Designation: D4822 – 88 (Reapproved 2014)

Standard Guide for Selection of Methods of Particle Size Analysis of Fluvial Sediments (Manual Methods)[1]

This standard is issued under the fixed designation D4822; 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 guide covers the selection of methods for determining the size distribution of fluvial sediments particles in the range greater than 0.45 μm using manual methods. Manual methods are defined as those methods that require the operator to do some actual measurements and calculations. An automated method would be one which, after the sample is prepared and inserted into an instrument, the instrument (machine) does the measuring and calculations, not the operator. Not all manual methods are presented in this guide. However, where available, at least two methods for each particle size range are given.

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

1.3 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D422 Test Method for Particle-Size Analysis of Soils

D1129 Terminology Relating to Water

D4410 Terminology for Fluvial Sediment

D4411 Guide for Sampling Fluvial Sediment in Motion

E20 Practice for Particle Size Analysis of Particulate Substances in the Range of 0.2 to 75 Micrometres by Optical Microscopy (Withdrawn 1994)[3]

3. Terminology

3.1 *Definitions*—For definitions of terms used in this guide, refer to Terminologies D1129 and D4410.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 For definitions of terms used in this guide, refer to Terminology D4410.

3.2.2 *particle count*—a method of particle size analysis in which the number of particles in the various size ranges are counted manually.

3.2.3 *particle size*—the diameter, usually the intermediate diameter, of a particle measured by settling, sieving, micrometric, or direct measurement methods (see 5.2).

3.2.4 *particle size distribution*—the relative amount of a sediment sample in a range of specific sizes in terms of percentages by mass, volume, or number, finer than a given particle size.

4. Summary of Guide

4.1 This guide consists of suggested manual test methods for analyzing fluvial sediment samples for particle size distribution.

5. Significance and Use

5.1 This guide is general and useful in helping the user to determine an appropriate manual test method for determining the particle size distribution of fluvial sediments. The suggested test methods are not described in this guide, but references are given so that the user may obtain more information about each test method.

5.2 It should be noted that different test methods may and often times do produce different particle size distributions for the same sample. This is due in part to the different test methods requiring native or distilled water, differences in

[1] This guide is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.07 on Sediments, Geomorphology, and Open-Channel Flow.

Current edition approved Jan. 1, 2014. Published March 2014. Originally approved in 1988. Last previous edition approved in 2008 as D4822 – 88 (2008). DOI: 10.1520/D4822-88R14.

[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] The last approved version of this historical standard is referenced on www.astm.org.