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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 13917.3-2026

Replacing GB/T 13917.3-2009

**Laboratory efficacy test methods and criteria for public health
insecticides for pesticide registration - Part 3: Smoke
generators**

农药登记用卫生杀虫剂室内药效试验及评价 第3部分：烟剂

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. This document is Part 3 of GB/T 13917 "Indoor Efficacy Tests and Evaluation of Sanitary Insecticides for Pesticide Registration". GB/T 13917 The following sections have been released.

- 1. Spraying formulations;
- 4. Mosquito Coils;
- 5. Electric Mosquito Repellent Mats;
- 6. Electric Mosquito Repellent Liquid;
- 8. Powders and Pencils;
- 10. Simulated Scene This document replaces GB/T 13917.3-2009 "Indoor Efficacy Testing and Evaluation of Sanitary Insecticides for Pesticide Registration - Part 3. Smoke Agents" Compared with GB/T 13917.3-2009, the main technical changes in "Tobacco Sheets and Flakes" are as follows, apart from structural adjustments and editorial modifications.
 - a) Added terms and definitions for "smoke agent," "sensitive strain," "knockout time," and "mortality rate" (see Chapter 3);
 - b) The requirements for test materials have been changed (see Chapter 4, Chapter 2 of the 2009 edition);
 - c) Added instruments, equipment, and requirements (see 5.2~5.5);

- d) Increased the flea quantity requirement (see 6.3);
- e) The descriptions of test conditions and test procedures have been changed (see 6.1, 6.3, and

3 Smoke Agents

1.Scope This document describes the indoor efficacy testing methods and evaluation of test results for smoke agents used in pesticide registration. This document applies to the determination and evaluation of the efficacy of smoke agents in treating mosquitoes, flies, cockroaches, and fleas during pesticide registration. Under a certain drug dose or concentration, the percentage of target organisms that die per unit time out of the total number of individuals.

4 Test materials

4.1 Test reagents Set the dosage of the test reagent according to the experimental requirements. Specify the Chinese/English common name or code of the reagent, dosage form, active ingredient content, and production process. Company, production date or batch number, etc.

4.2 Test Target

4.2.1 Mosquitoes *Culex pipiens pallens* (northern region) or *Culex pipiens quinquefasciatus* (southern region) (Region), sensitive strains of test insects were reared according to the method in NY/T 1964.2, and selected from the 3rd to 5th day after emergence, with a body weight of (2.0 ± 0.2) mg. Unfed female adult worms.

4.2.2 Flies Houseflies (*Musca domestica*) were reared according to the method in NY/T 1964.1 for sensitive strains. Test insects were selected on days 3-4 after emergence. Adult insects weighing (20.0 ± 2.0) mg/female and (16.0 ± 1.6) mg/male, with half females and half males.

4.2.3 Cockroaches German cockroaches (*Blattella germanica*) were reared according to the method in NY/T 1964.4, and 10-day-old test insects were selected. Adult insects aged 20 days, weighing (100.0 ± 10.0) mg/female (non-podded) and (50.0 ± 5.0) mg/male, with half females and half males.

4.2.4 Fleas *Xenopsyllacheopsis*, laboratory-bred 3- to 10-day-old non-blood-sucking adult fleas.

5 Instruments and Equipment

5.1 Box assembly The square box assembly is shown in Figure 1. A glass square box (B) is mounted on a support (E), and inside the box is a tray (A) for holding the smoke agent.

There is a small door (C) at the lower corner of one side, and an insect-proof hole (F) at the top of this side, which can be sealed with a rubber plug. Another side is a large door. (D). The entire device should be sealed during testing.

5.2 Bottomed Transparent Cylinder Inner diameter 80mm, height.200mm.

5.3 Mosquito suction tube or mosquito suction device Mosquito suction tube. inner diameter 5cm, length 15cm~20cm, one end is an embedded 1cm diameter flared mouth, and the other end is a wide mouth connecting the suction tube. Mosquito suction device. handheld, airflow $3\text{m}^3/\text{min}\sim 5\text{m}^3/\text{min}$.

5.4 stopwatch Accuracy $\pm 0.5\text{s}$.

5.5 Counter Error 1000 ± 1 .

6 Test Methods

6.1 Test Conditions Temperature. $(26\pm 2)^\circ\text{C}$. Relative humidity. $(60\pm 10)\%$.

6.2 Judgment Criteria Knockdown. All six legs roll upwards or sideways and cannot crawl. Death. The insect does not react when lightly touched with a sharp instrument.

6.3 Test Procedure A square box apparatus (5.1) was used. Test insects [50 houseflies, or 50 mosquitoes, or 30 cockroaches, or 30 fleas; fleas were placed in a container with a transparent bottom] [Inside the cylindrical tube (5.2)], place it into the square box through the insect release hole (F) or small door, close the small door, and seal the insect release hole with a rubber stopper. Follow the recommended dosage of the test reagent. Calculate the required dosage of the reagent for the test, apply the reagent in the test chamber according to the method recommended in the reagent instructions, seal the chamber, start timing from the start of combustion, and observe. Observe and record the number of test insects knocked down at regular intervals. After 30 minutes, transfer all test insects to a clean rearing cage (container). Resume standard feeding practices (mosquitoes and flies are fed with cotton balls soaked in 5% sugar water; cockroaches are fed with mixed feed blocks and water-soaked cotton balls; fleas do not require feeding). 24h (Bugs 72h) Check the number of dead insects. The test should be repeated 3 times or more. After each test, the entire test apparatus should be cleaned.

7.Calculation The data from repeated tests were used to establish a toxicity regression equation using linear weighted regression, and KT_{50} was calculated. The 24h (cockroach) toxicity regression was calculated according to equation (1). 72h mortality rate, results are rounded to two decimal places.

8 Evaluation Indicators

Efficacy was evaluated based on indoor KT_{50} and 24-hour mortality rate (72-hour for cockroaches), with specific evaluation indicators shown in Table

1.Both KT50 and mortality rate reached [value missing]. The product was found to be qualified according to the evaluation indicators (cricket and flea mortality rate only).

9 Results and Report Writing

Based on the statistical results, an analysis and evaluation were conducted, and an experimental report was prepared, including. detailed information on the test reagents, the selection of target materials, and the environment. Condition control, experimental treatment, replication and investigation methods, statistical analysis of results, etc., and list the raw data.