

<b>STN</b>	<b>Textílie</b> <b>Stanovenie formaldehydu</b> <b>Časť 3: Volný a hydrolyzovateľný formaldehyd</b> <b>(metóda extrakcie vodou)</b> <b>Stanovenie kvapalinovou chromatografiou</b> <b>(ISO 14184-3: 2023)</b>	<b>STN</b> <b>EN ISO 14184-3</b>  80 0068
------------	---	--

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

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 02/24

Obsahuje: EN ISO 14184-3:2023, ISO 14184-3:2023

**138164**

---

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2024  
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii v znení neskorších predpisov.

EUROPEAN STANDARD

**EN ISO 14184-3**

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2023

ICS 59.080.01

English Version

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

Textiles - Dosage du formaldéhyde - Partie 3: Formaldéhyde libre et hydrolysé (méthode par extraction) par chromatographie liquide (ISO 14184-3:2023)

Textilien - Bestimmung des Gehaltes an Formaldehyd - Teil 3: Freier und hydrolysiertes Formaldehyd (Extraktionsverfahren) mittels Flüssigkeitschromatographie (ISO 14184-3:2023)

This European Standard was approved by CEN on 27 November 2023.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN ISO 14184-3:2023 (E)**

<b>Contents</b>	<b>Page</b>
<b>European foreword.....</b>	<b>3</b>

## **European foreword**

This document (EN ISO 14184-3:2023) has been prepared by Technical Committee ISO/TC 38 "Textiles" in collaboration with Technical Committee CEN/TC 248 "Textiles and textile products" the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2024, and conflicting national standards shall be withdrawn at the latest by June 2024.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

## **Endorsement notice**

The text of ISO 14184-3:2023 has been approved by CEN as EN ISO 14184-3:2023 without any modification.

# INTERNATIONAL STANDARD

# ISO 14184-3

First edition  
2023-12

---

---

## Textiles — Determination of formaldehyde —

### Part 3: Free and hydrolysed formaldehyde (extraction method) by liquid chromatography

*Textiles — Dosage du formaldéhyde —*

*Partie 3: Formaldéhyde libre et hydrolysé (méthode par extraction)  
par chromatographie liquide*



Reference number  
ISO 14184-3:2023(E)

© ISO 2023

**ISO 14184-3:2023(E)****COPYRIGHT PROTECTED DOCUMENT**

© ISO 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Conformity</b> .....	<b>1</b>
<b>5 Principle</b> .....	<b>1</b>
<b>6 Reagents</b> .....	<b>2</b>
<b>7 Apparatus</b> .....	<b>3</b>
<b>8 Preparation of test specimen</b> .....	<b>3</b>
<b>9 Procedure</b> .....	<b>3</b>
9.1 Formaldehyde stock solution.....	3
9.1.1 Preparation of formaldehyde stock solution.....	3
9.1.2 Determination of the formaldehyde concentration in the stock solution.....	4
9.2 Determination of formaldehyde.....	4
9.2.1 Calibration of LC.....	4
9.2.2 Extraction of the test specimen.....	5
9.2.3 Derivatization with DNPH and analysis.....	5
<b>10 Expression of results</b> .....	<b>6</b>
10.1 Calculation of the formaldehyde content in textile test specimen.....	6
10.2 Spiking — Determination of recovery rate.....	6
10.3 Precision of the test method.....	6
<b>11 Test report</b> .....	<b>7</b>
<b>Annex A (informative) Information on precision of the test method</b> .....	<b>8</b>
<b>Annex B (informative) Examples of chromatographic and spectroscopic conditions</b> .....	<b>10</b>
<b>Bibliography</b> .....	<b>13</b>

## ISO 14184-3:2023(E)

### Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 38, *Textiles*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 248, *Textiles and textile products*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 14184 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).



# Textiles — Determination of formaldehyde —

## Part 3:

# Free and hydrolysed formaldehyde (extraction method) by liquid chromatography

**WARNING** — The use of this document can involve hazardous materials, operations and equipment. It does not purport to address all of the safety or environmental problems associated with its use. It refers only to technical suitability. It is the responsibility of the user to determine any legal obligations relating to health and safety, at any stage, prior to use. It has been assumed in the drafting of this document that the execution of its provisions is entrusted to appropriately qualified and experienced people.

## 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.

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

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**