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Agency

Prevention, Pesticides
and Toxic Substances
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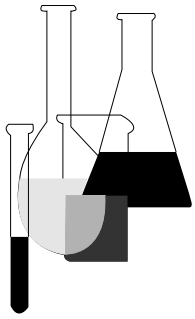
Ecological Effects Test Guidelines

OPPTS 850.1850 Aquatic Food Chain Transfer



“Public Draft”

INTRODUCTION

This guideline is one of a series of test guidelines that have been developed by the Office of Prevention, Pesticides and Toxic Substances, United States Environmental Protection Agency for use in the testing of pesticides and toxic substances, and the development of test data that must be submitted to the Agency for review under Federal regulations.

The Office of Prevention, Pesticides and Toxic Substances (OPPTS) has developed this guideline through a process of harmonization that blended the testing guidance and requirements that existed in the Office of Pollution Prevention and Toxics (OPPT) and appeared in Title 40, Chapter I, Subchapter R of the Code of Federal Regulations (CFR), the Office of Pesticide Programs (OPP) which appeared in publications of the National Technical Information Service (NTIS) and the guidelines published by the Organization for Economic Cooperation and Development (OECD).

The purpose of harmonizing these guidelines into a single set of OPPTS guidelines is to minimize variations among the testing procedures that must be performed to meet the data requirements of the U. S. Environmental Protection Agency under the Toxic Substances Control Act (15 U.S.C. 2601) and the Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. 136, *et seq.*).

Public Draft Access Information: This draft guideline is part of a series of related harmonized guidelines that need to be considered as a unit. *For copies:* These guidelines are available electronically from the EPA Public Access Gopher (gopher.epa.gov) under the heading ‘‘Environmental Test Methods and Guidelines’’ or in paper by contacting the OPP Public Docket at (703) 305–5805 or by e-mail: guidelines@epamail.epa.gov.

To Submit Comments: Interested persons are invited to submit comments. By mail: Public Docket and Freedom of Information Section, Office of Pesticide Programs, Field Operations Division (7506C), Environmental Protection Agency, 401 M St. SW., Washington, DC 20460. In person: bring to: Rm. 1132, Crystal Mall #2, 1921 Jefferson Davis Highway, Arlington, VA. Comments may also be submitted electronically by sending electronic mail (e-mail) to: guidelines@epamail.epa.gov.

Final Guideline Release: This guideline is available from the U.S. Government Printing Office, Washington, DC 20402 on *The Federal Bulletin Board*. By modem dial 202–512–1387, telnet and ftp: fedbbs.access.gpo.gov (IP 162.140.64.19), or call 202–512–0135 for disks or paper copies. This guideline is also available electronically in ASCII and PDF (portable document format) from the EPA Public Access Gopher (gopher.epa.gov) under the heading ‘‘Environmental Test Methods and Guidelines.’’

OPPTS 850.1850 Aquatic Food Chain Transfer

(a) **Scope**—(1) **Applicability.** This guideline is intended to meet testing requirements of both the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 U.S.C. 136, *et seq.*) and the Toxic Substances Control Act (TSCA) (15 U.S.C. 2601).

(2) **Background.** The source material used in developing this harmonized OPPTS test guideline is OPP 72–6 Aquatic Organism Accumulation Tests (Pesticide Assessment Guidelines, Subdivision E—Hazard Evaluation: Wildlife and Aquatic Organisms) EPA report 540/09–82–025 (1982).

(b) **Test standards.** Data sufficient to satisfy the requirements in 40 CFR 158.145 should be derived from tests which comply with the following test standards:

(1) **Test substance**. Data should be derived from testing conducted with the technical grade of each active ingredient in the product (studies using radioisotopes require analytical grade) or the purest available form of the principal degradatioc products, whichever has a water solubility of less than 0.5 mg/L, an octanol/water partition coefficient greater than 1,000, and is persistent in water (i.e., a half-life greater than 4 days).

(2) **Test organisms.** (i) Consultation with the Agency is advised before selection of species is made. One or more of the following species may be used in accumulation testing:

(A) A typical bottom-feeding fish (e.g., catfish or carp).

(B) A cold-water fish, a warm-water fish, or marine fish (e.g. brrok trout, rainbow trout, bass, bluegill, northern pike, walleye, or sheepshead minnow).

(C) Molluscs (e.g., oyster or freshwater clams).

(D) Crustaceans (e.g., *Daphnia* spp., shrimp, or crayfish).

(E) Insect nymphs (e.g., mayfly).

(ii) The following factors should be considered in selecting species:

(A) The use pattern of the formulated product.

(B) The relative sensitivity of the different species to toxic effects.

(C) Data on route of exposure and method of uptake.

(c) **Reporting and evaluation of data.** Specific data reporting and evaluation guidance should be determined by consultation with the Agency.

(d) **References.** The following references can provide usefull background information on developing protocols. The conditions under which an accelerated aquatic organism test may be an acceptable substitute for a full-length test should be determined by consulting with the Agency.

(1) Johnson, B.T. and R.A. Schoettger. A biological model for estimating the uptake, transfer, and degradation of xenobiotics in a food chain. FEDERAL REGISTER 40(123):26906–26909. (June 25, 1975).

(2) Macek, K.J. et al. Bioconcentration of ^{14}C pesticides by bluegill sunfish during continuous exposure. Pp. 119–142 in Structure-activity correlations of studies of toxicity and bioconcentration with aquatic organisms. Proceedings of a symposium held at Burlington, Ontario, March 11–13, 1975. G.D. Veith and D.E. Konasewich, eds. Sponsored by the Standing Committee on Scientific Basis for Water Quality Criteria of the International Joint Commission's Research Advisory Board. (1975).

(3) Schimmel, S.C. et al. Acute toxicity to and bioconcentration of endosulfan by estuarine animals. Pp. 241–252 in Aquatic Toxicology and Hazard Evaluation. F.L. Mayer and J.L. Hamelink, eds. STP no. 634, American Society for Testing and Materials, Philadelphia, PA (1977).

(4) Branson, D.R. et al. Bioconcentration of 2,2',4,4'-tetrachlorobiophenyl in rainbow trout as measured by an accelerated test. *Transactions of the American Fish Society.* 104:785–792 (1975).