

# **Foodstuffs — Determination of trace elements — Determination of tin by flame and graphite furnace atomic absorption spectrometry (FAAS and GFAAS) after pressure digestion**

ICS 67.050

# National foreword

This British Standard is the UK implementation of EN 15764:2009.

The UK participation in its preparation was entrusted to Technical Committee AW/-/3, Food analysis - Horizontal methods.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

**Foodstuffs - Determination of trace elements - Determination of tin by flame and graphite furnace atomic absorption spectrometry (FAAS and GFAAS) after pressure digestion**

Produits alimentaires - Dosage des éléments traces - Dosage de l'étain par spectrométrie d'absorption atomique flamme (SAAF) et spectrométrie d'absorption atomique à four graphite (SAAFG) après digestion sous pression

Lebensmittel - Bestimmung von Elementspuren - Bestimmung von Zinn mit der Flammen- und Graphitofen-Atomabsorptionsspektrometrie (FAAS und GFAAS) nach Druckaufschluss

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## Foreword

This document (EN 15764:2009) 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of an identical text or by endorsement, at the latest by June 2010, and conflicting national standards shall be withdrawn at the latest by June 2010.

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## 1 Scope

This European Standard specifies a method for the determination of tin in foodstuffs and canned foods by flame and graphite furnace atomic absorption spectrometry (AAS) after pressurized digestion.

The collaborative study included foodstuffs such as carrot puree, tomato puree, pineapple, mixed fruit, white wine, peach powder, tomato powder, powdered beans, powdered fruit yoghurt, fish powder, having mass fractions of tin ranging from 43 mg/kg to 260 mg/kg (Flame-AAS) and from 2,5 mg/kg to 269 mg/kg (Graphite Furnace AAS).

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

## 3 Principle

The sample is mineralized through pressurized digestion with nitric acid and hydrochloric acid in accordance with EN 13805. In the resulting digestion solution, tin is quantified by flame AAS (F-AAS) or graphite furnace AAS (GF-AAS) depending on the concentration in the sample solution.

## 4 Reagents

### 4.1 General

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

### 4.2 Nitric acid

Mass fraction  $w(\text{HNO}_3) \geq 65\%$ , mass concentration  $\rho(\text{HNO}_3) \approx 1,4 \text{ g/ml}$ .

### 4.3 Hydrochloric acid

$w(\text{HCL}) \geq 30\%$ ,  $\rho(\text{HCl}) \approx 1,15 \text{ g/ml}$ .

### 4.4 Tin stock solution

$\rho(\text{Sn}) = 1\,000 \text{ mg/l}$ .

### 4.5 Tin standard and calibration solutions

#### 4.5.1 General

The standard and calibration solutions are prepared from the stock solution by dilution in glass volumetric flasks. For calibration, prepare at least four calibration solutions of different concentrations. The acid concentration shall correspond to the concentration in the measurement solution.