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GB/T 33610.2-2017

Textiles - Determination of deodorant property

- Part 2: Detector tube method

(ISO 17299-2:2014, MOD)

纺织品 消臭性能的测定

第 2 部分:检知管法

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Foreword

GB/T 33610 "Textiles - Determination of deodorant property" consists of 3 parts:

- Part 1: General requirements;
- Part 2: Detector tube method;
- Part 3: Gas chromatographic method.

This part is Part 2 of GB/T 33610.

This part was drafted in accordance with the rules given in GB/T 1.1-2009.

This part used the redrafting method to modify the ISO 17299-2:2014.

This standard has made the following structural adjustments:

- Modify the title of ISO standard's Chapter 7; adjust 7.1.1 ~ 7.1.4 to 7.2 ~ 7.5;
- Add a title to 10.1; modify the ISO standard's 10.2.1.1 and 10.2.1.2 to listing items.

The main technical differences between this part and ISO 17299-2:2014 are as follows:

- For the normative references, use GB/T 6529 that was modified from international standard to replace ISO 139; move ISO 17299-1 from normative reference to references;
- In application scope, add "this part is applicable to all kinds of textile products".
- Add chapter 12: "Test report".

This part was proposed by China Textile Industry Federation.

This part shall be under the jurisdiction of the National Textile Standardization Technical Committee (SAC/TC209).

Drafting organizations of this part: China Textile Standard Inspection and Certification Co. Ltd., Shanghai Aili Textile Technology Inspection Co. Ltd., Guangdong Institute of Microbial Analysis and Testing, Lianrun Xiang (Qingdao) Textile Technology Co. Ltd., Antai (China) Co. Ltd., Miaokangbao International Trade (Shenzhen) Co. Ltd., JinJiang State Textile Standard Inspection Co. Ltd.

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Textiles - Determination of deodorant property

- Part 2: Detector tube method

1 Scope

This part of GB/T 33610 specifies the test method of the determination of deodorizing properties of textiles by detector tube method. This test method is applicable to the determination of ammonia, acetic acid, methyl mercaptan, hydrogen sulfide odor.

This part applies to all kinds of textile products.

2 Normative references

The following documents are essential for the application of this document. All dated reference documents are only applicable to this document. For undated references, the latest version (including all amendments) is applicable to this document.

GB/T 6529 Textiles - Standard atmospheres for conditioning and testing (GB/T 6529-2008, ISO 139:2005, MOD)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Detector tube

A device for determining the concentration of gas. It is composed of a glass tube filled with a granular chemical substance that reacts with a specific gas and whose color change is proportional to the concentration of the gas to be measured.

Note: The concentration of odor gas components can be read from the reading marked on the surface of the glass tube.

4 Principle

After the sample contacting with the odor gas for a specified time, use detector tube to measure the concentration of the odor components contained in the sampling bags

7.2.1.7 Use 100mL syringe (6.5) to extract, by three times, 250mL of ammonia that is prepared as per 7.2.1.6, and inject into a new 50L sample bag (6.2) that is fully cleaned by diluting gas (5.5) and is vacuumed.

7.2.1.8 Inject diluting gas (5.5) to 25L. This is 100 μ L/L ammonia sample gas.

Note: Small volume sampling bag can be used to replace 50L sampling bag.

7.2.2 Confirmation of ammonia sample gas concentration

7.2.2.1 Inject 3L of ammonia into 5L sampling bag by air pump (6.3). Use 100ml syringe (6.5) to extract 100ml of ammonia sample gas from the sampling bag; measure its concentration by detector tube.

7.2.2.2 Confirm the concentration of ammonia gas sample is within the range of 100 μ L/L \pm 5 μ L/L.

Note: If the concentration of gas is not in this range, it cannot be used as ammonia sample gas. Then the sample gas needs to be re-prepared.

7.3 Acetic acid

Use acetic acid (5.2) of purity 99.7% and diluting gas (5.5) to prepare acetic acid sample gas of concentration 30 μ L/L \pm 3 μ L/L.

7.4 Methyl mercaptan

Use methyl mercaptan standard gas (5.3) and diluting gas (5.5) to prepare methyl mercaptan sample gas of concentration of 8 μ L/L \pm 0.8 μ L/L.

7.5 Hydrogen sulfide

Use 100 μ L/L hydrogen sulphide standard gas (5.4) and diluting gas (5.5) to prepare hydrogen sulfide sample gas of concentration of 4 μ L/L \pm 0.4 μ L/L.

8 Test environment

Conduct the test under the standard atmospheric conditions specified by GB/T 6529.

9 Preparation of samples

9.1 The size or mass of the sample is shown in Table 1. Three samples are required for each test.

read the value at the color-changing location. This value is the odor component concentration after the odor contacts the samples in the sampling bag.

10.2.7 Record the average concentration of three odor components as A.

10.3 Blank test

10.3.1 Without the sample, test according to the steps of 10.2.2~10.2.6.

10.3.2 Record the average concentration of three odor components without sample as B.

11 Calculation of concentration reduction rate of odor components

Calculate the reduction rate of odor component concentration according to formula (1), retain the result to 1 decimal place.

$$\text{ORR} = \frac{(B - A)}{B} \times 100 \quad \dots\dots\dots (1)$$

In which:

ORR - Reduction rate of odor component concentration;

B - The average concentration of odor components in the blank test, unit: microliters per liter (μL/L);

A - The average concentration of odor components with samples, unit: microliter per liter (μL/L).

Note: For comparison of test results, see Appendix A.

12 Test report

The test report shall include the following:

- a) The numbering of this part, that is, GB/T 33610.2-2017;
- b) Sample description;
- c) The gas type and test result; the concentrations of the odor component in each sample bags and the average value of them; and the odor component reduction

Appendix A

(Informative)

Comparison of test results

A.1 Comparison test

A.1.1 General

Refer to the odor component concentrations of sample and blank in Tables A.1~ A.4; calculate the reduction rate of odor components (ORR).

A.1.2 Sample

Polyester fiber woven fabric:

- A-1: the sample that is treated by using low-concentration deodorizing substances;
- A-2: the sample that is treated by using medium-concentration deodorizing substances;
- A-3: the sample that is treated by using high-concentration deodorizing substances;

A.1.3 Oder component

Odor component includes:

- Ammonia;
- Acetic acid.

A.2 Test result

A.2.1 Ammonia

A.2.1.1 Concentration of ammonia in blank test

The concentration of ammonia in the blank test is shown in Table A.1.