

Animal feeding stuffs: Methods of sampling and analysis  
- Determination of iodine in animal feed by ICP-MS

## EESTI STANDARDI EESSÕNA

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English Version

**Animal feeding stuffs: Methods of sampling and analysis -  
Determination of iodine in animal feed by ICP-MS**

Aliments pour animaux - Méthodes d'échantillonnage  
et d'analyse - Dosage de l'iode dans les aliments pour  
animaux par spectrométrie de masse à plasma induit  
par haute fréquence (ICP-MS)

Futtermittel - Probenahme- und Untersuchungs-  
verfahren - Bestimmung von Iod in Futtermitteln  
mittels Anionenaustausch ICP-MS

This European Standard was approved by CEN on 28 June 2017.

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

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## European foreword

This document (EN 17050:2017) 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of an identical text or by endorsement, at the latest by March 2018, and conflicting national standards shall be withdrawn at the latest by March 2018.

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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

**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 a method for the determination of iodine in animal feeding stuffs by inductively coupled plasma mass spectrometry (ICP-MS) following extraction with an alkaline solution.

This method was successfully tested in the range of 0,70 to 631 mg/kg in following animal feeds: seaweed meal, mineral premixture, fish meal, plant based ingredient, marine based compound feed and a synthetic iodine solution.

## 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 15111, *Foodstuffs - Determination of trace elements - Determination of iodine by ICP-MS (inductively coupled plasma mass spectrometry)*

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

EN ISO 6497, *Animal feeding stuffs - Sampling (ISO 6497)*

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

## 3 Principle

This standard describes a method for the determination of iodine in animal feeding stuffs. A representative test portion of the sample is treated with a strong alkaline solution of tetra methyl ammonium hydroxide (TMAH) and incubated at 90°C for three hours. Hereby iodine is extracted into solution and is determined by use of inductively coupled plasma mass spectrometry (ICP-MS).

The method principles are the same as used in EN 15111.

**WARNING** — The use of this European Standard can involve hazardous materials, operations and equipment. This standard does not purport to address all the safety problems associated with its use. It is the responsibility of the user of this European Standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

## 4 Reagents

Use only reagents of recognized analytical grade and water conforming to grade 2 of EN ISO 3696.

### 4.1 General

The concentration of iodine in the reagents and water used shall be low enough not to affect the results of the determination.

**NOTE** Different qualities of tetra methyl ammonium hydroxide (TMAH) are available and it is important to check that the iodine content is sufficiently low and does not affect the analysis.

### 4.2 Tetra methyl ammonium hydroxide (TMAH (CH<sub>3</sub>)<sub>4</sub>N+OH<sup>-</sup>) solution

Use mass concentration  $\rho = 250$  g/l, (mass fraction  $w = 25$  %), suitable for trace analysis with an iodine content of less than 1 µg/l.