

**SLOVENSKI STANDARD**  
**SIST EN ISO 16634-2:2016****01-september-2016****Nadomešča:****SIST-TS CEN ISO/TS 16634-2:2010**

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**Živila - Določevanje celotnega dušika s sežigom po Dumasu in z izračunom deleža surovih beljakovin - 2. del: Žito, stročnice in žitni mlevski proizvodi (ISO 16634-2:2016)**

Food products - Determination of the total nitrogen content by combustion according to the Dumas principle and calculation of the crude protein content - Part 2: Cereals, pulses and milled cereal products (ISO 16634-2:2016)

Lebensmittelerzeugnisse - Bestimmung des Gehaltes an Gesamtstickstoff mit dem Verbrennungsverfahren nach Dumas und Berechnung des Gehaltes an Rohprotein - Teil 2: Getreide, Hülsenfrüchte und gemahlene Getreideerzeugnisse (ISO 16634-2:2016)

Produits alimentaires - Détermination de la teneur en azote total par combustion selon le principe Dumas et calcul de la teneur en protéines brutes - Partie 2: Céréales, légumineuses et produits céréaliers de mouture (ISO 16634-2:2016)

**Ta slovenski standard je istoveten z: EN ISO 16634-2:2016**

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**ICS:**

67.050	Splošne preskusne in analizne metode za živilske proizvode	General methods of tests and analysis for food products
67.060	Žita, stročnice in proizvodi iz njih	Cereals, pulses and derived products

**SIST EN ISO 16634-2:2016****en**

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EUROPEAN STANDARD

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Supersedes CEN ISO/TS 16634-2:2009

English Version

Food products - Determination of the total nitrogen content by combustion according to the Dumas principle and calculation of the crude protein content - Part 2: Cereals, pulses and milled cereal products (ISO 16634-2:2016)

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This European Standard was approved by CEN on 12 May 2016.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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## European Foreword

This document (EN ISO 16634-2:2016) 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 December 2016, and conflicting national standards shall be withdrawn at the latest by December 2016.

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 CEN ISO/TS 16634-2:2009.

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

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The text of ISO 16634-2:2016 has been approved by CEN as EN ISO 16634-2:2016 without any modification.

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**Food products — Determination of the  
total nitrogen content by combustion  
according to the Dumas principle  
and calculation of the crude protein  
content —****Part 2:  
Cereals, pulses and milled cereal  
products**

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*Produits alimentaires — Détermination de la teneur en azote total  
par combustion selon le principe Dumas et calcul de la teneur en  
protéines brutes —*

*Partie 2: Céréales, légumineuses et produits céréaliers de mouture*Reference number  
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## ISO 16634-2:2016(E)

### Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 34, *Food products*, Subcommittee SC 4, *Cereals and pulses*.

This first edition cancels and replaces ISO/TS 16634-2:2009, which has been technically revised.

ISO 16634 consists of the following parts, under the general title, *Food products — Determination of the total nitrogen content by combustion according to the Dumas principle and calculation of the crude protein content*:

- *Part 1: Oilseeds and animal feeding stuffs*
- *Part 2: Cereals, pulses and milled cereal products*

## Introduction

For a long time, the Kjeldahl method has been the most frequently used method for the determination of the protein content of food products. In recent years, the Dumas method has gained importance compared to the Kjeldahl method because it is faster and does not use dangerous chemicals. Although the principles of the two methods are different, both measure the nitrogen content of the product. Nitrogen content can be converted into protein content by using an appropriate factor. The value of this factor varies depending on the relative amounts of different proteins and their amino-acid composition in a given product.

Neither the Dumas nor the Kjeldahl method distinguishes between protein and non-protein nitrogen. In most cases, results obtained by the Dumas method are slightly higher than those of the Kjeldahl method. This is because the Dumas method measures almost all of the non-protein nitrogen, whereas the Kjeldahl method measures only a part of it.

Taking into consideration that the protein content of a product calculated by both methods only approximates to the true value, it is a matter of discretion which one is accepted. The best solution is to use a second factor for the elimination of the systematic error caused by the non-protein nitrogen content of the different products.

However, this second factor has to be determined for each product like the existing factors which indicate the ratio of the protein content to the nitrogen content.

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