



Designation: D 3093 – 72 (Reapproved 1992)

Standard Test Method for Pickup Efficiency of Residual Aerosol Insecticides¹

This standard is issued under the fixed designation D 3093; 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 pickup efficiency of residual aerosol insecticides.

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

1.3 *This standard does not purport to address all of the safety problems, 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. Summary of Test Method

2.1 In this test method a smooth, nonabsorbent target is used to represent an ordinary household application or residual insecticides to baseboard, cabinets, etc. Any very coarse particles that do not reach the target are also collected and weighed with the target deposit.

2.2 The aerosol is directed from the test specimen container onto the target. Both the container and the target are weighed before and after spraying, and the target pickup is calculated as a percentage of the mass of material sprayed. The percentage of low-volatile material in the aerosol formulation is also determined, so that the efficiency of deposition of the low-volatiles can be calculated. The percentage of the low-volatiles not deposited, multiplied by the concentrations of active insecticidal ingredients, gives the potential toxic hazard of using the product.

3. Significance and Use

3.1 Although the efficiency of residual insecticide depends on particle size, this efficiency can be determined more easily by the percentage deposit than by the difficult determination of the actual particle size. The corresponding important values for the residual insecticide aerosol are the percentage of the low-volatile ingredients that strike the target surface, and thus perform their function, and the percentage of the low-volatile ingredients that do not strike the target surface and are wasted and may present a toxic hazard to the user.

3.2 This test method permits varying the target distance for fuller study of special types of residual aerosols. A further feature is that it provides a means for eliminating the inaccuracies caused by solvents and propellants depositing

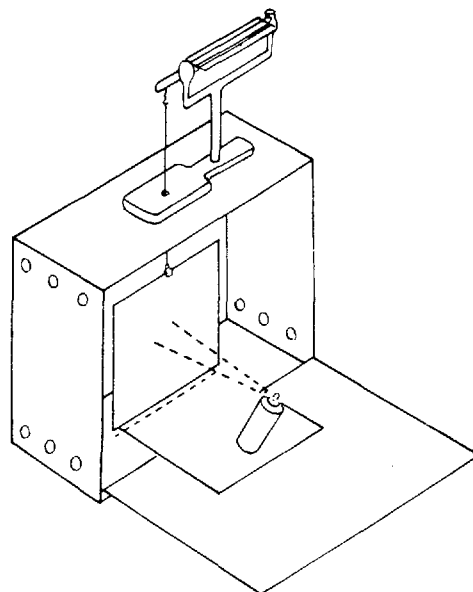


FIG. 1 Apparatus for Pickup Efficiency of Residual Aerosol Insecticide

on the target, and by the variable amount of moisture condensed on the target by the spray.

4. Apparatus (Fig. 1)

4.1 *Box*, 24 in. (609 mm) wide, 20 in. (508 mm) high, and 10 in. (254 mm) deep, constructed of 1/4-in. (6.4-mm) plywood on a simple frame. The front is hinged to the bottom and secured to the top with a cupboard latch. Four sets of three 1-in. (25.4-mm) holes are drilled on lines of centers 2 in. (51 mm) from the tops and bottoms of the two sides of the box. The entire box is painted inside and out with a glossy enamel to make it easy to clean. The box protects the target from drafts and allows slow, steady evaporation of the target deposit.

4.2 *Paper Clamp*, 1-in. (25.4-mm).

4.3 *Blotting Paper*, 1/16 in. (1.6 mm) thick, cut into 12 by 12-in. (305 by 305-mm) squares.

4.4 *Backstop*, such as a square quartz bottle, 3 1/2 in. (89 mm) on a side.

4.5 *Pressure-Sensitive Tape*.

4.6 *Balance*,² small, triple-beam, having a capacity of 111 g and a sensitivity of 0.01 g. The balance is modified by removing the pan and drilling a hole in the base directly under the pan hook. A corresponding hole is drilled in the top center of the box. The balance is bolted in position on

¹ This test method is under the jurisdiction of ASTM Committee E-35 on Pesticides and is the direct responsibility of Subcommittee E35.12 on Insect Control Agents. This test method was originally developed by the Chemical Specialties Manufacturers Assn.

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² Fisher balance No. 2-015 has been found satisfactory for this test method.