

Starch derivatives - Determination of the composition of glucose syrups, fructose syrups and hydrogenated glucose syrups - Method using high-performance liquid chromatography (ISO 10504:2013)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 10504:2015 sisaldab Euroopa standardi EN ISO 10504:2015 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 10504:2015 consists of the English text of the European standard EN ISO 10504:2015.
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 29.07.2015.	Date of Availability of the European standard is 29.07.2015.
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 67.180.20

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:

Aru 10, 10317 Tallinn, Eesti; koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Aru 10, 10317 Tallinn, Estonia; homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Starch derivatives - Determination of the composition of glucose
syrops, fructose syrops and hydrogenated glucose syrops -
Method using high-performance liquid chromatography (ISO
10504:2013)

Produits dérivés de l'amidon - Détermination de la
composition des sirops de glucose, des sirops de fructose
et des sirops de glucose hydrogénés - Méthode par
chromatographie en phase liquide à haute performance
(ISO 10504:2013)

Stärkederivate - Bestimmung der Zusammensetzung von
Glucosesirup, Fructosesirup und hydriertem Glucosesirup -
Hochleistungs-flüssigchromatographisches Verfahren (ISO
10504:2013)

This European Standard was approved by CEN on 19 June 2015.

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, 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 United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of ISO 10504:2013 has been prepared by Technical Committee ISO/TC 93 “Starch (including derivatives and by-products)” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 10504:2015 by CCMC.

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 January 2016, and conflicting national standards shall be withdrawn at the latest by January 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.

This document supersedes EN ISO 10504:2000.

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 10504:2013 has been approved by CEN as EN ISO 10504:2015 without any modification.

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Principle	1
4 Reagents	1
5 Apparatus	2
6 Procedure	3
6.1 Choice of column.....	3
6.2 System start-up.....	3
6.3 Calibration of column.....	3
6.4 Sample preparation.....	4
6.5 Sample analysis.....	4
7 Calculation	4
8 Precision	5
8.1 Repeatability.....	5
8.2 Reproducibility.....	5
Annex A (informative) Examples of standard solutions	7

Starch derivatives — Determination of the composition of glucose syrups, fructose syrups and hydrogenated glucose syrups — Method using high-performance liquid chromatography

1 Scope

This International Standard describes a high-performance liquid chromatographic (HPLC) method for measuring the composition of dextrose solutions, glucose syrups, fructose-containing syrups, hydrogenated glucose syrups, sorbitol, mannitol and maltitol. The constituents are mainly glucose, maltose, maltotriose, fructose, sorbitol, mannitol, maltitol and malto-oligosaccharides.

The use of a column packed with cation-exchange resin is essential.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*

ISO 5381:1983, *Starch hydrolysis products — Determination of water content — Modified Karl Fischer method*

3 Principle

Saccharide components are separated using high-performance liquid chromatography. Separation is achieved using a cation-exchange column with water as the eluent. The eluted components are detected by means of a differential refractometer, and quantified using an electronic integrator.

4 Reagents

All reagents used shall be of recognized analytical reagent grade.

4.1 Special distilled water.

The water used may be double-distilled of quality grade 1 in accordance with ISO 3696. The most suitable is demineralized water, which prevents contamination of the ion-exchange resin.

The water should be filtered by passage through a 0,22 µm filter. Also, it should be degassed by treatment under vacuum, or by use of an in-line degassing unit. The water should be maintained under an inert atmosphere, and preferably at 70 °C to inhibit microbial growth.

NOTE Some commercial water-purification devices produce water which is both filtered and degassed.

4.2 Primary standard solutions.

Prepare solutions (see [Annex A](#)) containing 10 % (or less) dry matter, according to the sensitivity of the refractometer, with compositions as close as possible to that of the samples to be analysed.

NOTE Suitable reference materials for the constituents listed in [Clause 1](#) can be obtained from established chemical companies.