Textiles - Method for the detection and determination of alkylphenol ethoxylates (APEO) - Part 1: Method using HPLC - MS (ISO 18254-1:2016)

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 18254-1:2016 sisaldab Euroopa standardi EN ISO 18254-1:2016 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 18254-1:2016 consists of the English text of the European standard EN ISO 18254-1:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 27.04.2016.	Date of Availability of the European standard is 27.04.2016.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 59.080.01

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 18254-1

April 2016

ICS 59.080.01

English Version

Textiles - Method for the detection and determination of alkylphenol ethoxylates (APEO) - Part 1: Method using HPLC - MS (ISO 18254-1:2016)

Textiles - Méthode de détection et de détermination des alkylphénols éthoxylés (APEO) - Partie 1: Méthode utilisant la CLHP-SM (ISO 18254-1:2016)

This European Standard was approved by CEN on 2 January 2016.

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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.

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

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Ref. No. EN ISO 18254-1:2016 E

European foreword

This document (EN ISO 18254-1:2016) 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 October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

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

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 18254-1:2016 has been approved by CEN as EN ISO 18254-1:2016 without any modification.

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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 WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information.

ISO 18254-1 was prepared by the European Committee for Standardization (CEN) in collaboration with ISO Technical Committee ISO/TC 38, *Textiles*, and Technical Committee CEN/TC 248, *Textiles and textile products* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ISO 18254 consists of the following parts under the general title *Textiles — Method for the detection and determination of alkylphenol ethoxylates (APEO)*:

— *Part 1: Method using HPLC-MS*

The following part is under preparation:

— *Part 2; Method using NPLC*

Introduction

Alkylphenol ethoxylates (APEOs) are high-value products commonly used in industrial and consumer detergents and cleaners, some plastics and many industrial applications. Their “down the drain” uses may result in their presence in wastewater streams and receiving water bodies. Human exposure to APEO can occur through diverse sources such as environmental, food, or skin contact. Considering their toxicity on several animal species, minimization of exposure to APEO is recognized as important to the preservation of human health.

Nonylphenol ethoxylates belong to the non-ionic surfactant category and are of particular concern. The biodegradation of nonylphenol ethoxylate releases the branched nonylphenol, which is difficult to biodegrade. Nonylphenol is a substance having endocrine disruptive properties that can have serious effects on aquatic and many other organisms. For this reason, the release of nonylphenol ethoxylate into the environment should be avoided.

Chemical products containing nonylphenol and/or nonylphenol ethoxylates in concentrations equal to or greater than 0,1 % are restricted within the EU for specific uses, among others, the processing of leather and textiles, industrial, and institutional cleaning.

This restriction is part of the entry 46 of Annex XVII of the REACH regulation EU 1907/2006, which repealed the former Directive 2003/53/EC.

The current restriction is due to be widened to apply to textile products that can be washed in water. A limit value of 0,01 % (100 ppm) is expected.

Textiles — Method for the detection and determination of alkylphenol ethoxylates (APEO) —

Part 1: Method using HPLC-MS

SAFETY PRECAUTIONS — It is the user's responsibility to use safe and proper techniques in handling materials in this test method. Consult manufacturers for specific details such as material safety, data sheets, and other recommendations. Good laboratory practice should be followed. Users should comply with any national and local safety regulations.

1 Scope

This part of ISO 18254 describes analyses that are used to detect extractable alkylphenol ethoxylates (nonylphenol ethoxylates and octylphenol ethoxylates) in textile products. This document provides a method that uses Liquid Chromatograph (LC) with Mass Spectrometry (MS) system to detect and quantify alkylphenol ethoxylates of defined ethoxylate chain length.

2 Principle

The textile sample is cut into small pieces, transferred to a vial, and extracted with methanol using ultrasound. The extract is filtered and not subjected to any additional cleaning. Subsequently, the methanol extract is analysed by Liquid Chromatography (LC) with Mass Spectrometry (MS).

3 Reagents

During the analysis, unless otherwise stated, only reagents of recognized analytical grade shall be used.

NOTE OPEO and NPEO are available currently as technical grade.

3.1 Solvents, of quality for HPLC analysis

3.2 Octylphenol ethoxylates, (Triton®[1)] X-100), (OPEOs) CAS no. 9002-93-1, Sigma-Aldrich® Part number T9284 (see Note in 3.3).

3.3 Nonylphenol ethoxylates, (IGEPAL®[2)] CO-630), (NPEOs) CAS no. 68412-54-4, Sigma-Aldrich® Part number 542334 (see Note).

NOTE The mentioned brand names in 3.2 and 3.3 are given to improve the comparability of the test results amongst laboratories. Using another batch or another supplier could lead to different results.

3.4 Methanol.

3.5 Acetonitrile (ACN).

1) Triton® is an example of a suitable product available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of this product.

2) IGEPAL® is an example of a suitable product available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of this product.