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

GB/T 13917.2-2009

**Laboratory efficacy test methods and criteria of public health
insecticides for pesticide registration -- Part 2: Aerosol
(English Translation)**

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Foreword

GB/T 13917 "Laboratory efficacy test methods and criterions of public health insecticides for pesticide registration" is divided into 10 parts:

- Part 1: Spray fluid;
- Part 2: Aerosol;
- Part 3: Smoke generator and smoke tablet;
- Part 4: Mosquito coil;
- Part 5: Vaporizing mat;
- Part 6: Liquid vaporizer;
- Part 7: Bait;
- Part 8: Dutsable powder and chalk;
- Part 9: Repellent;
- Part 10: Analogous site.

This Part is Part 2 of GB/T 13917.

This Part replaces GB 13917.2-1992 "Efficacy test methods of public health insecticides for pesticides registration. Method of laboratory efficacy test for aerosol" and GB/T 17322.2-1998 "Laboratory efficacy criterions of public health insecticides for pesticide registration - Aerosol".

Compared with GB 13917.2-1992 and GB/T 17322.2-1998, the main changes in this Part are as follows:

- MERGE GB 13917.2-1992 and GB/T 17322.2-1998, so that methods and evaluations can be reflected in the same standard, making application more convenient;
- MODIFY the requirements for standard test insects into: use standard test insects of sensitive strains raised in the laboratory;
- MODIFY and CLARIFY the age of the tested insects;
- MODIFY the test instruments;
- No longer required to set up a blank control test;

Laboratory efficacy test methods and criteria of public health insecticides for pesticide registration - Part 2: Aerosol

1 Scope

This Part of GB/T 13917 specifies the indoor efficacy measurement methods and evaluation criteria for aerosols.

This Part is applicable to the determination and evaluation of the efficacy of aerosols, which are directly sprayed on health pests mosquitoes, flies, cockroaches, during pesticide registration.

2 Test materials

Use standard test insects of sensitive strains raised in the laboratory.

2.1 Mosquitoes

Culex pipiens pallens (northern region) or *Culex pipiens quinque fasciatus* (southern region), which are female adults that do not feed on blood on the 3rd to 5th day after emergence.

2.2 Flies

Musca elegans, which is an adult on the 3rd to 4th day after emergence, half male and half female.

2.3 Cockroach

Blattella germanica, which is a 10th to 15th day adult, half male and half female.

3.1 Cylinder device (Figure 1)

The colorless transparent cylinder (C) is placed on the bracket (I). A pull plate (A) is inserted into the upper frame of the bracket. There is a colorless transparent cylinder (or tube) (B) under the pull plate. There is an insect hole (J) in the middle of the side wall. The hole is plugged with a rubber plug, after putting the test insect in. There is a 12-mesh screen cover (H) on the mouth of the colorless transparent cylinder or tube (B). There are pillars (F) on the bottom of the bracket (I), to make the cylinder (or tube) (B) Relative humidity: $60\% \pm 10\%$.

4.2.1 Mosquitoes and flies

Use a cylinder device (3.1). Release the test insects (30 houseflies or 30 mosquitoes) into B, through the insect hole (J). After the test insects resume normal activities, place the aerosol tube to be tested in a horizontal shape, with the nozzle pointing downwards and vertically. Aim at the spray hole on E, to spray the agent (1.0 ± 0.1) g. Immediately plug the round hole with a rubber stopper (G). After 1 minute, pull out the pull plate (A). Start timekeeping immediately. Record the number of knocked down test insects at regular intervals. After 20 min, move the knocked down test insects into clean insect cages. Resume standard feeding. Feed with 5% sugar water cotton balls. Check the number of dead insects for 24 hours. The test insects that are not knocked down are counted as live insects. The test shall be repeated three or more times. After each test, the test device shall be cleaned.

4.2.2 Cockroach

Use the cylinder device (3.1) instead of the pull plate (A). Place 20 cockroaches in a cylinder B, which is coated with a circle of Vaseline on the upper part of the inner wall; sealed with a 12-mesh iron screen. After the test insects resume normal activities, place the aerosol cylinder horizontally, with the nozzle directed downwards and vertically.

Spray the pesticide (1.0 ± 0.1) g into the spray hole on E. Immediately plug the round hole with a rubber stopper (G). Start timekeeping. Record the number of knocked down test insects at certain intervals. After 20 minutes, move all the test insects to a clean vessel. Resume standard feeding. It should feed them with mixed feed blocks and water-soaked cotton balls. Check the number of dead insects after 72 hours. The test shall be repeated three or more times. After each test, the test device shall be cleaned.

5 Calculation

The repeated test data are used to calculate KT50 and virulence regression equations, according to the linear weighted regression method. The 24 h (72 h for cockroaches) mortality is calculated according to formula (1); the results are retained to 2 decimal places.

Where:

P - Mortality rate, %;

H - Represents the number of dead insects, in pcs;

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