

ICS 59.080.01
CCS W 04



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

GB/T 2912.2-2009

**Textiles -- Determination of formaldehyde -- Part 2: Released
formaldehyde (vapour absorption method)**

(English Translation)

Issued on: June 11, 2009

Implemented on: January 1, 2010

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine (AQSIQ)**

Table of Contents

Foreword...	3
1 Scope...	5
2 Normative References...	5
3 Principle...	5
4 Reagents...	6
5 Apparatus...	6
6 Preparation of Formaldehyde Standard Solution and Calibration...	7
7 Sample Preparation...	8
8 Operation Procedures...	9
9 Calculation and Expression Mode of Results...	9
10 Test Report...	10
Appendix A (Normative) Standardization of Formaldehyde Stock Solution - .	11
Sodium Sulfite Method...	11
Appendix B (Normative) Standardization of Formaldehyde Stock Solution -	13
Iodometry...	13

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 (vapour absorption method);
- Part 3. High performance liquid chromatography method.

This Part is Part 2 of GB/T 2912.

Adopting re-drafting method, this Part modifies and adopts ISO 14184-2:1998

"Textiles-Determination of Formaldehyde - Part 2. Released Formaldehyde (Vapour Absorption Method)" (English edition).

Compared with ISO 14184-2:1998, the differences 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;

- Add requirements that the calculation results shall be rounded off to integers;
- Add Appendix B "Standardization of formaldehyde stock solution - Iodometry".

This Part replaces GB/T 2912.2-1998 "Textiles - Determination of Formaldehyde - Part 2. Released Formaldehyde (Vapour Absorption Method)".

Compared with GB/T 2912.2-1998, the main changes of this Part are as follows.

- Add detection limit in the Scope;
- Add the detailed descriptions in principle;
- Add "The average value of 2 inspection results shall be taken as the test result.

The calculation result shall be rounded off to integral number";

- 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 Appendix B of this Part are normative Appendix C and Appendix D are informative.

Textiles - Determination of Formaldehyde -

Part 2. Released Formaldehyde (Vapour Absorption 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 formaldehyde released under the conditions of accelerated storage from textiles in any form by means of a vapour absorption method.

This Part is intended for use in the range of releasable formaldehyde on the fabric between 20 mg/kg and 3500 mg/kg. The detection limit is 20 mg/kg. Below this limit

the result is reported as "not-detectable".

2 Normative References

The following documents contain provisions which, through reference in this Part of GB/T 2912, constitute provisions of this Part. For dated reference, subsequent amendments (excluding corrections) or revisions of these publications do not apply. However, parties who enter into agreements based on this Part are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. For any undated references, the latest edition of the document referred to applies.

GB/T 6529 Textiles - Standard Atmospheres for Conditioning and Testing (GB/T 6529-2008, ISO 139. 2005, MOD)

GB/T 6682 Water for Analytical Laboratory Use - Specification and Test Methods (GB/T 6682-2008, ISO 3696. 1987, MOD)

3 Principle

A weighed fabric specimen is suspended over water in a sealed jar. The jar is placed in an incubator at a controlled temperature for a specified length of time. The released
Where,

F - the formaldehyde content in fabric sample, mg/kg;

c - the formaldehyde content in sample solution as read from the calibration curve,
μg/mL;

m - mass of test specimen, g.

The average value of 2 parallel tests shall be taken as the test result. The calculation result shall be rounded off to integral number.

If the result is less than 20 mg/kg, the test result shall be reported as 'not-detectable'.

10 Test Report

Test report shall include the following contents.

a) The standards used;

- b) The date the sample was received, the means in which it was stored prior to test and the date tested;
- c) Description of the specimen tested and how it is packaged;
- d) The mass of the test specimens and, if required, the correction coefficient for the mass;
- e) Range of working curve;
- f) The amount of formaldehyde extracted from the specimen, mg/kg;
- g) Any deviation, by agreement or otherwise, from the procedure specified.

Appendix B

(Normative)

Standardization of Formaldehyde Stock Solution -

Iodometry

B.1 General

The stock solution containing approximately 1500µg/mL formaldehyde shall be accurately standardized in order to prepare a precise working curve for use in colorimetric analysis.

B.2 Principle

An aliquot of the stock solution is reacted with an excess of iodine solution. Use standard acid solution, with thymolphthalein as indicator, to carry out the back-titration.

B.3 Apparatus

B.3.1 5 mL, 10 mL, 20 mL, 50 mL one-mark pipette.

B.3.2 50 mL burette.

B.3.3 250 mL iodine flask and conical flask with stopper.

B.3.4 500 mL, 1L volumetric flask.

B.4 Reagents

B.4.1 Iodine solution [$c(I_2)=0.1$ mol/L]. put 13 g of iodine (I_2) and 30 g of potassium iodide (KI) into a 1 L brown volumetric flask. Dilute to the mark with water. Shake well and store in the dark place.