

**Animal and vegetable fats and oils - Determination of  
peroxide value - Iodometric (visual) endpoint  
determination**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 3960:2010 sisaldab Euroopa standardi EN ISO 3960:2010 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 31.05.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 07.04.2010.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN ISO 3960:2010 consists of the English text of the European standard EN ISO 3960:2010.

This standard is ratified with the order of Estonian Centre for Standardisation dated 31.05.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 07.04.2010.

The standard is available from Estonian standardisation organisation.

ICS 67.200.10

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English Version

**Animal and vegetable fats and oils - Determination of peroxide value - Iodometric (visual) endpoint determination (ISO 3960:2007, corrected version 2009-05-15)**

Corps gras d'origines animale et végétale - Détermination de l'indice de peroxyde - Détermination avec point d'arrêt iodométrique (ISO 3960:2007, version corrigée 2009-05-15)

Tierische und pflanzliche Fette und Öle - Bestimmung der Peroxidzahl - Iodometrische (visuelle) Endpunktbestimmung (ISO 3960:2007, korrigierte Fassung 2009-05-15)

This European Standard was approved by CEN on 13 March 2010.

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## Foreword

The text of ISO 3960:2007, corrected version 2009-05-15 has been prepared by Technical Committee ISO/TC 34 "Food products" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 3960:2010 by 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of an identical text or by endorsement, at the latest by October 2010, and conflicting national standards shall be withdrawn at the latest by October 2010.

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 3960:2008.

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### Endorsement notice

The text of ISO 3960:2007, corrected version 2009-05-15 has been approved by CEN as a EN ISO 3960:2010 without any modification.

## Introduction

Over a period of many years, various methods have been developed for the determination of peroxides in fats and oils. The general principle of most of the methods is the liberation of iodine from potassium iodide in an acid medium. The method according to Wheeler was standardized more than 50 years ago by different standardization bodies, and it is widely used to control commodities by producers, receivers and official laboratories. In national and international food legislation (including the Codex Alimentarius), acceptable limits for the peroxide values are often specified. Due to anomalies in the reproducibility of the results, it was noticed that there are slight differences between the standardized methods. A very important point is the dependence of the result on the amount of sample used for the determination. As the determination of the peroxide value (PV) is a highly empirical procedure, ISO/TC 34/SC 11 has decided to fix the sample mass at 5 g for PV greater than 1, and at 10 g for PV less than or equal to 1, and to limit the applicability of this method to animal and vegetable fats and oils with peroxide values from 0 meq to 30 meq of active oxygen per kilogram. The user of this International Standard should be aware that the results obtained can be slightly lower than with previous standards.

# Animal and vegetable fats and oils — Determination of peroxide value — Iodometric (visual) endpoint determination

## 1 Scope

This International Standard specifies a method for the iodometric determination of the peroxide value of animal and vegetable fats and oils with a visual endpoint detection. The peroxide value is a measure of the amount of oxygen chemically bound to an oil or fat as peroxides, particularly hydroperoxides.

The method is applicable to all animal and vegetable fats and oils, fatty acids and their mixtures with peroxide values from 0 meq to 30 meq (milliequivalents) of active oxygen per kilogram. It is also applicable to margarines and fat spreads with varying water content. The method is not suitable for milk fats and is not applicable to lecithins.

It is to be noted that the peroxide value is a dynamic parameter, whose value is dependent upon the history of the sample. Furthermore, the determination of the peroxide value is a highly empirical procedure and the value obtained depends on the sample mass. It is stressed that, due to the prescribed sample mass, the peroxide values obtained can be slightly lower than those obtained with a lower sample mass.

NOTE 1 A preferred method for the iodometric determination of the peroxide value for milk fats is specified in ISO 3976.

NOTE 2 A method for the potentiometric determination of the peroxide value is given in ISO 27107.

## 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

#### peroxide value

#### PV

quantity of those substances in the sample, expressed in terms of active oxygen, that oxidize potassium iodide under the conditions specified in this International Standard

NOTE The peroxide value is usually expressed in milliequivalents (meq) of active oxygen per kilogram of oil, but it may also be expressed (in SI units) as millimoles (mmol) of active oxygen per kilogram of oil. The value expressed in millimoles of active oxygen per kilogram is half that expressed in milliequivalents of active oxygen per kilogram. Multiplication of the peroxide value (meq of active oxygen per kg) by the equivalent mass of oxygen (equalling 8) gives the milligrams of active oxygen per kilogram of oil.