



NSAI
Standards

Irish Standard
I.S. EN 15510:2017

Animal feeding stuffs: Methods of sampling and analysis - Determination of calcium, sodium, phosphorus, magnesium, potassium, iron, zinc, copper, manganese, cobalt, molybdenum and lead by ICP-AES

I.S. EN 15510:2017

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National Foreword

I.S. EN 15510:2017 is the adopted Irish version of the European Document EN 15510:2017, Animal feeding stuffs: Methods of sampling and analysis - Determination of calcium, sodium, phosphorus, magnesium, potassium, iron, zinc, copper, manganese, cobalt, molybdenum and lead by ICP-AES

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EUROPEAN STANDARD

EN 15510

NORME EUROPÉENNE

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English Version

**Animal feeding stuffs: Methods of sampling and analysis -
Determination of calcium, sodium, phosphorus,
magnesium, potassium, iron, zinc, copper, manganese,
cobalt, molybdenum and lead by ICP-AES**

Aliments des animaux - Méthodes d'échantillonnage et
d'analyse - Détermination des teneurs en calcium,
sodium, phosphore, magnésium, potassium, fer, zinc,
cuivre, manganèse, cobalt, molybdène et plomb par
ICP-AES

Futtermittel - Probenahme- und
Untersuchungsverfahren - Bestimmung von Calcium,
Natrium, Phosphor, Magnesium, Kalium, Eisen, Zink,
Kupfer, Mangan, Cobalt, Molybdän und Blei mittels ICP-
AES

This European Standard was approved by CEN on 6 February 2017.

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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

Contents	Page
European foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Principle	6
5 Reagents	6
6 Apparatus.....	8
7 Sampling.....	8
8 Sample preparation.....	9
8.1 General.....	9
8.2 Animal feeding stuffs, which can be ground as such	9
8.3 Liquid animal feeding stuffs.....	9
8.3.1 General.....	9
8.3.2 Pre-drying.....	9
8.3.3 Freeze-drying	9
8.4 Mineral matrices	9
9 Procedure.....	9
9.1 Digestion	9
9.1.1 Selection of the procedure.....	9
9.1.2 Extraction with HCl.....	10
9.1.3 Dry ashing and extraction with HCl.....	10
9.1.4 Wet digestion with HNO₃	11
9.2 Calibration	11
9.2.1 General.....	11
9.2.2 External calibration	11
9.2.3 Standard addition technique	11
9.2.4 Example of calibration with one addition after dry ashing -HCl	11
9.2.5 Example of calibration with one addition after wet digestion - 1 % HCl	12
9.2.6 Example of calibration with one addition after wet digestion with HNO₃.....	12
9.3 Determination	12
9.3.1 General.....	12
9.3.2 Determination by inductively coupled plasma - atomic emission spectrometry	12
10 Calculation and expression of the result	13
10.1 General.....	13
10.2 External calibration	14
10.3 Standard addition method with only one addition.....	14
10.4 Standard addition method with several additions	14
10.5 Calculation of the element content in the sample	15
10.6 Example of calculation after standard addition technique with one addition	16
11 Precision.....	16
11.1 Inter-laboratory test.....	16
11.2 Repeatability.....	16
11.3 Reproducibility.....	16

12	Test report	20
	Annex A (informative) Results of the inter-laboratory test	21
	Annex B (informative) Notes on the detection technique, interferences and quantification	27
B.1	General	27
B.2	Interferences	27
B.2.1	General	27
B.2.2	Spectral interferences	27
B.2.3	Ionization interferences	27
B.2.4	Physical interferences	27
B.3	Quantification and matrix matching	27
B.3.1	General	27
B.3.2	Calibration curve	28
B.3.3	Matrix matching	28
B.3.4	Standard addition	28
	Bibliography	29

EN 15510:2017 (E)

European foreword

This document (EN 15510:2017) has been prepared by Technical Committee CEN/TC 327 “Animal feeding stuffs”, the secretariat of which is held by NEN.

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 February 2018, and conflicting national standards shall be withdrawn at the latest by February 2018.

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 15510:2007.

WARNING — The method described in this standard implies the use of reagents that pose a hazard to health. The standard does not claim to address all associated safety problems. It is the responsibility of the user of this standard to take appropriate measures for the health and safety protection of the personnel prior to use of the standard and to ensure that regulatory and legal requirements are complied with.

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1 Scope

This European Standard specifies the inductively coupled plasma atomic emission spectroscopy (ICP-AES) method for the determination of the elements calcium, sodium, phosphorus, magnesium, potassium, iron, zinc, copper, manganese, cobalt, molybdenum and lead.

The elements calcium, sodium, phosphorus, magnesium, potassium, iron, zinc, copper, manganese, cobalt, molybdenum and lead are extracted either in feeds mainly consisting of organic matter after dry ashing and dissolving in hydrochloric acid or in feeds mainly consisting of inorganic matter after wet digestion with hydrochloric acid.

For the determination of extractable lead in minerals and feeds containing phyllosilicates (e.g. kaolinite clay) wet digestion with diluted nitric acid should be used.

The method was successfully tested for:

- calcium, sodium, phosphorus, magnesium, potassium, iron, zinc, copper, manganese, cobalt and molybdenum in the following animal feeding stuffs: 2 complete feeds (pig feed, sheep feed), 1 feed material (phosphate), 1 mineral premixture and 2 complementary feeds (2 mineral feeds),
- lead in 2 feed materials (phosphate, CaCO_3), 2 feed additives (Bentonite, CuSO_4), 1 complementary feed (mineral feed)

For elements with a HORRAT value higher than 2 (see Annex A) the method is more applicable as a screening method and not for confirmatory purposes.

The method detection limit for each element is dependent on the sample matrix and the instrument. The method is not applicable for the determination of a low concentration of elements. The limit of quantification should be 3 mg/kg or lower.

This method also applies for the determination in products with high element content (>5 %). For this purpose the accuracy of the method has to be checked individually.

NOTE 1 Results using EN 15550 may be lower than those obtained when applying EN 15621 as pressure digestion is used in EN 15621.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 3696, *Water for analytical laboratory use - Specification and test methods (ISO 3696)*

EN ISO 6498, *Animal feeding stuffs - Guidelines for sample preparation (ISO 6498)*

3 Terms and definitions

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

3.1

limit of detection (LOD)

smallest measured content from which it is possible to deduce the presence of the analyte with reasonable statistical certainty

Note 1 to entry: The limit of detection is numerically equal to three times the standard deviation of the mean of blank determinations ($n \geq 10$, where n = number of measures) performed under reproducibility conditions.

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