

Technical Requirement for Environmental Products
The Certifiable Technical Requirement for Environmental Labelling Products
Smokeless Convolvulaceae Mosquito-repellent Incense

HBC 11 - 2002

1 Scope

This technical requirement specifies definition, basic requirement, technical content and test method for environmental labelling products of smokeless convolvulaceae mosquito-repellent incense.

This technical requirement shall apply to various smokeless convolvulaceae mosquito-repellent incense made from mixed raw materials of household hygienic insecticide, vegetable powder, carbon powder, adhesive and colorant.

2 Standards cited

Provision in the following standards are contained in this standard by citation; the latest version of the standards cited shall apply to this standard.

GB 15670-1995 Toxicological test methods of pesticides for registration

GB 13917.4-1992 Efficacy test methods of public health insecticides for pesticide registration--Method of laboratory efficacy test for mat

GB 13917.8-1992 Efficacy test methods of public health insecticides for pesticide registration--Method of analogous site efficacy test

GB 18416-2001 Domestic sanitary insecticide Mosquito coil incense

3 Definition

3.1 "Single-convolvulaceae mosquito-repellent incense" refers to mosquito coil incense that keep sustained combustion for 7.5 ± 0.5 hours once ignited.

3.2 "Half knockdown time (KT50)" refers to time of 50% testing insects are knocked down (face upward) in defined test conditions.

3.3 "Discharge amount of smoke" refers to the weight of smoke totally collected on the filter during the single coil convolvulaceae mosquito-repellent incense is ignited to it is burned up. It is expressed in mg/single coil.

3.4 "Tar discharge amount" refers to all discharged ether extract, namely tar, during the single coil convolvulaceae mosquito-repellent incense is ignited to it is burned up. It is expressed in mg/single coil.

3.5 "Medium lethal concentration (LC50)" means the drug concentration that lead to death of half of experimental animals (insects) in experiment, which is generally expressed in mg/m³.

4 Basic requirements

4.1 Quality of products should fit into the requirement in GB 18416-2001.

4.2 Products should be registered by related department of national government.

4.3 Pollutant emission of the company should be obliged to conform with pollutant emission standards nationally or locally.

5 Technical contents

5.1 Smoke discharge amount of the products should not be higher than 30mg/single coil.

5.2 Tar discharge amount of the products should not be higher than 20mg/single coil.

5.3 As for toxicity indexes of the products, please see table 1.

Table 1 Requirement for product toxicity

Items	Indexes
Acute inhalation LC50 (2 hours) mg/m ³	> 5000

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5.4 As to requirement for drug effect of the products, see table 2.

Table 2 Requirement for drug effect of products

Items	Indexes
Drug effect in laboratory (KT50), min ≤	7
Drug effect in simulated spot (1 hour knockdown rate), % ≥	85

6 Test

6.1 Test of smoke discharge amount in product should be conducted according to annex A.

6.2 Tar discharge amount in product should be conducted according to annex B.

6.3 Toxicity of product should be conducted according to GB15670-1995.

6.4 Drug effect of product should be conducted according to GB13917.2, GB13917.8.

Annotations :

This technical requirement has been prepared by Department of science and technology, standards of State Environment Protection Administration.

The State Environment Protection Administration keeps the right of interpretation for this technical requirement.

Annex A (annex of the standard)

**Measuring method for smoke discharge amount of
convolve mosquito-repellent incense**

A.1 Test conditions

Instrument, equipment

Dust sampler: it consists of suction machine, gas rotameter and sampling holder; the flow rate is 5 - 25L/min;

Ultra-fine fibre glass filter paper (type 49): detention rate for suspended particle of 0.3 μm diameter is > 99.99%;

Stainless steel tweezers

Analytical balance: its accuracy is 0.1mg;

Pharmacist balance: its accuracy is 0.01g;

Desiccator: allochroic silicagel inside.

A.2 Analytical procedure

Weigh ultra-fine fibre glass filter paper by analytical balance; fix the filter paper in sampling holder (it should take filter paper only by stainless steel tweezers); adjust the flow rate of sampler to 20L/min; put the sampler in a place 10cm to mosquito-repellent incense which is to be tested, and aim the sampling holder at mosquito-repellent incense. Sampling for 0.5-2 hours (depending on how many exhaust smoke is) after mosquito-repellent incense is ignited. Take off filter paper, and put it in desiccator, weigh by analytical balance after 1h. Extinguish mosquito incense after sampling is completed; weigh the mosquito incense before and after burning by pharmacist balance, or measure the length. Choose another filter paper as indoor blank control filter, to determine the background smoke in indoor air.

Calculation

$$M = \frac{(W_2 - W_1) - (C_2 - C_1)}{N_1 - N_2} \times N_1 \times 1000 \quad (1)$$

Where : M—Smoke discharge amount of convolve mosquito-repellent incense, mg/l one coil ;

W₁ —Filter paper weight before sampling, g ;

W₂—Filter paper weight after sampling, , g ;

C₁—Control filter paper weight before sampling, , g ;

C₂—Control filter paper weight after sampling, , g ;

N₁—Weight of convolve mosquito-repellent incense of one coil , g ;

N₂—Residual weight of one coil convolve mosquito-repellent incense after ignition , g .

Annex B (Annex of the standard)
Measuring method for tar discharge amount of convolve mosquito-repellent incense

B.1 Test conditions

Instrument, equipment

Soxhlet extractor

Anhydrous aether : analytically pure ;

Analytical balance: its accuracy is 0.1mg;

Oven

Desiccator

B.2 Analytical procedure

Put weighed filter paper into extraction tube of soxhlet extractor, connect it to dried and accurately weighed receiving flask; add 40ml anhydrous aether from the upper end of condenser tube; put it on water bath and heat, recirculate to extract for 4h.

Take down receiving flask , volatilize aether (recycle it); put it in 105 °C oven when it is nearly dried to dry for 1h; then move to desiccator, wait for 1h; accurately weigh the receiving flask by analytical balance. Weight of tar would be calculated by subtracting weight of receiving flask after extraction from that of before extraction.

Calculation

$$D = \frac{M_1 - M_2}{N_1 - N_2} \times N_1 \times 1000$$

Where : D—Tar discharge amount of convolve mosquito-repellent incense, mg/l one coil ;

M₁—Tar weight of sample , g ;

M₂—Control tar weight , g ;

N₁—Weight of convolve mosquito-repellent of one coil , g ;

N₂—Residual weight of one coil convolve mosquito-repellent incense after ignition , g.