



Designation: D5905 – 98 (Reapproved 2013)

Standard Practice for the Preparation of Substitute Wastewater¹

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1. Scope

1.1 This practice covers the preparation of an aqueous mixture containing constituents in concentrations such that it will have physical and chemical matrix characteristics similar to municipal wastewater.

1.2 Wastewaters are extremely variable, depending on the quantity and nature of the materials being discharged into the collection system. The mixture prepared with this practice is not representative of any particular wastewater. Rather, it allows the user to prepare a mixture that exhibits a similar matrix impact on test method performance as is typical of municipal wastewater and can be prepared from common materials inexpensively and reproducibly. It allows the evaluation of test methods, over time, against the same reference point.

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

1.4 *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

D1129 Terminology Relating to Water

D1141 Practice for the Preparation of Substitute Ocean Water

D1193 Specification for Reagent Water

D2777 Practice for Determination of Precision and Bias of Applicable Test Methods of Committee D19 on Water

¹ This practice is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.02 on Quality Systems, Specification, and Statistics.

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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.

3. Terminology

3.1 *Definitions*—For definitions of terms used in this practice, refer to Terminology D1129.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *substitute wastewater*—a mixture of dissolved and suspended materials in water, typical of the influent to a municipal wastewater treatment facility.

4. Significance and Use

4.1 Substitute wastewater may be used for laboratory testing where a reproducible mixture simulating municipal wastewater is required. To provide a more rugged evaluation of a test method's ability to measure analytes and the precision of the test method under more demanding conditions, it is necessary to utilize a matrix more complex than reagent water. Substitute wastewater is intended to be used as a material to be spiked with analytes or interferents of interest to evaluate the performance of test methods.

4.2 Utilization of substitute wastewater as a matrix in interlaboratory validation studies will allow inclusion of performance statistics for this matrix in the Precision and Bias section of test methods. Users of test methods will be able to evaluate their application of test methods in this matrix against published results.

5. Apparatus

5.1 *Blender*, household or commercial variety, with a chemically inert container and a tight sealing lid.

6. Reagents

6.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society where such specifications are available.³ Other grades may be used,

³ *Reagent Chemicals, American Chemical Society Specifications*, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmaceutical Convention, Inc. (USPC), Rockville, MD.