



Standard Guide for Acute Toxicity Test with the Rotifer *Brachionus*¹

This standard is issued under the fixed designation E1440; 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 describes procedures for obtaining laboratory data concerning the acute toxicity of chemicals and aqueous effluents released into fresh, estuarine, or marine waters. Acute toxicity is measured by exposing *Brachionus* newly hatched from cysts to a series of toxicant concentrations under controlled conditions. This guide describes a test for using *B. calyciflorus*, a fresh water rotifer, and the Appendix describes modifications of this test for estuarine and marine waters using *B. plicatilis*. These procedures lead to an estimation of acute toxicity, including the concentration expected to kill 50 % of the test rotifers (LC50) in 24 h. Procedures not specifically stated in this guide should be conducted in accordance with Guide E729 and Guide E1192.

1.2 Modifications of these procedures might be justified by special needs or circumstances. Although using appropriate procedures is more important than following prescribed procedures, the results of tests conducted using modified procedures might not be comparable to rotifer acute tests that follow the protocol described here. Comparison of the results using modified procedures might provide useful information concerning new concepts and procedures for conducting acute toxicity tests on chemicals and aqueous effluents.

1.3 This guide is organized as follows:

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1.4 These procedures are applicable to most chemicals, either individually or in formulations, commercial products, or mixtures. This guide can also be used to conduct investigations of the effects on rotifer survival of pH, hardness, and salinity and on materials such as aqueous effluents, leachates, oils, particulate matter, sediments, and surface waters. This guide might not be appropriate for materials with high oxygen demand, with high volatility, subject to rapid biological or chemical transformation, or that readily sorb to test chambers.

1.5 *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.* For specific hazards statements, see Section 8.

2. Referenced Documents

2.1 ASTM Standards:²

- E380 Practice for Use of the International System of Units (SI) (the Modernized Metric System)
- E729 Guide for Conducting Acute Toxicity Tests on Test Materials with Fishes, Macroinvertebrates, and Amphibians
- E943 Terminology Relating to Biological Effects and Environmental Fate
- E1192 Guide for Conducting Acute Toxicity Tests on Aqueous Ambient Samples and Effluents with Fishes, Macroinvertebrates, and Amphibians

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *rotifer cyst*—a rotifer embryo arrested at an early stage in development, enclosed in an envelope and resistant to desiccation and temperature extremes. Rotifer cysts are often

¹ This guide is under the jurisdiction of ASTM Committee E50 on Environmental Assessment, Risk Management and Corrective Action and is the direct responsibility of Subcommittee E50.47 on Biological Effects and Environmental Fate.

Current edition approved Dec. 1, 2012. Published December 2012. Originally approved in 1991. Last previous edition approved in 2004 as E1440 – 91 (2004). DOI: 10.1520/E1440-91R12.

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.