International Standard 6662

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Plums — Guide to cold storage

Prunes — Guide pour l'entreposage réfrigéré

First edition — 1983-02-15

UDC 634.22 : 664.8.037 **Ref. No. ISO 6662-1983 (E)**

Descriptors : agricultural products, fruits, plums, storage, general conditions.

Price based on 4 pages

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 6662 was developed by Technical Committee ISO/TC 34, *Agricultural food products*, and was circulated to the member bodies in May 1981.

It has been approved by the member bodies of the following countries :

Brazil	Korea, Rep. of	South Africa, Rep. of
Czechoslovakia	Mexico	Spain
Egypt, Arab Rep. of	Netherlands	Tanzania
Ethiopia	New Zealand	Turkey
Hungary	Peru	USA
India	Philippines	USSR
Iran	Poland	Yugoslavia
Israel	Portugal	
Kenya	Romania	

The member body of the following country expressed disapproval of the document on technical grounds :

France

Printed in Switzerland

Plums — Guide to cold storage

1 Scope and field of application

This International Standard describes a method for the cold storage of certain varieties (cultivars) of plums obtained from *Prunus domestica* Linnaeus, *Prunus insititia* Linnaeus and *Prunus salicina* Lindley (*Prunus triflora* Roxburgh), intended for delivery in the fresh condition to the consumer.

It also applies to fresh fruits of certain semi-late and late varieties (cultivars) intended for processing.

The limits of application are given in annex B.

2 Reference

ISO 2169, *Fruits and vegetables — Physical conditions in cold stores — Definitions and measurement.*

3 Conditions of harvesting and putting into store

3.1 Harvesting

Plums should be harvested during the coolest part of the day, the best time being in the morning during dry weather.

It is recommended that the plums be packed directly at or near the place of picking in rigid containers — usually boxes which can be placed on pallets — of suitable capacity so that the lower layers of fruits are not crushed. This avoids damage to the fruits caused by transfer to other containers.

3.2 Quality characteristics for storage

Plums intended for storage should be whole, healthy, clean (free from extraneous matter) and free from abnormal external humidity and foreign odour or taste. Rotting fruits or fruits showing visible deterioration should not be stored. They should be at a suitable stage of development (maturity) and in a suitable condition for handling, transport and storage.

The fruits should be picked carefully and should be complete with their stalk and bloom wax. The presence of stalks is not obligatory for fruits intended for processing.

3.3 Putting into store

Plums should be put into the cold store as soon as possible after picking (not later than 12 h) and should be stored with produce having the least possible odour. The stores should have been disinfected and should be free from odours.

3.4 Method of storage

The containers should be handled with care. They should be placed on pallets and stacked to the height permitted by the store. A space of 1 m should be left between the top of the stacks and the roof. If the packages are not sufficiently rigid for stacking, they may be placed on post pallets which should then be stacked to the height permitted by the store.

4 Optimum storage conditions

4.1 Air temperature

The mean air temperature in the cold store at a height of 1 m above the floor and in the passages between the stacks should be maintained at 0 to 1 °C for certain non-cold-resistant varieties whilst avoiding the formation of ice crystals in the fruit pulp.

4.2 Relative humidity

The relative humidity of the air should be maintained between 90 and 95 %.

4.3 Air circulation

During the period of cooling, intense air circulation is desirable to accelerate and homogenize the cooling of the bulk.

The air circulation ratio (see ISO 2169) should be 30 to 50 until the temperature reaches 0 to 1 °C, after which it should be reduced to less than 30.

4.4 Storage life

The storage life varies between 15 and 90 days according to the variety of fruit and economic conditions.

The optimum temperatures for storing certain varieties, together with their storage lives, are given in annex A.

4.5 Storage in polyethylene bags

The common Venguerka and Venguerka Ajanskaya varieties are recommended for storage in bags of high-pressure polyethylene film of thickness 30 to 70 µm. The bags should be hermetically sealed.

Plums which have been sorted and cooled to 4 to 6 °C before packing should be placed in polyethylene bags of capacity 1 kg and the edges of the bags should be sealed by two or three parallel seams. The bags should be placed in box-pallets and may be stored at −1,5 °C to 0 °C for 2 to 3 months. They should be marketed in the same packaging.

4.6 Operations at the end of storage

Before marketing, it is recommended that the plums be warmed at 2 to 3 °C for 2 to 3 days. After warming, the plums should be used within five days.

Annex A

Certain varieties of plums and their storage lives

Variety	Temperature °C	Storage life days
1 East-European varieties		
Anna Spät	−1 to 0	40 to 60
Burton	−1 to 0	60 to 80
Bystritza	−1 to 0	15 to 20
Gross Herzog	−2 to 0	70 to 90
Venguerka Italyanskaya	−1,5 to 0	50 to 70
Izyoume-Erik	−2 to 0	60 to 80
Ketche Italyanskaya	−1 to 0	40 to 60
Prevoskhodnaya blue	−1,5 to 0	60 to 70
Reine-claude Bavet	−2 to 0	50 to 70
Tuleu Grass	−2 to 0	60 to 70
Arton	0 to +1	20 to 30
Common Venguerka (late varieties)	0 to +2	20 to 40
Goldagne black	0 to +1	15 to 20
Catherine	0 to +1	25 to 30
Imperial	0,5 to +2	25 to 30
Ispolinskaya	0,5 to +2	25 to 30
Kirke	0 to +1	10 to 15
Kustendilskaya blue	0 to +1	30 to 40
Reine-claude Altan	0 to +1	25 to 30
Reine-claude green	0 to +1	25 to 30
Reine-claude purple	0 to +1	25 to 30
2 American and Italian varieties		
Beauty	−0,5 to +1	20 to 25
Victoria	−0,6	21
Gaviota	−0,5	40
Duart	−0,5 to 0	30
Italia	−0,5 to +2	few days
Keley	−0,5	8
Koljes		
Golden Gage	−0,5 to 0	65 to 70
Matley	−1,5 to 0,5	25
Santa Rosa	−0,5	25
Vixon	0	10 to 12
Gossia dioro	0	60 to 65 (green fruits)
	0	25 to 30 (riper fruits)
Jefferson	0	25 to 30
Formosa	0 to +1	20 to 25

Annex B

Limits of application

This International Standard provides guidance of a very general nature only. Local conditions, inherent in the variability of the fruit with time and location, may make it necessary to specify different conditions of harvesting or other physical conditions in the store.

This International Standard does not apply unreservedly, therefore, to all varieties in all climates and it will remain for each specialist to be the judge of any modifications to be made.

Moreover, this International Standard does not take into account the role played by horticultural factors, and wastage during storage is not dealt with. The importance of these two subjects has not been forgotten, but the influential factors, i.e. ecological or agrotechnical factors, are not very well known. Moreover, the origin of several of the most common physiological disorders is still uncertain, as are often the appropriate means of combating them.

Plums belong to the class of perishable fruits, which are susceptible to deterioration. They breathe intensely and ripen more or less rapidly. For this reason, they can be stored for only limited periods in cold stores.