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Citrus fruits — Guidelines for storage

Agrumes — Lignes directrices pour l'entreposage



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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: 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.

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 3, *Fruits and vegetables and their derived products*.

This second edition cancels and replaces the first edition (ISO 3631:1978), which has been technically revised. The main changes compared with the previous edition relate to storage temperatures, durations and cultivars.

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.

Introduction

Citrus fruits are divided into five major groups from different species which differ from each other in their behaviour during transport and should therefore be considered separately from the point of view of storage conditions. The groups are the following:

- oranges;
- mandarins, tangerines and their hybrids;
- lemons;
- grapefruits and their hybrids;
- limes.

Citrus fruits undergo little change after harvesting. They have no climacteric phase, and should therefore be harvested ready for consumption.

Peel colour is not always an indication of maturity; there is not necessarily a direct relation between colour and degree of ripeness.

The keeping life of the fruit depends on several factors, including the following:

- growing climate conditions;
- agrotechnical factors (nature of rootstock, size of fruits, method of pruning, etc.);
- harvesting conditions (time of picking, condition of fruit at harvest);
- degree of maturity and treatments during storage; keeping temperature;
- relative humidity of the store.

The longer the fruits remain on the trees after they have reached edible condition, the shorter the time they can be kept after harvest. However, growth regulators can be used to enhance the keeping quality of late harvest fruit.

Citrus fruits — Guidelines for storage

1 Scope

This document specifies the conditions required for good keeping of the following groups of citrus fruits during their storage with or without refrigeration, in stores or in various transport equipment (such as containers, railway cars, trucks or ships):

- oranges: *Citrus sinensis* (Linnaeus) Osbeck;
- mandarins: *Citrus reticulata* Blanco;
- lemons: *Citrus limon* (Linnaeus) N. L. Burman;
- grapefruits: *Citrus paradisi* Macfadyen;
- limes:
 - *Citrus aurantifolia* (Christmann) Swingle;
 - *Citrus latifolia* Tanaka.

Detailed information concerning cultivars in these different groups is given in [Annexes A](#) and [B](#).

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

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/>

4 Conditions of harvesting and putting into store

4.1 Varieties (cultivars)

This document concerns fresh fruit intended for storage and belonging to the varieties listed in [Annex A](#).

4.2 Harvesting

The fruits should be harvested when they have reached the stage of maturity that makes them fit for consumption. Harvesting may be temporarily interrupted when weather conditions (rain, etc.) are likely to have an adverse influence on the keeping qualities.

Fruit collected from the ground is often infected with *Phytophthora*, and therefore dropped fruit should not be harvested.