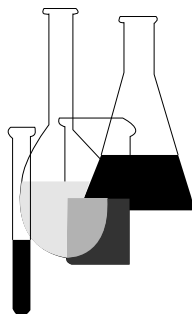




Product Properties Test Guidelines

OPPTS 830.6302 Color



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.*).

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OPPTS 830.6302 Color.

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

(2) **Background.** The source material used in developing this harmonized OPPTS test guideline is OPP guideline 63–2 Color (Pesticide Assessment Guidelines, Subdivision D: Product Chemistry, EPA Report 540/9–82–018, October 1982) and 40 CFR 158.190 Physical and chemical characteristics.

(b) **Test method**—(1) **Objective.** Data on the physical and chemical characteristics of pesticide active ingredients and products are used to confirm or provide supportive information on their identity. Such data are also used in reviewing the production or formulating process used to produce the pesticide or product. Color, physical state, and odor are needed for the Agency to respond to emergency requests for identification of unlabeled pesticides involved in accidents or spills. Physicians, hospitals, and poison control centers also request this information to aid in their identification of materials implicated in poisoning episodes.

(2) **Test details.** (i) A visual description of the color (or lack of color) of each opaque substance may be reported qualitatively.

(ii) The Munsell color system described in ASTM “Standard Method of Specifying Color by the Munsell System, D-1535” may be used (see paragraph (d)(1) of this guideline). This system is based on the color-perception attributes hue, lightness, and chroma and offers a systematic visual method for solids (opaque substances) viewed in daylight by an observer with normal color vision.

(A) Test procedure. Using the Munsell Book of Color and special Gray Masks (supplied by the manufacturer) and daylight illuminating equipment, the observer visually compares the test sample to Munsell chips or charts to estimate from numbers assigned to the chips/charts, in the following order, the Munsell value, the chroma, and the hue. The chips or charts are then rearranged and the estimation is repeated and the values of the two trials are averaged. By use of special tables, a notation is developed which reports the determined Munsell hue, value, and chroma. Detailed procedures and explanations of the tables are presented in ASTM D-1535.

(B) [Reserved]

(iii) The Gardner Color scale described in ASTM D–1544, “Standard Test Method for Color of Transparent Liquids (Gardner Color Scale)” may also be used (see paragraph (d)(2) of this guideline). The method is based on the comparison of samples of the test substance against color reference standards.

(A) Test procedure. Glass tubes (such as viscosity tubes) are filled with the test substance and compared with similar tubes containing reference solutions corresponding to the Gardner Color Standard Number. The tubes are viewed under defined conditions for illumination source, surrounding field, and field of view described in the ASTM method. The method has 18 standard color solutions and provision is made for more precise measurements by interpolation between the standard values.

(B) [Reserved]

(iv) If an alternative method is used, it is recommended that the registrant consult with the Agency prior to adopting the test method.

(c) **Reporting.** (1) Qualitative terms, such as those listed in the “Handbook of Chemistry and Physics,” may be used; or color may be reported by the Munsell or Gardnel color systems (see paragraphs (d)(3) and (d)(4) of this guideline).

(2) Any methods used to characterize the physical properties of a pesticide shall be referenced or described in the application for registration. If the methods used are listed in paragraph (d) of this guideline, reference to the method will suffice. If other methods are used, copies of such methods must be submitted with the application.

(3) References that denote “ASTM” refer to standardized methods published by the American Society for Testing and Materials, Philadelphia, PA.

(4) The applicant shall submit his own statistical evaluation of the precision and accuracy of these measurements (e.g., standard deviations or confidence intervals) when appropriate.

(d) **References.** The following references should be consulted for additional background material on this test guideline.

(1) American Society for Testing and Materials, “Standard Method of Specifying Color by the Munsell System, D-1535,” ASTM, Philadelphia, PA, 1994 annual index.

(2) American Society for Testing and Materials, “Standard Test Method for Color of Transparent Liquids (Gardner Color Scale), D-1544,” ASTM, Philadelphia, PA, 1994 annual index.

(3) *Handbook of Chemistry and Physics*, CRC Publishing Co., Boca Raton, FL, latest edition.

(4) Information on the Munsell color system may be obtained from Munsell Color, MacBeth Color and Photometry (division of Kollmorgen Corp.), 2441 N. Calvert St., Baltimore, MD 21218.