

INTERNATIONAL STANDARD

ISO
9526

First edition
1990-04-01

Fruits, vegetables and derived products — Determination of iron content by flame atomic absorption spectrometry

*Fruits, légumes et produits dérivés — Détermination de la teneur en fer
par spectrométrie d'absorption atomique avec flamme*



Reference number
ISO 9526:1990(E)
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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 9526 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*.

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Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Fruits, vegetables and derived products — Determination of iron content by flame atomic absorption spectrometry

1 Scope

This International Standard specifies a flame atomic absorption spectrometric method for the determination of the iron content of fruits, vegetables and derived products.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 5515:1979, *Fruits, vegetables and derived products — Decomposition of organic matter prior to analysis — Wet method*.

3 Principle

Decomposition of organic matter by either a dry or a wet method and determination of the Fe^{2+} cation content by flame atomic absorption spectrometry.

4 Reagents

All reagents used shall be of recognized analytical grade and, in particular, shall be free from iron. The water used shall have been distilled twice in borosilicate glass apparatus, or shall be water of at least equivalent purity.

4.1 Sulfuric acid, concentrated ($\rho_{20} = 1,84$ g/ml).

4.2 Nitric acid, concentrated ($\rho_{20} = 1,38$ g/ml).

4.3 Hydrochloric acid, diluted 1 + 1 (V/V).

Mix one volume of concentrated hydrochloric acid ($\rho_{20} = 1,19$ g/ml) with one volume of water.

4.4 Hydrochloric acid, approximately 0,1 mol/l solution.

In a 1000 ml one-mark volumetric flask, dilute 8,3 ml of concentrated hydrochloric acid ($\rho_{20} = 1,19$ g/ml) to the mark with water and mix.

4.5 Iron, standard solution corresponding to 1 g of iron per litre.

In a 1000 ml one-mark volumetric flask, dissolve 7,022 g of ammonium iron(II) sulfate hexahydrate $[(\text{NH}_4)_2\text{Fe}(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}]$ in water and dilute to the mark with water.

Store this solution in a borosilicate glass flask fitted with a ground glass stopper.

1 ml of this standard solution contains 1 mg of Fe.

5 Apparatus

Prior to use, wash the dishes and all glassware with warm (70 °C to 80 °C) concentrated nitric acid and rinse using twice-distilled water.

Usual laboratory apparatus and, in particular, the following.

5.1 Mechanical grinder, the inside and blades of which are coated with polytetrafluoroethylene.

5.2 Round-bottom flask, of 1000 ml capacity.

5.3 Dishes, made of platinum or quartz, of 70 mm diameter.

5.4 One-mark volumetric flasks, of 50 ml capacity.