



Standard Test Method for On-Line Measurement of Turbidity Below 5 NTU in Water¹

This standard is issued under the fixed designation D 6698; 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 test method is applicable to the on-line measurement of turbidity under 5 nephelometric turbidity units (NTU) in water.

1.2 It is the user's responsibility to ensure the validity of this test method for waters of untested matrices.

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

2. Referenced Documents

2.1 ASTM Standards:

D 1129 Terminology Relating to Water
D 1193 Specification for Reagent Water
D 1889 Test Method for Turbidity in Water
D 2777 Practice for Determination of Precision and Bias of Applicable Methods of Committee D19 on Water
D 3370 Practices for Sampling Water from Closed Conduits
D 3864 Guide for Continual On-line Monitoring for Water Analysis

2.2

EPA 180.1 Methods for Chemical Analysis of Water and Wastes, Turbidity
Standard Methods for the Examination of Water and Wastewater 2130B, 19th edition
ISO 7027 (The International Organization for Standardization) for the Determination of Turbidity
Hach Method 8195
GLI Method 2
US Patent 4,283,143 from Advanced Polymer Systems, Inc., 123 Saginaw Dr., Redwood City, CA 94063
US Patent 4,291,980 from Advanced Polymer Systems, Inc., 123 Saginaw Dr., Redwood City, CA
US Patent 5,777,011 from Hach Company, 5600 Lindbergh Drive, Loveland, CO 80537

3. Terminology

3.1 *Definitions*—For definitions of terms used in this method refer to Terminology D 1129.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *calibration turbidity standard*—a turbidity standard that is traceable and equivalent to the reference turbidity standard to within statistical errors, including commercially prepared 4000 NTU Formazin, stabilized formazin, and styrenedivinylbenzene (SDVB). These standards may be used to calibrate the instrument.

NOTE 1—Calibration standards may be instrument specific.

3.2.2 *calibration verification standards*—defined standards used to verify the accuracy of a calibration in the measurement range of interest. These standards may not be used to perform calibrations, only calibration verifications. Included standards are opto-mechanical light scatter devices, gel-like standards, or any other type of stable liquid standard.

NOTE 2—Calibration verification standards may be instrument specific.

3.2.3 *in-situ nephelometer*—a turbidimeter that determines the turbidity of a sample using a sensor that is placed directly in the sample. This turbidimeter does not require transport of the sample to or from the sensor.

3.2.4 *nephelometric turbidity measurement*—the measurement of light scatter from a sample in a direction that is at 90° with respect to the centerline of the incident light path. Units are NTU (Nephelometric Turbidity Units); when ISO 7027 technology is employed, units are FNU (Formazin Nephelometric Units).

3.2.5 *ratio turbidity measurement*—the measurement derived through the use of a nephelometric detector that serves as the primary detector and one or more other detectors used to compensate for variation in incident light fluctuation, stray light, instrument noise, or sample color.

3.2.6 *reference turbidity standard*—a standard that is synthesized reproducibly from traceable raw materials by the user. All other standards are traced back to this standard. The reference standard for turbidity is formazin.

¹ This test method is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.03 on Sampling of Water and Water-Formed Deposits and Surveillance of Water.

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