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Standard Specification for Disposable Glass Micro Blood Collection Pipets[1]

This standard is issued under the fixed designation E 787; 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 two dimensionally different disposable glass micropipets used primarily to collect whole human blood specimens for clinical analysis and testing. They are available as coated with heparin or uncoated.

2. Referenced Documents

2.1 *ASTM Standards:*

E 438 Specification for Glasses in Laboratory Apparatus[2]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *disposable micropipets*—in accordance with this specification and the expected product performance expressed in this standard, those pipets which are to be used one time only. *Any institution or individual who reuses a disposable pipet must bear full responsibility for its safety and effectiveness.*

4. Classification

4.1 This specification covers two dimensionally different disposable glass pipets as follows:

4.1.1 *Short Pipet*—Approximately 75 mm long and coated with heparin (Type I) or uncoated (Type II). These are commercially recognized as Caraway pipets.[3]

4.1.2 *Long Pipet*—Approximately 150 mm long and coated with heparin (Type I) or uncoated (Type II). These are commercially recognized as Natelson pipets.[4]

5. Materials and Manufacture

5.1 *Glass*—The pipets shall be fabricated from borosilicate glass, Type I, Class B, or soda lime glass, Type II, in accordance with Specification E 438.

5.2 *Heparin*—shall be the ammonium salt isolated from the lungs or intestinal mucosa of beef or pork origin. The heparin potency shall be 1 mg of ammonium heparin compound which is equal to at least 100 USP units.[5]

6. Physical Requirements

6.1 *Design*—The disposable glass micro blood collection pipets, both short and long, shall be straight and pulled to a tapered point at one end. Any cross section of the pipets, taken in a plane perpendicular to the longitudinal axis, shall be circular. The pipets shall be lightly firepolished at both ends with no run-in and possess color bands to denote presence or absence of heparin content.

6.2 *Dimensions*:

6.2.1 The short Caraway pipet shall be approximately 75 mm long and 4 mm in outside diameter. The pipet shall hold a liquid volume of 310 to 470 µL. The tapered point length and tip orifice opening shall be as specified in Fig. 1.

6.2.2 The long Natelson pipet shall be approximately 150 mm long and 3 mm in outside diameter. The pipet shall hold a liquid volume of 220 to 420 µL. The tapered point length and tip orifice opening shall be as specified in Fig. 2.

6.3 *Workmanship*—The pipets, as illustrated in Fig. 1 and Fig. 2, shall be free of defects that noticeably detract from their appearance or impair their serviceability. They shall be free of lint, or significant foreign matter, loose or embedded when viewed under normal room lighting. The top and tip ends of the pipets shall be cut at approximately 90° to the pipet axis and shall not be cracked or have jagged ends or chips that enter the bore of the pipet.

6.4 *Color Coding*—Each disposable glass micro blood collection pipet shall be color-coded to identify the pipet. The heparin-coated pipet (Type 1) shall have a red color band. The uncoated pipet (Type 2) shall have a blue color band. The location of these color bands shall be as specified in Fig. 1 and Fig. 2.

6.5 *Capillary*—The pipets, both short and long, shall be capable of drawing sheep plasma or human whole blood the full length of the pipet when tested as specified in 7.1.

6.6 *Fluidity* (Type 1, Heparinized, only)—Coagulation of the sheep plasma or human whole blood shall not be evident when viewed under normal room lighting and tested as specified in 7.2.

6.7 *Lot or Control Number*—A lot or control number shall be indicated on the intermediate and outer package of pipets. This lot or control number shall be traceable to the origin (raw

[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] *Annual Book of ASTM Standards*, Vol 14.02.

[3] Caraway, W. T., and Fanger, H., "Ultramicro Procedures In Clinical Chemistry," *American Journal of Clinical Pathology*, 25, 1955, pp. 316–331.

[4] Natelson, S., Ph.D., *Micro-Techniques of Clinical Chemistry*, Charles C. Thomas, Springfield, Ill., 1961, p. 70.

[5] *The United States Pharmacopeia*, 19th Revision, pp. 229–230.