



Standard Specification for Weighing and Drying Apparatus for Microchemical Analysis¹

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1. Scope

1.1 This specification covers apparatus used for weighing and drying operations in microchemical laboratory practice.

1.2 The values stated in inch-pound units are to be regarded as the standard. The metric equivalents may be approximate.

NOTE 1—This specification was originally developed by the Committee on Microchemical Apparatus, Division of Analytical Chemistry, American Chemical Society.²

2. Referenced Documents

2.1 ASTM Standards:

E 671 Specification for Maximum Permissible Thermal Residual Stress in Annealed Laboratory Apparatus³

E 920 Specification for Commercially Packaged Laboratory Apparatus³

E 921 Specification for Export Packaged Laboratory Apparatus³

E 1133 Practice for Performance Testing of Packaged Laboratory Apparatus United States Government Procurement³

E 1157 Specification for Sampling and Testing Laboratory Glassware³

3. Combustion Boats

3.1 Combustion boats of three sizes shall conform to the requirements in Table 1 and Fig. 1, Fig. 2, and Fig. 3. These boats shall be made of platinum-rhodium alloy containing 3.5 % rhodium.

4. Weighing Bottles

4.1 Weighing bottles of seven capacities shall conform to the requirements in Table 2 and Figs. 4-9, inclusive.

5. Weighing Cup

5.1 The weighing cup shall conform to the requirements shown in Fig. 11, and shall be made of platinum-rhodium alloy containing 3.5 % rhodium. The cup is designed to be used as a sample container to fit into the weighing bottle shown in Fig. 5, and is useful for weighing hygroscopic materials.

6. Weighing Tubes

6.1 Weighing tubes of three types shall conform to the requirements shown in Fig. 12, Fig. 13, and Fig. 14. These tubes should preferably be made of soda-lime glass.

7. Spatulas

7.1 Spatulas of four types, and preferably made of stainless steel, shall conform to the following requirements:

7.1.1 *Type A (Fig. 15)*—This spatula is generally useful. The top can be used for crushing crystals and the bent blade for scraping containers.

7.1.2 *Type B (Fig. 16)*—This spatula has a flat bent portion at one end and a V-shaped scoop at the other end. It is particularly useful for weighing samples.

7.1.3 *Type C (Fig. 17)*—This spatula is suitable for the larger samples commonly encountered in semimicro and preparative work. It has a U-shaped scoop at one end and a V-shaped scoop at the other end. The spatula can be used to add shot or beads to tare flasks and for measuring and introducing solid reagent into combustion tubes.

7.1.4 *Type D (Fig. 18)*—This spatula is useful in many microchemical applications.

8. Forceps

8.1 Forceps of two types, made of nickel-plated steel, shall conform to the following requirements:

8.1.1 *Forceps with Platinum—5 % Ruthenium Tips (Fig. 19)* The pin serves as a stop to prevent the forceps from being depressed to such an extent that the tips can open, allowing the held object to drop. When pressed together, the tips make contact for a distance of $\frac{1}{4}$ to $\frac{1}{2}$ in. (6.4 to 12.7 mm).

NOTE 2—Depending upon the intended use, other materials may be substituted for the platinum alloy. The construction and over-all dimensions should be identical with those shown in Fig. 19.

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 Apparatus.

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² See the “1949 Report on Recommended Specifications for Microchemical Apparatus, Carbon-Hydrogen, Dumas Nitrogen, Sulfur and Halogen,” *Analytical Chemistry*, Vol 21, December 1949, p. 1555; and the “1953 Report on Recommended Specifications for Microchemical Apparatus, Weighing and Drying,” *Analytical Chemistry*, Vol 26, July 1954, p. 1186.

³ *Annual Book of ASTM Standards*, Vol 14.04.