

ICS 01.140.20

English Version

**Foodstuffs - Determination of trace elements - Determination of
iodine in dietetic foods by ICP-MS (inductively coupled plasma
mass spectrometry)**

Produits alimentaires - Dosage des éléments en traces -
Dosage de l'iode dans les aliments diététiques par
spectrométrie d'émission avec plasma induit par haute
fréquence et spectromètre de masse (ICP-SM)

Lebensmittel - Bestimmung von Elementspuren -
Bestimmung von Iod in diätetischen Lebensmitteln mit der
ICP-MS (Massenspektrometrie mit induktiv gekoppeltem
Plasma)

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Foreword

This Technical Specification (CEN/TS 15111:2005) has been prepared by Technical Committee CEN/TC 275 "Food analysis - Horizontal methods", the secretariat of which is held by DIN.

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1 Scope

This Technical Specification specifies a method for the determination of added inorganic iodine compounds, including water-soluble iodine compounds of natural origin, in dietetic foods by inductively coupled plasma mass spectrometry (ICP-MS).

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*.

3 Principle

Iodine compounds, added to dietetic foods, are extracted with a strong alkaline reagent at elevated temperature. After the removing of undissolved components, the nebulized solution is atomized and ionized in an inductively coupled argon plasma. The ions are extracted from the plasma by a system of sampler and skimmer cones, separated in a mass spectrometer on the basis of their mass/charge ratio and determined using a pulse counting detector system.

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4 Reagents

4.1 General

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

4.2 Tetramethylammonium hydroxide (TMAH = $(\text{CH}_3)_4\text{N}^+\text{OH}^-$) solution,

mass concentration $c = 250$ g/l, suitable for trace analysis with an iodine content of less than $1 \mu\text{g/l}$.

4.3 Diluted tetramethylammonium hydroxide (TMAH) solution

Dilute TMAH solution for preparing the zero member compensation and calibration solutions, with a concentration to suit that of the test solution (see 7.3).

Prepare e.g. a 0,5 % TMAH solution by diluting 1,0 ml of TMAH solution (4.2) to 50 ml with water.

4.4 Stock solutions

4.4.1 General

Commercial stock solutions may be used as an alternative to the solutions described below.