



Standard Specification for Laboratory Glass Micropipets¹

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1. Scope

1.1 This specification covers several micropipets useful in measuring microlitre quantities of liquids.

NOTE 1—This specification was originally developed by the Committee on Microchemical Apparatus, Division of Analytical Chemistry, American Chemical Society.^{2,3, 4}

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*:⁵

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. Nomenclature

3.1 The pipets specified in Figs. 1-3, and Fig. 4 are classified as micropipets, whereas those in Figs. 5 and 6 are classified as

microlitre pipets in order to differentiate among the various pipets, not on a technical basis, but rather on the basis of usage. This is done to prevent confusion that might result from the fact that the pipets shown in Figs. 1 and 2, and Fig. 3 are listed in trade catalogs as micropipets designed especially for use in the fields of biological and clinical chemistry, and the pipets shown in Fig. 4 are listed as micropipets, density-type, designed for use as microweighing pipets, or pycnometers.

4. Micropipets, Measuring-Type (“to deliver”)

4.1 The measuring-type micropipets^{2,6} are specified in five capacities and shall conform to the requirements shown in Fig. 1. The narrow, elongated delivery stem of the pipets can reach to the bottom of microvolumetric flasks,^{2,5} permitting almost complete withdrawal of the contents of the flask. Quantitative delivery of the entire volume of the pipets is obtained by touching off the last drop.

5. Micropipets, Folin-Type (“to contain”)

5.1 The Folin-type^{4,6,7} micropipets are specified in two capacities and shall conform to the requirements shown in Fig. 2. Complete delivery of the volume indicated by the graduation mark on these pipets is ensured by washing out several times any solution adhering to the inner surface with wash liquid drawn up from the tip.

6. Micro Washout Pipets, Pregl-Type (“to contain”)

6.1 The micro washout pipets, Pregl-type^{4,6,8} are specified in four capacities and shall conform to the requirements shown in Fig. 3. Quantitative delivery of the volume indicated by the graduation mark on the pipets is obtained by rinsing out the contents with wash liquid added from the top of the pipet.

7. Micro Weighing Pipets, Density-Type (Pycnometers) (“to contain”)

7.1 The micro weighing pipets, density-type (pycnometers),^{4,6,9} with ground-glass caps, are specified in three capacities

¹ 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 Committee on Microchemical Apparatus, Division of Analytical Chemistry, American Chemical Society. “Report on Recommended Specifications for Microchemical Apparatus, Volumetric Glassware, Flasks, Pipets, and Centrifuge Tubes,” *Analytical Chemistry*, Vol 28, 1956, p. 1993.

³ Committee on Microchemical Apparatus, Division of Analytical Chemistry, American Chemical Society. “Report on Recommended Specifications for Microchemical Apparatus, Volumetric Glassware, Microlitre Pipets,” *Analytical Chemistry*, Vol 30, 1958, p. 1702.

⁴ Committee on Microchemical Apparatus, Division of Analytical Chemistry, American Chemical Society. “Report on Recommended Specifications for Microchemical Apparatus, Volumetric Glassware, Micropipets,” *Analytical Chemistry*, Vol 32, 1960, p. 1045.

⁵ 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.

⁶ Steyermark, A., *Quantitative Organic Microanalysis*, 2nd Ed., Academic Press, New York, NY, 1961.

⁷ Folin, O., *Journal of Biological Chemistry*, Vol 77, 1928, p. 421.

⁸ Grant, J., *Quantitative Organic Microanalysis Based on Methods of Fritz Pregl*, 5th Ed., Blakiston Co., Philadelphia, PA 1951, p. 34.

⁹ Alber, H. K., *Industrial and Engineering Chemistry, Analytical Edition*, Vol 12, 1940, p. 764.