in the following sizes: 5 mL, 10 mL, 25 mL, 50 mL, and 100 mL.

NOTE 2—The term millilitre (mL) is commonly used as a special name for the cubic centimetre (cm<sup>3</sup>) and similarly the litre (L) for 1000 cubic centimetres, in accordance with the International System of Units (SI).

### 4. Material and Annealing

4.1 Flasks shall be made of borosilicate glass conforming to the requirement of Type I, Class A of Specification E438.

4.2 Maximum residual thermal stress shall be such as to conform to Specification E671.

<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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<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.