BUREAU OF INDIAN STANDARDS

Last date for comments – 24 July, 2024

Draft Indian Standard

Textiles — Determination of formaldehyde — Part 3: Free and hydrolysed formaldehyde (extraction method) by liquid chromatography

Chemical Methods of Test Sectional Committee, TXD 05

NATIONAL FOREWORD

This Indian Standard intended to be adopted is identical with ISO 14184-3:2023 'Textiles — Determination of formaldehyde — Part 3: Free and hydrolysed formaldehyde (extraction method) by liquid chromatography' issued by the International Organization for Standardization (ISO).

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In the standard intended to be adopted, reference appears to certain International Standard for which Indian Standard also exist. The corresponding Indian Standards which are to be substituted in their respective places are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 3696:1987 Water for analytical laboratory use — Specification and test methods	IS 1070 : 2023 Reagent grade water — Specification (*fourth revision*)	Technically Equivalent

In reporting the result of a test or analysis made in accordance with this standard, if the final value; observed or calculated, is to be rounded off, it shall be done in accordance with IS 2: 2022 'Rules for rounding off numerical values (*second revision*).

Extract of ISO 14184-3:2023 'Textiles — Determination of formaldehyde — Part 3: Free and hydrolysed formaldehyde (extraction method) by liquid chromatography

1 Scope

This document specifies a method for determining the amount of free formaldehyde and formaldehyde extracted partly through hydrolysis by means of an extraction method. The method can be applied for the testing of textile fibres, fabrics or yarns.

NOTE — This method, based on liquid chromatography (LC), is selective and not sensitive to coloured extracts and is intended to be used for precise quantification of formaldehyde.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

i) ISO 3696, Water for analytical laboratory use — Specification and test methods

3 Terms and definitions

No terms and definitions are listed in this document.

4 Conformity

Compared with ISO 14184-1, the two analytical methods should give similar trends but not necessarily the same absolute result. Therefore, in cases of dispute, the method in this document shall be used in preference to ISO 14184-1 (see Note in Clause 1).

5 Principle

The sample is extracted with extraction solution at 40 °C. The eluate is mixed with 2, 4-dinitrophenylhydrazine (DNPH), whereby formaldehyde reacts to give the respective hydrazone. It is separated by liquid chromatography with ultraviolet detector (LC-UV) or liquid chromatography with diode array detector (LC-DAD) or liquid chromotagraphy with single quadrupole mass detector (LC MS) or liquid chromatography with triple quadrupole mass detector (LC-MSMS) and the amount is quantified.

The process is selective. Formaldehyde is separated and quantified as a derivative from other aldehydes and ketones by LC. Free formaldehyde and formaldehyde which is hydrolysed during extraction to yield free formaldehyde is quantified

FORMAT FOR SENDING COMMENTS ON BIS DOCUMENTS

(Please use A4 size sheet of paper only and type within fields indicated. Comments on each clause/sub clause/table/fig etc. be started on a fresh box. Information in column 3 should include reasons for the comments and suggestions for modified working of the clauses when the existing text is found not acceptable. Adherence to this format facilitates Secretariat's work)

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Item, Clause Sub-Clause No. Commented upon (Use Separate Box afresh)	**Comments**	**Specific Proposal (Draft clause to be add/amended)**	**Remarks**	**Technical References and justification on which (2), (3), (4) are based**
(1)	**(2)**	**(3)**	**(4)**	**(5)**