



Standard Test Method for Effectiveness of Aerosol and Pressurized Spray Insecticides Against Cockroaches¹

This standard is issued under the fixed designation E 654; 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 method covers the determination of the effectiveness of aerosol and pressurized spray insecticides against cockroaches.

1.2 Test data by this test method may also be adequate to support claims for use of the product to control the exposed or accessible stages of silverfish, ants, centipedes, spiders, and certain stored product pests.

1.3 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 *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.*

2. Terminology

2.1 *Definitions of Terms Specific to This Standard:*

2.1.1 *aerosols*—for this method, pressurized formulations generally containing 20 % or less of low-volatile ingredients (insecticides, base oils, solvents, etc.) and 80 % or more of propellant (fluorinated hydrocarbons, liquefied petroleum gases, etc.).

2.1.2 *pressurized sprays*—for this method, formulations generally containing more than 20 % low-volatile ingredients (insecticides, base oils, solvents, etc.) and 3 to 80 % propellant (fluorinated hydrocarbons, liquefied petroleum gases, compressed gases, etc.).

2.1.3 *moribund*—pertaining to any insect that shows signs of life, but is incapable of normal locomotion.

3. Significance and Use

3.1 This test method provides a satisfactory means of determining the relative efficiency of aerosol formulations when applied as direct sprays to cockroaches. It is not designed to measure the residual action.

3.2 As a biological test, it is subject to the variations that accompany the reactions of living organisms. It should be employed under the supervision of personnel familiar with the biological testing of insecticides.

3.3 In order to measure the effectiveness with reasonable tolerance, the test is run in conjunction with the Official Test Aerosol II (OTA II)² as the standard basis of comparison. Another standard that may be used with this test method is the Tentative Official Aqueous Pressurized Spray (TOAPS).²

4. Apparatus

4.1 *Official Test Aerosol II (OTA II)/Tentative Official Aqueous Pressurized Spray (TOAPS)*,² to be dispensed from the container in which it is supplied. Ensure that the OTA II/TOAPS dispenser meets the specifications designated on its label.

4.2 *Test Specimen Dispenser*—No restrictions are made on the dispenser. However, the test results apply only to the particular test specimen as dispensed from the particular unit employed.

4.3 *Cockroaches*—The test insects shall be healthy, normal, undeformed last nymphal instars or young males of the German cockroach, (*Blattella germanica* L). Wild cockroaches shall not be used.

4.3.1 Recently emerged last nymphal instars (for example, those whose pigmentation is not dark) shall not be used for testing purposes. It is recommended that the last nymphal-instar stage shall have been attained at least 3 days prior to testing.

4.3.2 Any suitable method permitting the production of large numbers of test insects under controlled temperature and humidity conditions may be employed. The rearing technique described by Woodbury and Barnhart,³ which makes good use of a brood chamber containing adult females from which large numbers of first instar nymphs may be collected at frequent intervals, has been successfully used.

4.3.3 All test insects shall be reared under uniform conditions.

¹ This test method is under the jurisdiction of ASTM Committee E35 on Pesticides and is the direct responsibility of Subcommittee E35.12 on Insect Control Agents. It was originally developed by the Chemical Specialties Manufacturers Association.

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² Available from the Chemical Specialties Manufacturers Assn. 1001 Connecticut Ave. S.W., Washington, DC 20036.

³ Woodbury, E. N., and Barnhart, C. S., "Tests on Crawling Insects," Soap and Sanitary Chemicals, SSCHA, Vol 15, No. 9, 1939.