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Textiles - Evaluation for anti-mites activity

纺织品防螨性能的评价

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Foreword

Annex A of this Standard is informative.

The Standard was proposed by China Textile Industry Association.

This Standard shall be under the jurisdiction of the Basic Standards Subcommittee of National Standardization Technical Committee on Textiles (SAC/TC 209/SC 1).

Drafting organizations of this Standard: Shenzhen Kangyi Health Products Co., Ltd., Beijing Jlsun tech Co., Ltd., Standardization Institute of Textile Industry, Guangdong Provincial Institute of Microbiology.

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Textiles - Evaluation for anti-mites activity

1 Scope

This Standard specifies the test and evaluation for textiles' anti-mites activity by repellent method and inhibition method.

This Standard applies to various kinds of textiles such as feather, fibers, yarns, fabrics and articles. Wherein repellent method applies to all textile products; inhibition method is suitable for infrequently-washed products, for example, fillers (cotton, feather, etc.) and carpets.

This Standard does not involve evaluation for anti-mites product safety.

2 Normative references

The following normative documents contain provisions which, through reference in this Standard, constitute provisions of this Standard. For dated reference, subsequent amendments to (excluding correction to), or revisions of, any of these publications do not apply. However, all parties coming to an agreement according to this Standard are encouraged to study whether the latest editions of these documents are applicable. For undated references, the latest editions apply.

GB/T 12490-2007 Textiles - Tests for colour fastness - Colour fastness to domestic and commercial laundering (ISO 105-C06:1994, MOD)

3 Terms and definitions

The following terms and definitions apply to this Standard.

3.1

Mites

A kind of tiny animal that belongs to Arthropoda, Arachnida, Acari, with the body of small spherical or elongated shape. The basic structure is divided into two parts: jaw and body. Mites at adult and nymph stage have four pairs of legs, the larvae have three pairs of legs.

Note: The mites in this Standard are dust mites that can cause human allergic reactions.

3.2

Anti-mites activity

Activity of products to repellent mites or inhibit the growth and reproduction of mites.

3.3

Control sample

Materials that are used to validate the growth conditions of test mites; it shall use the same materials with the sample but without anti-mites finishing. If necessary, it can also use unprocessed 100% cotton fabric, after being high-temperature cooked and washed with distilled water, as the control sample.

Note: It has been proved that using cotton standard adjacent fabric for color fastness test, after being high-temperature cooked and washed with distilled water, as a control sample is appropriate.

4 Safety precautions

Mites are easily diffused under test condition and cause a certain harm to testing personnel or other people, so the test shall be conducted by trained personnel in the specified test environment.

5 Principle

PLACE the sample and the control sample on the petri dish respectively, MAKE them be in contact with mites under specified conditions. After developed for certain time, COUNT the number of living mites in the sample petri dishes with the control sample petri dishes, CALCULATE the repellent rate and inhibition rate of mites according to the test method used, so as to evaluate anti-mites activity.

6 Equipment and materials

6.1 Dissecting microscope or stereo microscope.

6.2 Constant-temperature-and-humidity incubator, temperature range is 20°C ~ 40°C; accurate to ± 1°C; humidity range is 70% ~ 90%, accurate to ± 5%.

6.3 Petri dishes, plastic or glass, with a diameter of 58 mm and a height of 15 mm.

6.4 Covered containers of plastic, glass, ceramic or enamel material, with a side length of about 200 mm ~ 300 mm and a height of about 50 mm ~ 100 mm. There is a 50 mm

8.1 Sample size

Fabric: SELECT representative specimens from each sample, CUT them into a circular with a diameter of 58 mm as a sample.

Feather, fiber, yarn, carpet: SELECT representative specimens from each sample, CUT the fibers, yarns into short fibers with a length of 10 mm ~ 30 mm, WEIGH 0.40 g ± 0.05 g as a sample.

TAKE respectively 3 samples and 3 control samples.

8.2 Sample pretreatment

PLACE the sample at dry heat condition of 65°C ± 5°C for 10 min.

8.3 Sample washing

If samples' anti-mites and washability activity is to be tested, WASH the 3 samples on 8.1 according to the test condition A1M in GB/T 12490-2007; one cycle is equivalent to 5 times of washing (the specific operation of one cycle: ADD 10 steel balls in 150 mL of solution, WASH at 40°C for 45 min, REMOVE the sample, WASH twice in 100 mL of 40°C water, each for 1 min). After reaches specified number of washing times, sufficiently wash the samples with water and then dry them.

9 Test methods and procedures

9.1 Repellent method

9.1.1 PUT a piece of sponge with a thickness of 10 mm and a side length of about 200 mm INTO a covered container, ADD a suitable amount of saturated brine (6.10) (the height of water just immerses the sponge).

9.1.2 TAKE 7 perti dishes. PUT a petri dish in the center of the sticky board as the central petri dish, the remaining 6 petri dishes are placed evenly around the central petri dish in petal shape; STICK the edges between each dish with transparent tape of the same width (as a bridge). Then attach 7 petri dishes on the sticky board.

9.1.3 In the 6 petri dish around, PUT respectively sample and control samples at intervals. LAY the samples ON the bottom of the petri dishes uniformly, smoothly and tightly, and PUT 0.05 g of mite feed in the center of the samples.

9.1.4 PLACE (2000 ± 200) living mites IN the central dish.

9.1.5 PLACE the sticky board assembly that has been placed with test mites and feed ON the sponge (see Figure 1), COVER the container, PLACE it in a constant-temperature-and-humidity incubator at a temperature of (25 ± 2)°C and a relative

Annex A

(Informative)

Nutrients of mites feed

The nutrients of the mites feed used in the same test shall be unified. Feed shall be avoided to have impurities that contains insecticide. Table A.1 gives the examples of mites feed nutrients. When using beer yeast in the feed, the amount shall not be more than 15%. The particle size diameter of feed shall not exceed 100 μm.

Table A.1

Items		Food 1	Food 2	Food 3	Food 4	Food 5
Constituent	Fish or fish by-products	O	O	×	×	×
	Cereals	O	O	×	×	O
	Yeast	O	O	×	×	O
	Milk or dairy	×	O	×	×	×
	Egg or egg products	O	O	×	×	×
	Vegetable protein extracts	×	O	×	×	O
	Vegetables	×	O	×	×	O
	Meat or animal by-products	×	O	×	×	×
	Molluscs or crustaceans	O	O	×	×	×
	Grease or fat	O	×	×	×	×
	Seaweed	O	O	×	×	O
	Sugar	O	×	×	×	×
	Wheat germ	×	×	O	O	×
	Beer yeast	×	×	O	×	×
	Brown beer yeast	×	×	×	O	×
	By-products of original plants	×	O	×	×	O
	Minerals	×	×	×	×	O
Average analysis	Natural protein	48%	43%			32%
	Natural fat	9%	7%			6%
	Ashes	11%	9%			6%
	Natural cellulose	2%	2%			2%
	Moisture	6%	7.5%			6%
Vitamin (per kilogram)	Vitamin A	37600 IU	26000 IU			29295 IU
	Vitamin D_3	2000 IU	1700 IU			1830 IU

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