

Foodstuffs - Determination of vitamin B1 (thiamin) by HPLC

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 14122:2003 sisaldab Euroopa standardi EN 14122:2003 + AC:2005 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 14.08.2003 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 14122:2003 consists of the English text of the European standard EN 14122:2003 + AC:2005.</p> <p>This document is endorsed on 14.08.2003 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: This draft European Standard specifies a method for the determination of Vitamin B¹ (thiamin) in foodstuffs by High performance liquid chromatography (HPLC)</p>	<p>Scope: This draft European Standard specifies a method for the determination of Vitamin B¹ (thiamin) in foodstuffs by High performance liquid chromatography (HPLC)</p>
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ICS 67.050

Võtmesõnad: analysis, chemical analysis and testin, det, determination of content, food inspection, food products, food technology, food testing, high performance liquid chromatography, hplc, liquid chromatography, quantitative analysis, thiamine, vitamin b complex, vitamins

ICS 67.050

English version

Foodstuffs - Determination of vitamin B1 by HPLC

Produits alimentaires - Dosage de la vitamine B1 par CLHP

Lebensmittel - Bestimmung von Vitamin B1 mit HPLC

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 14122:2003) has been prepared by Technical Committee CEN/TC 275 "Food analysis - Horizontal methods", the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by November 2003, and conflicting national standards shall be withdrawn at the latest by November 2003.

Annexes A, B and C are informative.

WARNING — The use of this European Standard can involve hazardous materials, operations and equipment. This European Standard does not purport to address all the safety problems associated with its use. It is the responsibility of the user of this European Standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies a method for the determination of vitamin B₁ in foodstuffs by high performance liquid chromatography (HPLC). Vitamin B₁ is the mass fraction of total thiamin including its phosphorylated derivatives.

2 Normative references

This European Standard incorporates by dated or undated references, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN ISO 3696:1995, *Water for analytical laboratory use – Specification and test methods (ISO 3696:1987)*.

3 Principle

Thiamin is extracted from food after acid hydrolysis followed by dephosphorylation using an enzymatic treatment and quantified by HPLC with pre- or post-column derivatization to thiochrome [1] to [6].

4 Reagents

4.1 General

During the analysis, unless otherwise stated, use only reagents of recognised analytical grade and water of at least grade 1 according to EN ISO 3696:1995, or double distilled water.

4.2 Chemicals and solutions

4.2.1 Methanol, HPLC grade mass fraction $w(\text{CH}_3\text{OH}) \geq 99,8 \%$

4.2.2 Acetic acid solution, substance concentration $c(\text{CH}_3\text{COOH}) = 0,02 \text{ mol/l}$

4.2.3 Isobutanol, $w(\text{C}_4\text{H}_{10}\text{O}) \geq 98 \%$

4.2.4 Sodium dihydrogen phosphate, $w(\text{NaH}_2\text{PO}_4) \geq 99,8 \%$

4.2.5 Hydrochloric acid, $w(\text{HCl}) = 36 \%$

4.2.6 Hydrochloric acid, $c(\text{HCl}) = 0,1 \text{ mol/l}$

4.2.7 Sulfuric acid, $c(\text{H}_2\text{SO}_4) = 0,05 \text{ mol/l}$

4.2.8 Sodium hydroxide, $w(\text{NaOH}) \geq 99 \%$

4.2.9 Sodium hydroxide solution, mass concentration $\rho(\text{NaOH}) = 150 \text{ g/l}$

4.2.10 Sodium hydroxide solution, $\rho(\text{NaOH}) = 200 \text{ g/l}$

4.2.11 Potassium hexacyanoferrate III, $w\{\text{K}_3[\text{Fe}(\text{CN})_6]\} \geq 99 \%$