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# INTERNATIONAL STANDARD



# 5516

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Fruits, vegetables and derived products — Decomposition of organic matter prior to analysis — Ashing method

*Fruits, légumes et produits dérivés — Décomposition des matières organiques en vue de l'analyse — Méthode par incinération*

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**Descriptors :** food products, fruits, vegetables, fruit and vegetable products, chemical analysis, determination of content, organic materials, incineration analysis.

## FOREWORD

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 5516 was developed by Technical Committee ISO/TC 34, *Agricultural food products*, and was circulated to the member bodies in November 1976.

It has been approved by the member bodies of the following countries :

Australia	India	Portugal
Austria	Iran	Romania
Bulgaria	Israel	South Africa, Rep. of
Canada	Korea, Rep. of	Spain
Chile	Mexico	Thailand
Czechoslovakia	Netherlands	Turkey
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The member bodies of the following countries expressed disapproval of the document on technical grounds :

Ireland  
U.S.A.

# Fruits, vegetables and derived products – Decomposition of organic matter prior to analysis – Ashing method

## 0 INTRODUCTION

There are two methods for decomposition of the organic matter present in fruits, vegetables and derived products :

- a) ashing method, described in this International Standard;
- b) wet decomposition method (see ISO 5515).

The specific International Standards on analysis of the products will, if necessary, identify which method to use and any modifications to be made to the method.

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for the decomposition of the organic matter in fruits, vegetables or derived products by ashing, prior to the analysis of their mineral (metal) content.

## 2 REFERENCE

ISO 5515, *Fruits, vegetables and derived products – Decomposition of organic matter prior to analysis – Wet method.*

## 3 PRINCIPLE

Incineration of a test portion at  $525 \pm 25$  °C after addition, in certain cases, of aluminium chloride or magnesium acetate solution to facilitate ashing. Dissolution of the ash obtained in sulphuric acid or hydrochloric acid.

## 4 REAGENTS

All reagents shall be of recognized analytical quality.

For the preparation of solutions, for rinsing glassware, and in the procedure itself, use only water distilled in a borosilicate glass or silica apparatus and stored in a borosilicate glass or silica bottle.

### 4.1 Aluminium chloride solution, if necessary (see 6.3).

Dissolve 7,0 g of aluminium chloride hexahydrate ( $\text{AlCl}_3 \cdot 6\text{H}_2\text{O}$ ) in water and dilute to 100 ml.

or

### 4.2 Magnesium acetate solution, if necessary (see 6.3).

Dissolve 15,0 g of magnesium acetate [ $(\text{CH}_3\text{COO})_2\text{Mg}$ ] in water and dilute to 100 ml.

### 4.3 Sulphuric acid, $\rho_{20}$ 1,84 g/ml.

or

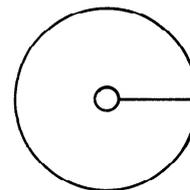
### 4.4 Hydrochloric acid, $\rho_{20}$ 1,19 g/ml.

## 5 APPARATUS

Usual laboratory apparatus, and in particular :

**5.1 Dish**, of platinum or any other material not attacked under the conditions of the test, flat-bottomed, diameter about 60 mm, height about 35 mm.

**5.2 Circle of ashless filter paper**, fitting accurately into the dish (5.1). Cut out a round hole, of 2 to 3 mm diameter, from the centre and cut the paper along a radius (see the diagram).



**5.3 Ashless filter paper**, if necessary (see 6.3).

**5.4 Electric muffle furnace**, capable of being controlled at  $525 \pm 25$  °C.

**5.5 Suitable equipment for drying** (for example, boiling water bath and oven capable of being maintained at  $120 \pm 5$  °C) and **pre-incineration** (for example, gas burner or hot-plate).

It is also possible to use an overhead radiant heater with an infra-red lamp.

**5.6 Volumetric flask**, 50 ml or 100 ml, complying with ISO 1042.

**5.7 Pipettes**, of appropriate capacity, either one-mark, complying with ISO 648, or graduated, complying with ISO/R 835.

NOTE – Before use, wash the volumetric flask and the pipettes with hot nitric acid, and rinse thoroughly with water, distilled as described at the beginning of clause 4.

**5.8 Analytical balance.**