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IRISH STANDARD

I.S. EN 15505:2008

ICS 67.050

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FOODSTUFFS - DETERMINATION OF TRACE ELEMENTS - DETERMINATION OF SODIUM AND MAGNESIUM BY FLAME ATOMIC ABSORPTION SPECTROMETRY (AAS) AFTER MICROWAVE DIGESTION

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EUROPEAN STANDARD

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EN 15505

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English Version

Foodstuffs - Determination of trace elements - Determination of sodium and magnesium by flame atomic absorption spectrometry (AAS) after microwave digestion

Produits alimentaires - Dosage des éléments traces - Dosage du sodium et du magnésium par spectrométrie d'absorption atomique de flamme après digestion par micro-ondes

Lebensmittel - Bestimmung von Elementspuren - Bestimmung von Natrium und Magnesium mit Flammen-Atomabsorptionsspektrometrie (AAS) nach Mikrowellenaufschluss

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Foreword

This document (EN 15505:2008) has been prepared by Technical Committee CEN/TC 275 “Food analysis - Horizontal methods”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by September 2008, and conflicting national standards shall be withdrawn at the latest by September 2008.

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1 Scope

This document specifies methods for the determination of sodium and magnesium in foodstuffs by flame atomic absorption spectrometry (AAS) after microwave digestion. Collaborative studies have been carried out (Annex A). The method is suitable for the determination of sodium not less than 1 500 mg/kg and magnesium not less than 250 mg/kg. Data for calcium is included for information (Annex B). The method is not applicable to wheat bran.

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.

EN 13804, *Foodstuffs — Determination of trace elements — Performance criteria, general considerations and sample preparation*

EN 13805, *Foodstuffs — Determination of trace elements — Pressure digestion*

3 Principle

The samples are digested in closed vessels in a microwave oven in a mixture of nitric acid and hydrogen peroxide. The resulting solution is diluted with water, and the sodium and magnesium contents are determined by flame-AAS using matrix modifiers.

WARNING — The use of this standard may 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 standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

4 Reagents

4.1 General

Use only reagents and water, which shall have an element level low enough not to affect results. The use of certified stock solutions is advisable.

4.2 Nitric acid

4.2.1 Nitric acid, not less than 65 % of approximately mass concentration $\rho(HNO_3)$ = 1,4 g/ml.

In case of insufficient purity, it is necessary to purify the nitric acid in a distillation apparatus as described in EN 13805.

4.2.2 Diluted nitric acid solution 1, mass fraction w = 2,7 %

Dilute 42 ml nitric acid (4.2.1) to 1 000 ml with water.

4.2.3 Diluted nitric acid solution 2, mass fraction w = 0,65 %

Mix nitric acid (4.2.1) and water in a proportion minimum of 1 + 99 parts by volume.

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