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# 40 C.F.R. § 797.1050

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## Algal acute toxicity test.

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(a) *Purpose.* The guideline in this section is intended for use in developing data on the acute toxicity of chemical substances and mixtures (“chemicals”) subject to environmental effects test regulations under the Toxic Substances Control Act (TSCA) (Pub. L. 94-469, 90 Stat. 2003, 15 U.S.C. 2601 *et seq.*). This guideline prescribes test procedures and conditions using freshwater and marine algae to develop data on the phytotoxicity of chemicals. The United States Environmental Protection Agency (U.S. EPA) will use data from these tests in assessing the hazard of a chemical to the environment.

(b) *Definitions.* The definitions in section 3 of the Toxic Substances Control Act (TSCA) and the definitions in part 792—Good Laboratory Practice Standards of this chapter apply to this test guideline. The following definitions also apply to this guideline:

(1) *Algicidal* means having the property of killing algae.

(2) *Algistatic* means having the property of inhibiting algal growth.

(3) *EC<sub>x</sub>* means the experimentally derived chemical concentration that is calculated to effect X percent of the test criterion.

(4) *Growth* means a relative measure of the viability of an algal population based on the number and/or weight of algal cells per volume of nutrient medium or test solution in a specified period of time.

(5) *Static system* means a test container in which the test solution is not renewed during the period of the test.

(c) *Test procedures*—(1) *Summary of the test.* (i) In preparation for the test, fill test containers with appropriate volumes of nutrient medium and/or test solution. Start the test by introducing algae into the test and control containers in the growth chambers. Environmental conditions within the growth chambers are established at predetermined limits.

(ii) At the end of 96 hours enumerate the algal cells in all containers to determine inhibition or stimulation of growth in test containers compared to controls. Use data to define the concentration–response curve, and calculate the EC<sub>10</sub>, EC<sub>50</sub>, and EC<sub>90</sub> values.

(2) [Reserved]

(3) *Range-finding test.* (i) A range-finding test should be conducted to determine:

(A) If definitive testing is necessary.

(B) Test chemical concentrations for the definitive test.

(ii) Algae are exposed to a widely spaced (e.g., log interval) chemical concentration series. The lowest value in the

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series, exclusive of controls, should be at the chemical's detection limit. The upper value, for water soluble compounds, should be the saturation concentration. No replicates are required; and nominal concentrations of the chemical are acceptable unless definitive testing is not required.

(iii) The test is performed once for each of the recommended algal species or selected alternates. Test chambers should contain equal volumes of test solution and approximately  $1 \times 10^6$  *Selenastrum* cells/ml or  $7.7 \times 10^5$  *Skeletonema* cells/ml of test solution. The algae should be exposed to each concentration of test chemical for up to 96 hours. The exposure period may be shortened if data suitable for the purposes of the range-finding test can be obtained in less time.

(iv) Definitive testing is not necessary if the highest chemical concentration tested (water saturation concentration or 1000 mg/l) results in less than a 50 percent reduction in growth or if the lowest concentration tested (analytical detection limit) results in greater than a 50 percent reduction in growth.

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