Tomatoes — Guide to cold storage and refrigerated transport

Tomates — Guide pour l'entreposage et le transport réfrigérés
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 5524 was prepared by Technical Committee ISO/TC 34, Agricultural food products.

Introduction

This International Standard gives general recommendations for the cold storage and refrigerated transport of tomatoes. These recommendations may need to be modified to suit particular cultivars of tomato, local climatic conditions, cultivation practices, market requirements and distances of transportation, etc. Experts will be able to establish those recommendations most appropriate for particular market requirements and ecological and agrotechnical factors. In addition, the quality of the harvest and the storage conditions attainable in particular transport vehicles and cold stores may necessitate modifications to these recommendations.

Subject to local conditions and the fact that tomatoes are living matter, the application of the recommendations made in this International Standard should enable much wastage during refrigerated transport and cold storage to be avoided.
1 Scope

This International Standard gives guidance on the operations to be carried out before and the conditions to be met during the cold storage and refrigerated transport of tomatoes [Lycopersicon lycopersicum (L.) Karsten ex Farw., syn. Lycopersicon esculentum Miller nom. cons., syn. Solanum lycopersicum L.], for maintaining quality and avoiding deterioration.

These recommendations are not applicable to tomatoes intended for industrial processing.

2 Preparation of tomatoes intended for refrigerated transport and cold storage

2.1 Harvesting

Tomatoes should be harvested in dry weather. Their ripeness at harvest, which is identified by the colour of the tomatoes (see table 1), should be appropriate for the intended duration and conditions of transport, the intended use of the tomatoes and the required duration of storage.

The colour of tomatoes is thus the most important criterion for establishing the harvesting time. The destination and the time at which the fruits will be presented on the market should also be taken into consideration.

Tomatoes should be conditioned, packed and dispatched or stored as soon as possible after harvesting, with a delay not exceeding 12 h.

2.2 Quality

Tomatoes intended for transport or a short period of storage should comply with technical quality standards and specifications established for inland markets or food exportation in the country concerned.

Tomatoes should be conditioned carefully and size graded. They should be sound and clean, have a firmness characteristic of their degree of maturity and be free from excessive surface moisture.

The presence of the peduncle is optional; it depends on the destination of the fruits and does not constitute a condition necessary for successful transport or cold storage. It is important to ensure that the degree of ripeness of a lot of tomatoes is as uniform as possible and therefore the range in colour should not exceed two adjacent degrees on the colour chart (see table 1).

2.3 Packing

Tomatoes intended for cold storage and refrigerated transport may be packed in various types of packages (for example, wooden, fibreboard or plastic materials), provided that the pressure exerted on the fruits does not lead to a reduction in quality during transport or storage. It is considered that for both transport and storage, the total depth of tomatoes packed in layers should not exceed 20 cm.

Good air circulation around and through the packages should also be provided.

2.4 Pre-cooling

If the tomatoes are to be kept under refrigeration until they are marketed, they should be pre-cooled.

After the tomatoes have been harvested, conditioned and packed, they should be pre-cooled to a temperature that differs by no more than 2 °C from the optimum transport or storage temperature.

To avoid water vapour condensation on the product, pre-cooling of the transport vehicle is also recommended.

3 Loading into refrigerated vehicles or cold stores

Tomatoes should be loaded into the transport vehicle or into the cold store as soon as possible, but not later than 24 h, after harvesting.