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

GB/T 2912.1-2009

**Textiles -- Determination of formaldehyde -- Part 1: Free and
hydrolyzed formaldehyde (water extraction method)**

(English Translation)

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Foreword

GB/T 2912 "Textile - Determination of formaldehyde" is divided into 3 parts.

- Part 1.Free and hydrolyzed formaldehyde (water extraction method);
- Part 2.Released formaldehyde (vapor absorption method);
- Part 3.High performance liquid chromatography method.

This Part is Part 1 of GB/T 2912.

Adopting re-drafting method, this Part modifies and adopts ISO 14184-1.1998 "Textile

- Determination of formaldehyde - Part 1.Free and hydrolyzed formaldehyde (water extraction method)" (English version).

Compared with ISO 14184-1.1998, the differences of this Part are as follows.

- International standards are replaced by Chinese standards for normative

references;

- Delete the foreword of the international standard;
- Add the detailed descriptions in principle;
- Add requirements that the calculation results shall be rounded off to integers;
- Add Appendix B "formaldehyde stock solution calibration method - iodometry".

This Part replaces GB/T 2912.1-1998 "Textile - Determination of formaldehyde - Part

1 Free and hydrolyzed formaldehyde (water extraction method)".

Compared with GB/T 2912.1-1998, the main changes of this Part are as follows.

- Add detection limit in the Scope;
- Add GB/T 11415 in the Normative References;
- Add the detailed descriptions in principle;
- Change the specimen's quantity from 3 to 2. Add requirements that the calculation results shall be rounded off to integers;
- In Chapter 9, add "If the result is less than 20 mg/kg, test result shall be reported as 'not detectable'";
- Add Appendix B "Standardization of formaldehyde stock solution - iodometry".

Appendix A and B of this Part are normative; Appendix C is informative.

This Part was proposed by the China National Textile and Apparel Council.

This part shall be under the jurisdiction of basic standard subcommittee of Technical Committee on Textiles of Standardization Administration of China (SAC/TC 209/SC 1).

Drafting organizations of this Part. South-China Testing Center of Textile Industry, and National Textile Quality Supervision Testing Center.

Chief drafting staffs of this Part. Fan Ying, Zhu Ying, Wang Zhongzhao, and Zhao Liyue.

The historical editions replaced by this Part are.

- GB/T 2912-1982, GB/T 29121-1998.

Textile - Determination of Formaldehyde-

Part 1.Free and Hydrolyzed Formaldehyde

(Water Extraction Method)

Warning. The personnel using this Part of GB/T 2912 shall have practical experiences in regular laboratory work. This Part does not point out all the possible safety problems. Users have the responsibility to take appropriate safety and health measures and also ensure meeting the conditions specified in relevant regulations of the State.

1 Scope

This Part of GB/T 2912 specifies a method for determining the amount of free formaldehyde extracted through water extraction method and partly through hydrolysis.

2 Normative References

The following standards contain provisions which, through reference in this Part of GB/T 2912, constitute provisions of this standard. For dated reference, subsequent amendments (excluding correction) or revisions of these publications do not apply.

3 Principle

Specimen is extracted in the water bath at 40°C for a certain time. After the extraction liquid is colorized by the acetylacetone, the absorbance of formaldehyde in the color reagent is determined by the spectrophotometer under 412 nm wave length.

4 Reagents

All reagents shall be analytical reagent quality.

Prepared by dissolving 1g of dimedone (dimethyl-dihydro-resorcinol or 5,5-diraethyl-cyclohexanedione) in ethanol and by diluting the solution with ethanol to make 100mL. Prepare immediately before use.

5 Apparatus

Spectrophotometer (wave length. 412nm).

Balance. accurate to 0.1mg.

6 Preparation of Formaldehyde Standard Solution and Standard Curve

The equivalent concentrations of the formaldehyde in the test specimen, based on the mass of 1g of the test specimen and 100mL of water, will be 100 times the accurate concentrations of the standard solutions.

7 Specimen Preparation

Do not condition the sample because the pre-drying and humidity in connection with the conditioning may cause changes in the formaldehyde content of the sample. Prior to test, store the sample in a container.

8 Procedures

Exposure of the developed yellow color to direct sunlight for a period of time will cause some fading. Therefore, the operation shall avoid the strong sunlight during the determination process.

9 Calculation and Expression of the Results

Use Formula (1) to correct the absorbance of the test specimen.

10 Test Report

Test report shall include the following contents.

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