



Designation: E1405 – 98 (Reapproved 2003)

Standard Specification for Laboratory Glass Distillation Flasks¹

This standard is issued under the fixed designation E1405; 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.

1. Scope

1.1 This specification covers standard dimensional requirements for glass distillation flasks. It includes general purpose flasks and flasks designed for specific tests especially in the petroleum testing area.

NOTE 1—For packaging standards, choose among Specifications E920, E1157, and E1133.

2. Referenced Documents

2.1 ASTM Standards:²

- D20 Test Method for Distillation of Road Tars
- D86 Test Method for Distillation of Petroleum Products at Atmospheric Pressure
- D216 Method of Test for Distillation of Natural Gasoline³
- D233 Test Methods of Sampling and Testing Turpentine
- D246 Test Method for Distillation of Creosote and Creosote-Coal Tar Solutions³
- D285 Method of Test for Distillation of Crude Petroleum³
- D402 Test Method for Distillation of Cutback Asphaltic (Bituminous) Products
- D447 Test Method for Distillation of Plant Spray Oils³
- D801 Test Methods for Sampling and Testing Dipentene
- D802 Test Methods for Sampling and Testing Pine Oils
- D850 Test Method for Distillation of Industrial Aromatic Hydrocarbons and Related Materials
- D1078 Test Method for Distillation Range of Volatile Organic Liquids
- D2569 Test Method for Distillation of Pitch³
- E3 Guide for Preparation of Metallographic Specimens
- E4 Practices for Force Verification of Testing Machines
- E438 Specification for Glasses in Laboratory Apparatus
- E671 Specification for Maximum Permissible Thermal Residual Stress in Annealed Glass Laboratory Apparatus

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

Current edition approved Oct. 1, 2003. Published October 2003. Originally approved in 1991. Last previous edition approved in 1999 as E1405 - 98 (1999)^{e1}. DOI: 10.1520/E1405-98R03.

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.

³ Withdrawn. The last approved version of this historical standard is referenced on www.astm.org.

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

2.2 Other Documents:

U.S. Bureau of Mines Technical Paper 323B Method 100.13⁴

3. Classification

3.1 Distillation flasks shall be of the following types and sizes:

3.1.1 *Type I*—General purpose distilling flasks shall be of the following nominal capacities: 10 mL; 25 mL; 50 mL; 125 mL; 200 mL; 250 mL; 500 mL; 1000 mL; 2000 mL.

3.1.2 *Type II*—Special purpose distilling flasks shall be of the following classes:

- 3.1.2.1 *Class 1*—Barrett, 200 mL.
- 3.1.2.2 *Class 2*—Church, in the following sizes: 300 mL; 500 mL.
- 3.1.2.3 *Class 3*—Engler, 100 mL.
- 3.1.2.4 *Class 4*—Hempel, 500 mL.
- 3.1.2.5 *Class 5*—Saybolt, 250 mL.

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

4. Materials and Manufacture

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.

5. Workmanship, Finish and Appearance

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

⁴ Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, http://dodssp.daps.dla.mil.