



Standard Guide for Conducting Renewal Phytotoxicity Tests With Freshwater Emergent Macrophytes¹

This standard is issued under the fixed designation E1841; 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 guide is designed to give general guidance for assessing the potential phytotoxicity of water soluble test material to freshwater emergent macrophytes.

1.2 This renewal test continuously exposes selected plant species, growing in sediment, to various concentrations of test material, dissolved in a nutrient solution.

1.3 This test guide is based on the Toxic Substances Control Act (TSCA) guidelines for conducting toxicity tests with terrestrial plants (1)² and is applicable to most water soluble chemicals, either individually or in formulations, commercial products, or known mixtures (see Guides E1193 and E1598). With slight modifications the procedure also might be used for effluents (see Guide E1192).

1.4 Results from this toxicity test can be used to report an IC50 or NOEC (see Section 3) based on the concentration of chlorophyll extracted from the plants (see Guides D3731 and E1218). In some situations, it might be necessary to only test at one concentration to determine whether or not that specific concentration is toxic to the plants.

1.5 This test method is arranged as follows:

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

1.7 *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. Specific hazard statements are given in Section 7.*

2. Referenced Documents

2.1 ASTM Standards:³

- D3731 Practices for Measurement of Chlorophyll Content of Algae in Surface Waters (Withdrawn 0)⁴
- E729 Guide for Conducting Acute Toxicity Tests on Test Materials with Fishes, Macroinvertebrates, and Amphibians
- E943 Terminology Relating to Biological Effects and Environmental Fate
- E1023 Guide for Assessing the Hazard of a Material to Aquatic Organisms and Their Uses

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 January 2013. Originally approved in 1996. Last previous edition approved in 2004 as E1841–04. DOI: 10.1520/E1841-04R12.

² The boldface numbers in parentheses refer to the list of references at the end of this test method.

³ 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.

⁴ The last approved version of this historical standard is referenced on www.astm.org.