Designation: E1200 – 24

Standard Practice for Preserving Zooplankton Samples[1]

This standard is issued under the fixed designation E1200; 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 describes the proper procedures for preserving zooplankton samples with either formaldehyde, ethanol, glutaraldehyde, Lugol's iodine solution, or vinegar (acetic acid).

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]

D1129 Terminology Relating to Water

D1193 Specification for Reagent Water

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this standard, refer to Terminology D1129.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *zooplankton, n*—plankton consisting of small animals and the immature stages of larger animals.

3.2.1.1 *Discussion*—Some of these organisms, such as miniature crustaceans and protozoans, are very small. Others, such as jellyfish, are larger. Some fishes and shellfish begin their lives as eggs or tiny larvae. These eggs and larvae are also zooplankton.

4. Summary of Practice

4.1 A zooplankton sample collected with either a qualitative or quantitative sampler is preserved with formaldehyde, ethanol, glutaraldehyde, Lugol's iodine solution, or 25 % vinegar or 3 % acetic acid, as dictated by needs of the study. The preservatives are listed in order of preference.

5. Significance and Use

5.1 Calcium Carbonate ($CaCO_3$) buffered formalin (3 % to 5 %) can be used as a permanent preservative for zooplankton. Lugol's iodine solution can be used to preserve zooplankton for up to one year. Thirty percent ethanol, 30 % glutaraldehyde, or 25 % vinegar (can use 3 % acetic acid solution) can be used for more temporary storage and preservation of zooplankton samples. A 25 % vinegar solution is preferred to preserve soft-bodied planktonic coelenterates.

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 shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available.[3]

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

6.3 *Formaldehyde Solution*—37 % to 40 % aqueous. (**Warning—**Possible carcinogen.)

6.4 *Ethanol* (95 %)—Dilute with water 30 mL of ethanol to 100 mL.

6.5 *Glutaraldehyde*—Dilute with water 30 mL of glutaraldehyde to 100 mL.

[1] This practice is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.24 on Water Microbiology.

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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] *ACS Reagent Chemicals, Specifications and Procedures for Reagents and Standard-Grade Reference Materials*, 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. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.