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NSAI Standards

Irish Standard
I.S. EN 15948:2020

Cereals - Determination of moisture and protein - Method using Near-Infrared Spectroscopy in whole kernels

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NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

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National Foreword

I.S. EN 15948:2020 is the adopted Irish version of the European Document EN 15948:2020, Cereals - Determination of moisture and protein - Method using Near-Infrared Spectroscopy in whole kernels

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15948

October 2020

ICS 67.060

Supersedes EN 15948:2015

English Version

Cereals - Determination of moisture and protein - Method using Near-Infrared Spectroscopy in whole kernels

Céréales - Détermination de la teneur en eau et en protéines - Méthode utilisant la spectroscopie dans le proche infrarouge sur des grains entiers

Getreide - Bestimmung der Feuchte und des Proteins - Verfahren der Nahinfrarot-Spektroskopie bei ganzen Körnern

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European foreword

This document (EN 15948:2020) has been prepared by 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of an identical text or by endorsement, at the latest by April 2021, and conflicting national standards shall be withdrawn at the latest by April 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15948:2015.

In comparison with the previous edition, the following technical modifications have been made:

— updating normative references,

— change in the number of validation samples according to the new version of EN ISO 12099:2017,

— precision of the expression of the protein content,

— repeatability and reproducibility determined from 3 interlaboratory tests and addition of uncertainty according to EN ISO 12099,

— precision about practical use of precision,

— removal of informative annexes concerning 3 interlaboratory tests. All these data being included in technical report CEN/TR 17474 [1] (Cereals (wheat and barley) - Technical Report of the interlaboratory studies for the determination of moisture and protein in whole kernels by near infrared spectroscopy) [1].

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

[1] Under preparation. Stage at the time of publication: FprCEN/TR 17474.

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1 Scope

This document defines a routine method for the determination of moisture and protein contents in whole kernels of wheat and barley using near infrared spectroscopy in the constituent ranges:

— for wheat:

  — moisture content minimum range from 8 % to 22 %;

  — protein content minimum range from 7 %DM to 20 %DM.

— for barley:

  — moisture content minimum range from 8 % to 22 %;

  — protein content minimum range from 7 %DM to 16 %DM.

This document describes the modalities to be implemented by the supplier (5.3 and 5.4) and the user of the method.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN ISO 12099, *Animal feeding stuffs, cereals and milled cereal products - Guidelines for the application of near infrared spectrometry (ISO 12099)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12099 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Principle

The method is based on Near Infrared (NIR) spectroscopy, an indirect, correlative technique to predict the concentration of various constituents in organic samples. Linear or nonlinear regression modelling is used to relate NIR spectra to moisture or protein concentrations determined by officially approved standard methods (e.g. Artificial Neural Network (ANN) regression, Partial Least Squares (PLS) regression).

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