

STN	Textílie Stanovenie chinolínu, izochinolínu a niektorých derivátov (ISO 13144: 2025)	STN EN ISO 13144 80 8946
------------	---	--

Textiles - Determination of quinoline, isoquinoline and certain derivatives (ISO 13144:2025)

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. 05/26

Obsahuje: EN ISO 13144:2025, ISO 13144:2025

142133

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2026
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii
v znení neskorších predpisov.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 13144

December 2025

ICS 59.080.01

English Version

**Textiles - Determination of quinoline, isoquinoline and
certain derivatives (ISO 13144:2025)**

Textiles - Détermination de la quinoléine, de
l'isoquinoléine et de certains dérivés (ISO 13144:2025)

Textilien - Bestimmung von Chinolin, Isochinolin und
bestimmten Derivaten (ISO 13144:2025)

This European Standard was approved by CEN on 13 December 2025.

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 13144:2025 (E)

Contents	Page
European foreword.....	3

European foreword

This document (EN ISO 13144:2025) 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 2026, and conflicting national standards shall be withdrawn at the latest by June 2026.

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 13144:2025 has been approved by CEN as EN ISO 13144:2025 without any modification.



International Standard

ISO 13144

Textiles — Determination of quinoline, isoquinoline and certain derivatives

*Textiles — Détermination de la quinoléine, de l'isoquinoléine et
de certains dérivés*

First edition 2025-12

ISO 13144:2025(en)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

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
Website: www.iso.org

Published in Switzerland

ISO 13144:2025(en)**Contents**

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	1
5 Reagents	2
6 Apparatus	2
7 Preparation of test specimens	3
7.1 Fibre and fabric test specimens	3
7.2 Dyestuff test specimens	3
8 Procedure	3
8.1 Preparation of standard solutions	3
8.1.1 Preparation of stock standard solutions	3
8.1.2 Preparation of calibration solutions	4
8.2 Extraction procedure	4
8.2.1 Extraction procedure for textile test specimens	4
8.2.2 Extraction procedure for dyestuff test specimens	4
8.3 Sample analysis	4
9 Expression of results	4
9.1 Calibration curve	4
9.2 Calculation of quinoline derivatives	5
9.3 Reliability of the test method	5
9.4 Limit of quantification of the test method	5
10 Test report	5
Annex A (informative) Examples of chromatographic method — GC-MS and GC-MS/MS	6
Annex B (informative) Examples of chromatographic method — LC-MS	11
Annex C (informative) Reliability of the method	15
Bibliography	16

ISO 13144:2025(en)**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).

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. 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.

This document was prepared by Technical Committee ISO/TC38, *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).

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.

ISO 13144:2025(en)

Introduction

Quinoline, which is used in certain dyes, is classified as a carcinogenic substance. It has a high solubility in water and this tendency makes it of concern in manufacturing processes where the dyed textiles are washed. It can also be found as residue in textiles and textile products where it can easily come into skin contact. A series of studies have shown the potential harm to humans as well as downstream aquatic life. Quinoline is thus restricted in the European Union in:

- a) clothing or related accessories;
- b) textiles other than clothing which, under normal or reasonably foreseeable conditions of use, come into contact with human skin to an extent similar to clothing;
- c) footwear^[1].

Quinoline derivatives are compounds that can be synthesized from a quinoline compound by replacement of one atom with another atom or group of atoms. Considering their toxicity on several animal species, it is important to set up an effective and precise test method to determine the content of them.

The test method described in this document is based on the use of gas chromatography with mass spectrometry (GC-MS) or liquid chromatography with mass spectrometry (LC-MS).

Textiles — Determination of quinoline, isoquinoline and certain derivatives

1 Scope

This document specifies a method for the qualification and quantification of certain quinoline derivatives in textile products by means of extraction with methanol and gas chromatography with mass selective detector or liquid chromatography with mass selective detector.

The method is applicable to all kinds of textile products consisting of natural or artificially dyed textile fibres and fabrics. It is further applicable to dyestuff powder used as textile auxiliary for dyeing and printing.

WARNING — The use of this document involves hazardous substances, 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 and does not absolve the user from legal obligations relating to health and safety/environment at any stage.

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*

ISO 4787, *Laboratory glass and plastic ware — Volumetric instruments — Methods for testing of capacity and for use*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN