SLOVENSKI STANDARD
oSIST prEN ISO 13144:2025

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Tekstilije - Ugotavljanje kvinolina, izokvinolina in nekaterih derivatov (ISO/DIS 13144:2025)

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

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

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

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ISO/DIS 13144

Textiles — Determination of quinoline, isoquinoline and certain derivatives

Textiles — Dosage de quinoléine, d'isoquinoléine et de certains dérivés

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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 documents 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).

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

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 38, *Textiles*.

A list of all parts in the ISO 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.

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

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.

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.

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*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Principle

The quinoline derivatives are extracted from textile fibres and fabrics or dyestuff with methanol in an ultrasonic water bath. The extract is analyzed by means gas chromatograph with mass selective detector or liquid chromatograph with mass selective detector.

Table 1 indicates the list of quinoline derivatives which can be analysed with the method described in the current document.

Table 1 — List of quinoline derivatives that can be analysed

No.	C.I. Generic Name	CAS Registry Number® [a]
1	Quinoline	91-22-5
2	Isoquinoline	119-65-3
3	2-methylquinoline	91-63-4
4	3-methylquinoline	612-58-8
5	4-methylquinoline	491-35-0
6	6-methylquinoline	91-62-3
7	8-methylquinoline	611-32-5
8	1-methylisoquinoline	1721-93-3
9	2,6-dimethylquinoline	877-43-0
10	2,4-dimethylquinoline	1198-37-4

[a] CAS Registry Number® (CAS RN®) is a trademark of CAS corporation. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of the product named. Equivalent products may be used if they can be shown to lead to the same results.

5 Reagents

Unless otherwise specified, all reagents shall be of analytical grade.

5.1 Quinoline and quinoline derivates, as listed in Table 1.

5.2 Methanol, CAS RN® 67-56-1.

5.3 Acetonitrile, CAS RN® 75-05-08.

5.4 Water, grade 2 complying with ISO 3696.

5.5 10 mM ammonium acetate buffer, pH 3,6.

5.6 Acetic acid, CAS RN® 64-19-7.

6 Apparatus

The usual laboratory equipment and laboratory glassware, according to ISO 4787, shall be used, in addition to the following:

6.1 Analytical balance, with a precision of at least 0,1 mg.

6.2 Ultrasonic water bath, capable of maintaining a temperature of about 70 °C.

6.3 Glass vial with screw cap, e.g. 40 ml.

6.4 PTFE-Membrane filter, with pore size of 0,45 µm or less.

6.5 Pipettes.

6.6 Glass vial, with septum cap for chromatographic instrument.