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Standard Specification for Glass Westergren Tube, Reusable[1]

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1. Scope

1.1 This specification describes requirements for a tube that measures the erythrocyte sedimentation rate (ESR). ESR is the suspension stability of red cells in diluted, anti-coagulated human blood.

1.1.1 The use of the term "rate" is, strictly speaking, not correct. The test measures the amount of settling of red cells after a specified time.

1.2 The tubes are used together with a special rack to ensure they remain in a vertical position during the test.

1.3 This specification includes many dimensional requirements that are, for the most part, in agreement with the British Standards Institution, German Standards Institute, International Committee for Standardization in Haematology, and the National Committee for Clinical Laboratory Standards publications on Westergren tubes. The clinical procedure using the tube described in this specification is known as the "Westergren Method."

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

E438 Specification for Glasses in Laboratory Apparatus

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. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *reusable*—capable of being used again.

3.1.2 *tube*—the word "tube" rather than "pipet" is used to describe this instrument. The word "pipet" should be reserved for volume-measuring instruments thus designated. A tube used for measurements of blood sedimentation rate is not a volume measuring instrument. In this connection, misunderstanding can occur when a Westergren "tube" is described as a "pipet."

3.1.3 *Westergren*—The surname of the individual responsible for the design of the Westergren tube and the method of use.

4. Classification

4.1 This specification covers a tube that is intended to be used until it is no longer considered functional for the purpose intended. The specification is specifically written for a reusable item and is not to be confused with a disposable tube that is described in other published standards.

5. Materials

5.1 The tubes made to this specification shall be fabricated from borosilicate glass, Type I, Class B; or soda lime glass, Type II, in accordance with Specification E438.

6. Dimensions, Mass, and Permissible Variations

6.1 *Design*—The Westergren tube shall be made of thick-walled glass tubing. It shall be of one-piece construction, straight and with uniform bore. The ends of the tube shall be ground flat, perpendicular to the tube axis and beveled as specified in Fig. 1.

6.2 *Dimensions*—The tube shall be made of tubing with an outside diameter (OD) of 6.5 ± 0.5 mm with an inside diameter (ID) of 2.55 mm ± 0.15 mm. The uniformity of the

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[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.