
**Food irradiation — Requirements for
the development, validation and routine
control of the process of irradiation using
ionizing radiation for the treatment of
food**

*Ionisation des aliments — Exigences pour l'élaboration, la validation et
le contrôle de routine du procédé d'irradiation utilisant le rayonnement
ionisant dans le traitement des aliments*



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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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.

ISO 14470 was prepared by Technical Committee ISO/TC 34, *Food products*.

Introduction

Food irradiation is the process where food is exposed to ionizing radiation in order to improve its safety and quality. It is intended to be used only on food that has been produced under good manufacturing practice (GMP) principles. Many countries are using irradiation as a technological choice at some stage in food processing, making relevant the establishment of standards to assist customers, irradiator operators, and consumers.

The irradiation of food can be used for different purposes including control of pathogenic microorganisms and parasites, reduction of the number of spoilage microorganisms, inhibition of the sprouting of bulbs, tubers and root crops, extension of product shelf life or phytosanitary treatment.

When applicable, food irradiation should be incorporated as part of a food safety management system (ISO 22000). The irradiation of food is a critical control point (CCP) of a Hazard Analysis and Critical Control Points (HACCP) programme, contributing to the minimization of risks from the transmission of pathogenic microorganisms to consumers.

The main purposes of this International Standard are to:

- a) provide requirements for the irradiation of food consistent with current standards and practices;
- b) provide directions for a technical agreement between the customer and the irradiator operator;
- c) establish a documentation system to support the controls on the food irradiation process.

To facilitate the application of this International Standard, it has been constructed in a form that can be used by internal and external parties, including certification bodies, for auditing an irradiator operator to assess its ability to fulfil all requirements for the irradiation of food.

Food irradiation — Requirements for the development, validation and routine control of the process of irradiation using ionizing radiation for the treatment of food

1 Scope

This International Standard specifies requirements for the development, validation and routine control of the process of irradiation using ionizing radiation for the treatment of food, and establishes guidelines for meeting the requirements.

NOTE 1 Requirements in this International Standard are consistent with those developed by the Codex Alimentarius Commission (CAC/RCP 19-1979, Rev. 2-2003^[21], and CODEX STAN 106-1983, Rev. 1-2003^[22]).

This International Standard covers irradiation processes using the radionuclides ⁶⁰Co or ¹³⁷Cs, electron beams or X-ray generators.

The requirements given in this International Standard are the minimum necessary to control the food irradiation process.

NOTE 2 The requirements can be addressed by a food safety management system (see ISO 22000).

This International Standard does not specify requirements for the primary production and/or harvesting, post-harvest treatment, storage and shipment, and packaging for foods that are to be irradiated. Only those aspects of the food production directly related to the irradiation process that may affect the safety or quality of the irradiated food are addressed.

This International Standard does not specify requirements for occupational safety associated with the design and operation of irradiation facilities.

This International Standard does not cover measuring or inspection devices that utilize ionizing radiation.

The application of this International Standard does not exempt the user from compliance with current and applicable legislation.

IMPORTANT Attention is drawn to regulatory and legal requirements that possibly exist for the irradiation and sale of irradiated food and the requirement for authorization to irradiate food.

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.

ISO 10012, *Measurement management systems — Requirements for measurement processes and measuring equipment*

ISO 22000, *Food safety management systems — Requirements for any organization in the food chain*

3 Terms and definitions

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