Nisu, rukis ja nende jahud, durumnisu ja durumnisust manna. Langemisarvu määramine Hagberg-Perteni järgi

Wheat, rye and their flours, durum wheat and durum wheat semolina - Determination of the falling number according to Hagberg-Perten (ISO 3093:2009)





## **EESTI STANDARDI EESSÕNA**

## NATIONAL FOREWORD

S	E E	EVS		3093:2010 3093:2009	Е	E	EVS-EN E	ISO	3093:2010
					EN ISO 3093	:2009			
S									
		EVS			S			E	
E E							E		
E		1 12 2009			1 12 2009				
s		Е	S		S		Е		

EVS-

IS 00

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

E S

10 1031 E \_\_\_\_\_ 0 0 0 - \_\_\_\_\_ E S :

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

N

E S

I E S

I E S

I O 000 -

## EUROPEAN STANDARD NORME EUROPÉENNE

**EUROPÄISCHE NORM** 

## **EN ISO 3093**

December 2009

ICS 67.060

Supersedes EN ISO 3093:2007

#### **English Version**

Wheat, rye and their flours, durum wheat and durum wheat semolina - Determination of the falling number according to Hagberg-Perten (ISO 3093:2009)

Blés tendres, seigles et leurs farines, blés durs et leurs semoules - Détermination de l'indice de chute selon Hagberg-Perten (ISO 3093:2009) Weizen, Roggen und deren Mehl, Hartweizen und Hartweizengrieß - Bestimmung der Fallzahl nach Hagberg-Perten (ISO 3093:2009)

This European Standard was approved by CEN on 1 December 2009.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels



## **Foreword**

This document (EN ISO 3093:2009) has been prepared by Technical Committee ISO/TC 34 "Food products" in collaboration with Technical Committee CEN/TC 338 "Cereal and cereal products" 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 June 2010, and conflicting national standards shall be withdrawn at the latest by June 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 3093:2007.

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 3093:2009 has been approved by CEN as a EN ISO 3093:2009 without any modification.



## Contents

Page

Forew	ord	iv
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Principle	
5	Reagents	
6	Apparatus	
7	Sampling	
8 8.1 8.2	Preparation of test sample	3 3
9 9.1 9.2 9.3 9.4	Procedure  Determination of the moisture content  Test portion  Determination of falling number  Calculation	4 4 5
10 10.1 10.2 10.3	Precision	7 7
11	Test report	8
Annex	A (normative) Equations for altitude correction of falling numbers	9
	x B (informative) Results of interlaboratory tests	
	graphy	



# Wheat, rye and their flours, durum wheat and durum wheat semolina — Determination of the falling number according to Hagberg-Perten

## 1 Scope

This International Standard specifies the determination of the  $\alpha$ -amylase activity of cereals by the falling number (FN) method according to Hagberg-Perten.

This method is applicable to cereal grains, in particular to wheat and rye and their flours, durum wheat and its semolina.

This method is not applicable to the determination of low levels of  $\alpha$ -amylase activity.

By converting the FN into a liquefaction number (LN), it is possible to use this method to estimate the composition of mixtures of grain, flour or semolina with known FNs necessary to produce a sample of a required FN.

### 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 712, Cereals and cereal products — Determination of moisture content — Reference method

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

### 3 Terms and definitions

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

#### 3.1

## falling number

FN

t

total time required to activate a viscometer stirrer and allow it to fall a predetermined distance through an aqueous gel prepared from heating a mixture of flour or semolina, and water in a viscometer tube, and which is undergoing liquefaction due to attack by the enzyme  $\alpha$ -amylase

NOTE 1 Time is counted from immersion in the water bath.

NOTE 2 The falling number is expressed in seconds.

© ISO 2009 – All rights reserved