Loomsed ja taimsed rasvad ja õlid. Veesisalduse määramine. Karl Fischeri meetod (püridiinivaba)

Animal and vegetable fats and oils - Determination of water content - Karl Fischer method (pyridine free)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 8534:2008 sisaldab Euroopa standardi EN ISO 8534:2008 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 8534:2008 consists of the English text of the European standard EN ISO 8534:2008.
Standard on kinnitatud Eesti Standardikeskuse 18.08.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 18.08.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 01.07.2008.	Date of Availability of the European standard text 01.07.2008.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 67.200.10

Võtmesõnad:

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 8534

July 2008

ICS 67.200.10

English Version

Animal and vegetable fats and oils - Determination of water content - Karl Fischer method (pyridine free) (ISO 8534:2008)

Corps gras d'origines animale et végétale - Détermination de la teneur en eau - Méthode de Karl Fischer (sans pyridine) (ISO 8534:2008)

Tierische und pflanzliche Fette und Öle - Bestimmung des Wassergehalts - Karl-Fischer-Verfahren (pyridinfrei) (ISO 8534:2008)

This European Standard was approved by CEN on 4 June 2008.

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

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Foreword

This document (EN ISO 8534:2008) has been prepared by Technical Committee ISO/TC 34 "Agricultural food products" in collaboration with Technical Committee CEN/TC 307 “Oilseeds, vegetable and animal fats and oils and their by-products - Methods of sampling and analysis” the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by January 2009, and conflicting national standards shall be withdrawn at the latest by January 2009.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 8534:2008 has been approved by CEN as a EN ISO 8534:2008 without any modification.

Introduction

The determination of the water content of fats and oils according to Karl Fischer is carried out by two different procedures. This International Standard specifies the volumetric Karl Fischer method for the determination of higher milligram levels of water (high level moisture). It is used for samples having between 1 mg and 100 mg of water in the sample.

Annex B specifies a coulometric titration, which requires between 10 µg and 10 mg water in the sample. The coulometric method is more sensitive than the volumetric method and permits the determination of lower water contents.

Animal and vegetable fats and oils — Determination of water content — Karl Fischer method (pyridine free)

1 Scope

This International Standard specifies a method for the determination of the water content of animal and vegetable fats and oils (hereinafter referred to as fats) using Karl Fischer apparatus and a reagent which is free of pyridine.

2 Normative references

The following referenced documents are indispensable for the application 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 661, *Animal and vegetable fats and oils — Preparation of test sample*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
water content
mass, in grams per 100 g of sample, of water as determined in accordance with the method specified in this International Standard

NOTE The water content is expressed as a percentage mass fraction.

4 Principle

Dissolved fat is titrated against an iodine solution and sulfur dioxide (SO_2) is oxidized by iodine in the presence of water. In principle, the chemical reaction in Equation (1) takes place:

$$H_2O + I_2 + SO_2 + CH_3OH + 3RN \rightarrow [RNH]SO_4CH_3 + 2[RNH]I \quad (1)$$

The alcohol reacts with SO_2 and a nitrogenous base (RN) to form an intermediate alkylsulfite salt, which is then oxidized by iodine to an alkylsulfate salt. This oxidation reaction consumes water contained in the sample. The end point is monitored potentiometrically.

5 Reagents

WARNING — Comply with any local regulations which specify the handling of hazardous substances. Technical, organizational and personal safety measures shall be followed.

It is recommended that “ready for use” working solvents be used, either one-component reagents (5.1.1) or two-component reagents (5.1.2). Reagents with a titre of 1 mg and 2 mg water per millilitre are required for acceptable performance.