

UNECE STANDARD DF-10
relating to the marketing and commercial
quality control of

DECORTICATED, AND DECORTICATED PEELED PISTACHIO NUTS
moving in international trade between and to
UNECE member countries

I. DEFINITION OF PRODUCE

This standard applies to decorticated and decorticated peeled pistachio nuts from varieties (cultivars) grown from *Pistacia vera L.* from which the protective pericarp has been removed. Decorticated and decorticated peeled pistachio nuts which are processed by salting, sugaring or roasting are excluded.

II. PROVISIONS CONCERNING QUALITY

The purpose of the standard is to define the quality requirements of decorticated and decorticated peeled pistachio nuts at the export control stage, after preparation and packaging.

A. Minimum requirements

- (i) In all classes subject to the special provisions for each class and the tolerances allowed, the decorticated and decorticated peeled pistachio nuts must be:
- intact; the absence of a small part of the nut shall not be regarded as a defect;¹
 - sound: free from mould, rot, visible damage by insects and dead insects and insect debris;
 - sufficiently developed;
 - clean, practically free from any visible foreign matter;
 - free from living insects or mites whatever their stage of development;
 - dry; free of abnormal external moisture;
 - free of foreign smell and/or taste;
 - free from rancidity.

The condition of decorticated and decorticated peeled pistachio nuts must be such as to enable them

- to withstand transport and handling, and
- to arrive in satisfactory condition at the place of destination.

¹ *Reservation of Turkey in favour of a definition of "broken" to be added to Annex II Definitions of Defects.*

(ii) **Moisture content**

Moisture content of decorticated and decorticated peeled pistachio nuts must not exceed 6.5 per cent.^{2 3}

B. Quality Classification

Decorticated peeled pistachio nuts are classified as defined below:

"Extra" class

Decorticated peeled pistachio nuts must be of superior quality. They must be well developed, of normal shape and the inside longitudinal section must be of the colour specified with a tolerance of 5 per cent for other colours; i.e. "Extra Class Decorticated Peeled Green (Pink - Gulic, yellow or mixed colour).

They must be practically free from defects with the exception of very slight superficial defects provided that these do not affect the general appearance of the produce, the quality, the keeping quality or its presentation in the package.

Decorticated pistachio nuts are classified into three quality classes as defined below and in the defect tolerances in Table I:

(i) ***"Extra" class***

Decorticated pistachio nuts in this class must be of superior quality. They must be well developed, of normal shape and the inside longitudinal section must be according to colour type. They must be practically free from defects with the exception of very slight superficial defects provided that these do not affect the general appearance of the produce, the quality, the keeping quality or its presentation in the package.

(ii) ***Class I***

Decorticated pistachio nuts in this class must be of good quality. They must be fairly well developed and normal in shape and the inside longitudinal section must be according to colour type. Slight defects may be allowed provided that these do not affect the general appearance of the produce, the quality, the keeping quality or its presentation in the package.

(iii) ***Class II***

This class includes decorticated pistachio nuts which do not qualify for inclusion in the higher classes but satisfy the minimum requirements specified above. However, some defects of development are allowed, as are slight defects, provided the decorticated pistachio nuts retain their essential characteristics as regards general appearance, quality, keeping quality and presentation.

² For determining the moisture content one of the methods described in Annex I shall be followed.

³ Reservations by Germany and the Netherlands which are in favour of a maximum moisture content of 6.0 per cent.

C. Colour Classification

(i) ***Green***

The inside longitudinal section must be green or dark green in colour. Not more than 25 per cent of kernels, by count, may display light green and/or yellow sections.

(ii) ***Pink (Gulic)***

The external appearance shall be pink colour and the inside longitudinal section must be light green in colour. Not more than 30 per cent of kernels, by count, may display yellow sections.

(iii) ***Yellow***

The inside longitudinal section of the kernel must display a predominately yellow colour. Not more than 25 per cent of kernels, by count, may display green and/or light green colour.

(iv) ***Mixed Colour***

Lots exceeding the above colour tolerance fall into this category which otherwise are subject to all quality requirements of Section II B.

III. PROVISIONS CONCERNING SIZING

Decorticated and decorticated peeled pistachio nuts are not subject to sizing.

IV. PROVISIONS CONCERNING TOLERANCES

Tolerances in respect of quality shall be allowed in each package for produce not satisfying the requirements of the class indicated.

A. Quality Tolerances⁴

Defects	Tolerances allowed (per cent of defective fruit by weight)			
	Decorticated peeled	Decorticated		
		"Extra"	"Extra"	Class I
Total tolerances	8	8	10	15
Insufficiently developed	-	1.5	1.5	2.0
Shriveled	6 ^b	4	4	5
Halved	20 ^c	1	2	3
Broken ^a	5	1	2	4
Foreign matter	-	0.1	0.1	0.2
Damaged by insects ⁵	1	1	1.25	1.85
Visible mould ^{5 6}	0.5 ⁵	0.5 ⁵	0.5	1.0 ⁷

^a *Decorticated peeled pistachio halves are not considered as broken.*

^b *Included within this tolerance, not more than 3 per cent of dark shriveled kernels.*

^c *20 per cent tolerances not included in total tolerance.*

B. Mineral impurities

Not greater than 1 g/kg.

⁴ *The delegate of Greece entered its reservation ad referendum on changes made in the quality tolerance table to provide it an opportunity to consult national trade representatives.*

⁵ *National legislations of Germany and of Switzerland do not permit tolerances for produce affected by mould or rot or the presence of dead or living insects.*

⁶ *Reservation of the Netherlands which is in favour of zero tolerance for mould in EXTRA class produce.*

⁷ *Poland considers that the tolerance for visible mould should be 0.5 per cent in all classes.*

V. PROVISIONS CONCERNING PRESENTATION

A. Uniformity

The contents of each package must be uniform and contain only decorticated and decorticated peeled pistachio nuts of the same origin, type and quality. The visible part of the contents of the package must be representative of the entire contents.

B. Packaging

The decorticated and decorticated peeled pistachio nuts must be packed in such a way so as to protect the produce properly. The materials used inside the package must be new, clean and of a quality such as to avoid causing any external or internal damage to the product. The use of materials, particularly of paper or stamps bearing trade specifications, is allowed provided the printing or labelling has been done with a non-toxic ink or glue.

Packages must be free of all foreign matter.

C. Presentation

The decorticated and decorticated peeled pistachio nuts must be packed in packages of 10.0, 12.5 or 25.0 kg maximum net weight packages.

These packages may contain pre-packages of the following net weights: 0.100; 0.125; 0.250; 0.500 or 1 kilogram. At the request of the importer other units of weight are allowed in order to take account of trade habits and legislation in force in importing countries. The pre-packages contained in the outer packages must be of the same weight and contain the same class of nuts.

VI. PROVISIONS CONCERNING MARKING

Each package must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside.

A. Identification

Packer) Name and address or
and/or) officially issued or
Dispatcher) accepted code mark ⁸

B. Nature of the produce

- Decorticated Pistachio Nuts; Decorticated Peeled Pistachio Nuts.

⁸ *The national legislation of a number of European countries requires the explicit declaration of the name and address.*

C. Origin of the produce

- Country of origin and, optionally, district where produced or the national, regional or local place name.

D. Commercial specifications

- Type (Decorticated or Decorticated Peeled)
- Quality class and colour class
- crop year (optional)
- net weight, or the number of package units, followed by the net unit weight in the case of packages containing such units.

E. Official control mark (optional)

Inclusion of new Annex I 2002

ANNEX I
DETERMINATION OF THE MOISTURE CONTENT FOR DRY PRODUCE (NUTS)

METHOD 1 - LABORATORY REFERENCE METHOD

1. Scope and application

This reference method serves to determine the moisture and volatile matter content for both inshell nuts and shelled nuts (kernels).

2. Reference

This method is based on the method prescribed by ISO: ISO 665-2000 Oilseeds - Determination of moisture and volatile matter content.

3. Definition

Moisture content and volatile matter content for dry produce (inshell nuts and shelled nuts): loss in mass measured under the operating conditions specified in ISO 665-2000 for oilseeds of medium size (see point 7.3 of ISO 665-2000). The moisture content is expressed as mass fraction, in percent, of the mass of the initial sample.

For whole nuts, when moisture content is expressed both on the whole nut and on the kernel, in cases of dispute between the two values, the moisture content value of the whole nut takes precedence.

4. Principle

Determination of the moisture and volatile matter content of a test portion by drying at $103 \pm 2^\circ \text{C}$ in an oven at atmospheric pressure, until practically constant mass is reached.

5. Apparatus (see ISO 665-2000 for more details)

- 5.1 Analytical balance sensitive to 1 mg or better.
- 5.2 Mechanical mill.
- 5.3 3 mm round-holes sieve.
- 5.4 Glass, porcelain or non-corrosive metal containers, provided with well-fitting lids, allowing the test portion to be spread to about 0.2 g/cm^2 (approximately 5 mm height).
- 5.5 Electric oven with thermostatic control capable of being regulated between 101 and 105°C in normal operation.
- 5.6 Desiccator containing an effective desiccant.

6. Procedure

Follow the operating conditions as specified in ISO 665-2000 for oilseeds of medium size (point 7 and 7.3 of ISO 665-2000), but with the following specific modifications, concerning the preparation of the test sample.

Although ISO 665-2000 sets up one initial period of 3 hours in the oven set at $103 \pm 2^\circ \text{C}$, for nuts it is recommended one initial period of 6 hours.

6.a Determination of the moisture and volatile matter content of kernels:

For shelled nuts, homogenize the laboratory sample and take a minimum of 100 g of kernels as a test sample.

For inshell nuts, take a minimum of 200 g and, using a nutcracker or hammer, remove the shells and fragments or particles of shell, using the rest as a test sample. The kernel skin (cuticle or spermoderm) is included in the test sample.

Grind and sieve the test sample until the size of the particles obtained is no greater than 3 mm. During the grinding operation, care should be taken to avoid the production of a paste (oily flour), the overheating of the sample and the consequent loss of moisture content (for example, if using a mechanical food chopper, by successive very short grinding and sieving operations).

Spread evenly over the base of the vessel about 10 g of the ground product as a test portion, replace the lid, and weigh the whole vessel. Carry out two determinations on the same test sample.

6.b Determination of moisture and volatile matter content on whole nuts (shell plus kernel):

Homogenize the laboratory sample and take a minimum of 200 g of nuts as a test sample. Remove all the foreign matter (dust, stickers, etc.) from the test sample.

Grind the whole nuts using either a Rass Mill, a Romer Mill or a Brabender apparatus or similar, without overheating the product.

Spread evenly over the base of the vessel about 15 g of the ground product as a test portion, replace the lid, and weigh the whole vessel. Carry out two determinations on the same test sample.

7. Expression of results and test report

Follow all the instructions as specified in ISO 665-2000 (point 9 and 11) for method of calculation and formulae, and for test report, without any modification.⁹

8. Precision

For conditions of repeatability and reproducibility apply specifications of ISO 665-2000 (point 10.2 and 10.3) for soya beans.

METHOD 2: RAPID METHOD

1. Principle

Determination of the moisture content using a measuring apparatus based on the principle of loss of mass by heating. The apparatus should include a halogen or infra-red lamp and a built-in analytical balance, calibrated according to the laboratory method.

The use of apparatus based on the principle of electrical conductivity or resistance, as Moisture Meters, Moisture Testers and similar, is also allowed always at condition that the apparatus has to be calibrated according with the laboratory reference method for the tested product.

2. Apparatus

- 2.1 Mechanical mill or food chopper.
- 2.2 3 mm round-holes sieve (unless indicated otherwise by the instructions for use of the apparatus).
- 2.3 Halogen or infrared lamp with built-in analytical balance sensitive to 1 mg or better.

3. Procedure

- 3.1 Preparation of sample

Follow the same instructions as given for the laboratory reference method (points 6.a and 6.b), unless indicated otherwise by the instructions for use of the apparatus, particularly with regard to the diameter of the fragments.

⁹ *The main points specified are as follows:*

- *moisture and volatile matter content is expressed as mass fraction, in percent, of the mass of the initial sample.*
- *The result is the arithmetic mean of the two determinations; the difference between the two determinations should not exceed 0.2 % (mass fraction).*
- *The result has to be reported to one decimal place.*

3.2 Determination of moisture content

Carry out the determination on two test portions of approximately 5 to 10 g each, unless indicated otherwise by the instructions for use of the apparatus.

Spread the test portion over the base of the test receptacle, thoroughly cleaned in advance, and note the weight of the test portion to within 1 mg.

Follow the procedure indicated in the instructions for use of the apparatus for the product to be tested, in particular with regard to the adjusting of temperatures, the duration of the test and the recording of the weight readings.

4. Expression of results

4.1 Result

The result should be the arithmetic mean of the two determinations, provided that the conditions of repeatability (4.2) are satisfied. Report the result to one decimal place.

4.2 Repeatability

The difference in absolute value between the respective results of the two determinations performed simultaneously or one immediately after the other by the same operator, under the same conditions on identical test material, must not exceed 0.2%.

5. Test report

The test report must state the method used and the results obtained. The report must contain all information necessary for the full identification of the sample.

ANNEX II

DEFINITIONS OF DEFECTS FOR DECORTICATED, AND DECORTICATED PEELED, PISTACHIO NUTS

- Defects of the kernel:** Any defect adversely affecting the appearance and edibility of the kernel.
- Fully developed:** The condition of pistachio in which the kernel has developed fully.
- Halved:** Kernels separated longitudinally as two individual cotyledens.
- Shrivelled:** Kernel which is seriously shrunken, wrinkled and tough.
- Rancid:** Oxidation of lipids producing a disagreeable flavour. An oily appearance of the flesh does not necessarily indicate a rancid condition.
- Foreign smell or taste:** Any odour or flavour that is not characteristic of the product.
- Insect damage:** Visible damage by insects or animal parasites, or the presence of dead insects or insect debris.
- Mould:** Mould filaments visible to the naked eye.
- Decay:** Significant decomposition caused by the action of micro-organisms.
- Clean:** Practically free from plainly visible adhering dirt or other extraneous matter.
- Mineral impurities:** Acid insoluble ash.
- Foreign matter:** Any matter or material not usually associated with the product.