



Designation: E 1404 – 94 (Reapproved 1998)^{ε1}

Standard Specification for Laboratory Glass Conical Flasks¹

This standard is issued under the fixed designation E 1404; 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.

^{ε1} NOTE—Editorial changes were made throughout in December 1998.

1. Scope

1.1 This specification provides standard dimensional requirements for glass conical flasks suitable for general laboratory use.

NOTE 1—For packaging standards, choose the following standards; E 920, E 921, and E 1133.

2. Referenced Documents

2.1 ASTM Standards:

- E 438 Specification for Glasses in Laboratory Apparatus²
- E 671 Specification for Maximum Permissible Thermal Residual Stress in Annealed Glass Laboratory Apparatus²
- E 675 Specification for Interchangeable Stopcocks and Stoppers²
- E 676 Specification for Interchangeable Taper-Ground Joints²
- E 920 Specification for Commercially Packaged Laboratory Apparatus²
- E 921 Specification for Export Packaged Laboratory Apparatus²
- E 1133 Performance Testing of Packaged Laboratory Apparatus for Specialized Procurements²
- E 1157 Specification for Sampling and Testing of Reusable Laboratory Glassware²

3. Classification

3.1 Conical flasks (Erlenmeyer) shall be in the following types and capacities.

3.1.1 *Type I*—general purpose, with graduated scale.

3.1.1.1 *Class 1*—Narrow mouth with heavy duty beaded top, in capacities of 25 mL, 50 mL, 125 mL, 250 mL, 300 mL, 500 mL, 1000 mL, 1500 mL, 2000 mL, 4000 mL, and 6000 mL.

3.1.1.2 *Class 2*—Wide mouth with heavy duty beaded top, in capacities of 125 mL, 250 mL, 500 mL, 1000 mL, and 2000 mL.

3.1.2 *Type II*—Tapered ground joint, with graduated scale.

3.1.2.1 *Class 1*—Outer Conical, joint without stopper, in capacities of 50 mL, 125 mL, 250 mL, 500 mL, 1000 mL, and 2000 mL.

3.1.2.2 *Class 2*—with stopper, in capacities of 25 mL, 50 mL, 125 mL, 250 mL, 500 mL, and 1000 mL.

3.1.2.3 *Class 3*—For iodine determination, in capacities of 125 mL, 250 mL, and 500 mL.

3.1.3 *Type III*—Screw thread finish, with graduated scale, in capacities of 50 mL, 125 mL, 250 mL, 500 mL, 1000 mL, and 2000 mL.

3.1.4 *Type IV*—Culture;

3.1.4.1 *Class 1*—Long neck, plain top, in capacities of 50 mL, 125 mL, 250 mL, 500 mL, 1000 mL, and 2000 mL.

3.1.4.2 *Class 2*—Wide base (Fernbach), in capacity of 2800 mL.

3.1.4.3 *Class 3*—Wide base, low form, in a capacity of 2500 mL.

NOTE 2—The term milliliter (mL) is commonly used as a special name for the cubic centimeter (cm³) and similarly the liter (L) for 1000 cubic centimeters, in accordance with the International System of Units (SI).

4. Material and Manufacturing

4.1 Flasks shall be made of borosilicate glass conforming to the requirements of Type I, Class A of Specification E 438.

4.2 Maximum residual thermal stress shall be such as to conform to Specification E 671.

5. Appearance

5.1 The general appearance of the flasks shall be as illustrated in Fig. 1.

6. Design

6.1 Conical flasks shall have flat bottoms. However, concavity in the bottom shall be permitted. The flask shall stand vertically without rocking or spinning when placed on a level surface. Bottom heel radius shall be between 15 and 20 % of the maximum external diameter.

6.2 Conical sides of the flask shall extend inwardly for the bottom and shall terminate in a short cylindrical neck.

6.2.1 Type I and Type IV flasks shall have flask mouth finished with a tooled, heavy duty bead.

6.2.2 Type II, Class 1 shall have taper-ground joint neck finish in accordance with Specification E 676.

6.2.3 Type II, Class 2 and Class 3 shall have taper-ground

¹ This specification is under the jurisdiction of ASTM Committee E-41 on Laboratory Apparatus and is the direct responsibility of Subcommittee E41.01 on Glass Apparatus.

Current edition approved Feb. 15, 1994. Published April 1994. Originally published as E 1404-91. Last previous edition E 1404-91.

² *Annual Book of ASTM Standards*, Vol 14.02.