

First edition
2021-07

Corrected version
2022-02

**Meat and meat products —
Determination of total phosphorous
content**

*Viandes et produits à base de viande — Détermination de la teneur en
phosphore*



Reference number
ISO 23776:2021(E)

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 6, *Meat, poultry, fish, eggs and their products*.

This first edition cancels and replaces ISO 2294:1974 and ISO 13730:1996, which have been technically revised. The main changes compared with ISO 2294:1974 and ISO 13730:1996 are as follows:

- a new test method, the inductively coupled plasma optical emission spectrometry (ICP-OES) method, has been added;
- the structure of the document has been revised;
- the title of the document has been modified;
- the Scope has been modified.

This corrected version of ISO 23776:2021 incorporates the following corrections:

- the concentration of phosphate stock solution (7.1.6) has been increased from $c(P) = 109 \text{ mg/l}$; $c(P_2O_5) = 250 \text{ mg/l}$ to $c(P) = 218 \text{ mg/l}$; $c(P_2O_5) = 500 \text{ mg/l}$;
- the amount of phosphate stock solution (7.1.6) dissolved in water has been increased from 479,4 mg to 958,8 mg.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Meat and meat products — Determination of total phosphorous content

1 Scope

This document specifies three methods for the determination of the total phosphorous content of all kinds of meat and meat products, including poultry and livestock:

- the inductively coupled plasma optical emission spectrometry (ICP-OES) method;
- the spectrometric method;
- the gravimetric method.

For the ICP-OES method, the limit of detection (LOD) is 1,0 mg/kg and the limit of quantification (LOQ) is 3,0 mg/kg if the mass of the test portion is 0,5 g and the constant volume is 50 ml.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 936, *Meat and meat products — Determination of total ash*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

total phosphorous content of meat and meat products

mass of phosphorous pentoxide determined by the procedure specified in this document

Note 1 to entry: It is expressed as a percentage of the mass of the test portion.

4 Principle

4.1 Inductively coupled plasma optical emission spectrometry (ICP-OES) method

The test portion of the sample is microwave digested with nitric acid. The concentration of phosphorous is determined by ICP-OES using external calibration. In a certain concentration range, the spectral line signal intensity of phosphorous is proportional to its concentration, and is quantified by the standard curve method.