Designation: D8457 – 22

Standard Practice for Cleaning Glass and Plastic Labware Used in Metal and Metalloid Analyses[1]

This standard is issued under the fixed designation D8457; 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 practice uses dilute nitric acid to clean glass and plastic labware used in laboratories preparing and analyzing samples for metal and metalloid content.

1.2 The values stated in SI units are to be regarded as 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]

D1129 Terminology Relating to Water

D1193 Specification for Reagent Water

D1356 Terminology Relating to Sampling and Analysis of Atmospheres

3. Terminology

3.1 *Definitions*—For definitions of terms, refer to Terminologies D1129, D1193, and D1356.

4. Summary of Practice

4.1 Labware is washed with laboratory detergent, rinsed with tap water, soaked in dilute nitric acid, rinsed with ASTM Type I Water, and allowed to dry in a fume hood.

4.2 Alternatively, labware is soaked in dilute nitric acid in a plastic tub in a fume hood, rinsed with ASTM Type I Water, and allowed to dry in a fume hood.

5. Significance and Use

5.1 This practice is intended for use in laboratories using labware for the preparation and analysis of samples collected for analysis for metals or metalloids, or both.

6. Reagents and Materials

6.1 *Purity of Reagents*—Reagent grade chemicals shall be used in this practice. 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. Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening accuracy of the determination.

6.2 *Nitric Acid*—Concentrated, 16.0 M HNO_3, suitable for atomic spectrometry analysis such as spectroscopic grade.

6.3 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean reagent water as defined by Type 1 of Specification D1193.

7. Procedure

7.1 Wash glassware and plastic equipment with laboratory detergent, rinse with tap water, soak for at least 4 hours in volume/volume 1+1 nitric acid and water, rinse three times with ASTM Type I Water, and allow to dry preferably in a fume hood. Commercial, automatic systems are available that perform a similar process.

7.2 Alternatively, soak glassware and plastic equipment in volume/volume 1+1 nitric acid and water in a plastic tub preferably in a working hood with the hood sash down, rinse three times with ASTM Type I Water, and allow to dry preferably in a fume hood.

8. Keywords

8.1 acid wash; cleaning; labware

[1] This practice is under the jurisdiction of ASTM Committee D22 on Air Quality and is the direct responsibility of Subcommittee D22.01 on Quality Control.

Current edition approved May 1, 2022. Published May 2022. DOI: 10.1520/D8457-22.

[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.