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Specialized Section on Standardization of  
Dry and Dried Produce (Fruit)  
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Item 4(b) of the provisional agenda

**REVISION OF UN/ECE STANDARDS**

**PISTACHIO KERNELS AND PEELED PISTACHIO KERNELS**

Transmitted by Turkey

**Note by the secretariat :** At the last session an initial discussion was held on the revision of the existing UN/ECE Standard for Decorticated and Decorticated Peeled Pistachio Nuts. Turkey and the United States agreed to work on a proposal keeping in mind the new standard layout and also seeking input from other producing countries such as the Islamic Republic of Iran.

Additions in this text have been marked in *italics*, **bold** and underlined, deletions have been ~~crossed out~~.

UN/ECE STANDARD DF-10  
relating concerning the marketing and commercial  
quality control of  
**DECORTICATED, AND DECORTICATED PEELED PISTACHIO NUTS**  
**PISTACHIO KERNELS AND PEELED PISTACHIO KERNELS**  
Moving in international trade between and to  
UN/ECE member countries

**I. DEFINITION OF PRODUCE**

This standard applies to ~~decorticated~~ pistachio kernels and ~~decorticated~~ peeled pistachio ~~nuts~~ kernels from varieties (cultivars) grown from pistachio (*Pistacia vera* L.) ~~from of~~ which the protective pericarp has been removed, intended for direct consumption. ~~Decorticated~~ pistachio kernels and ~~decorticated~~ peeled pistachio ~~nuts~~ kernels 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~~ pistachio kernels and ~~decorticated~~ peeled pistachio ~~nuts~~ kernels 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~~ pistachio kernels and ~~decorticated~~ peeled pistachio ~~nuts~~ kernels must be:

- free of damage caused by pests,
- free from mould,
- free from rancidity
- ~~dry~~; free of abnormal external moisture
- free of foreign smell and/or taste
- sufficiently dry to ensure keeping quality,
- intact; the absence of a small part of the nut shall not be regarded as a defect, <sup>†</sup>
- sound: ~~free from mould, rot, visible damage by insects and dead insects and insect debris~~ produce affected by rotting or deterioration such as to make it unfit for consumption is excluded,
- sufficiently developed,
- clean, practically free ~~from of~~ any visible foreign matter;
- free from ~~living~~ insects or mites whatever their stage of development;

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<sup>†</sup> ~~Reservation of Turkey in favour of a definition of "broken" to be added to Annex II Definitions of Defects~~

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

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

(ii) **Moisture content**

Moisture content of ~~decorticated~~ pistachio kernels and ~~decorticated~~ peeled pistachio ~~nuts~~ kernels ~~must~~ not exceeding 6.5 per cent<sup>1,2</sup>

**B. Quality Classification**

~~Decorticated~~ peeled pistachio ~~nuts~~ Peeled pistachio kernels are classified as defined below :

*Extra class*

~~Decorticated~~ peeled pistachio ~~nuts~~ kernels 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 Pistachio Kernels" 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~~ kernels are classified into three quality classes ~~as~~ defined below ~~and in the defect tolerances in Table I:~~

(i) **"Extra" class**

~~Decorticated~~ pistachio ~~nuts~~ kernels 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.

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<sup>1</sup> For determining the moisture content one of the methods described in Annex I shall be followed

<sup>2</sup> Reservations by Germany and the Netherlands which are in favour of a maximum moisture content of 6.0 per cent.

(ii) **Class “I”**

~~Decorticated~~ pistachio ~~nuts~~ **kernels** 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~~ **kernels** 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~~ **kernels** retain their essential characteristics as regards general appearance, quality, keeping quality and presentation.

**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 predominantly 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 subjects to all quality requirements of Section II. B.

**III. PROVISIONS CONCERNING SIZING**

~~Decorticated~~ **pistachio kernels** and ~~decorticated~~ peeled pistachio ~~nuts~~ **kernels** 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 Tolerances<sup>3</sup>

Defects	Tolerances allowed (Per cent of defective fruit by weight)			
	<del>Decorticated</del> Peeled <i>pistachio</i> kernels	<del>Decorticated</del> <i>Pistachio kernels</i>		
	"Extra"	"Extra"	Class I	Class <del>III</del> II
Total tolerances	8	8	10	15
Insufficiently developed	-	1.5	1.5	2.0
Shrivelled	6 <sup>b</sup>	4	4	5
Halved	20 <sup>c</sup>	1	2	3
Broken <sup>a</sup>	5	1	2	4
Foreign matter	-	0.1	0.1	0.2
Damaged by insects <sup>§</sup>	1	1	1.25	1.85
Visible mould <sup>4</sup>	0.5 <sup>§</sup>	0.5 <sup>§</sup>	0.5	1.0 <sup>5</sup>

<sup>a</sup> ~~Decorticated~~ peeled pistachio halves are not considered as broken.

<sup>b</sup> Include within this tolerance, not more than 3 per cent of dark shrivelled kernel.

<sup>c</sup> 20 per cent tolerance not included in total tolerance.

##### B. Mineral impurities

~~Not greater than~~ Ashes insoluble in acid must not exceed 1 g/kg.

<sup>3</sup> The delegate of Greece entered its reservation and referendum on changes made in the quality tolerance table to provide it an opportunity to consult national trade representatives.

<sup>4</sup> Reservation of the Netherlands which is in favour of zero tolerance for mould in EXTRA class produce.

~~§ 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.~~

<sup>5</sup> 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~~ pistachio kernels and ~~decorticated~~ peeled pistachio ~~nuts~~ kernels of the same origin, ~~type and~~ quality and colour type. The visible part of the contents of the package must be representative of the entire contents.

### B. Packaging

The ~~decorticated~~ pistachio kernels and ~~decorticated~~ peeled pistachio ~~nuts~~ kernels 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 that 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~~ pistachio kernels and ~~decorticated~~ peeled pistachio ~~nuts~~ kernels 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<sup>6</sup> must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside.

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<sup>6</sup> Package units of produce pre-packed for direct sale to the consumer shall not be subject to these marking provisions but shall conform to national requirements. However the markings referred to shall in any event be shown on the transport packaging containing such package units.

**A. Identification**

Packer ) Name and address or  
 and /or ) officially issued or  
 Dispatcher ) accepted code mark <sup>7</sup>

**B. Nature of the produce**

~~Decorticated Pistachio Nuts; Decorticated Peeled Pistachio Nuts.~~

- *Pistachio Kernels*
- *Peeled Pistachio Kernels*

**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 and Decorticated Peeled~~ *Pistachio Kernels or Peeled Pistachio Kernels*)
- 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 )**


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<sup>7</sup> *The national legislation of a number of European countries requires the explicit declaration of the name and address*

## ANNEX I

### DETERMINATION OF THE MOISTURE CONTENT OF ~~DRIED FRUIT~~ *PISTACHIO KERNELS AND PEELED PISTACHIO KERNELS*

#### METHOD 1- LABORATORY REFERENCE METHOD

##### 1. Principle

Determination of the moisture content of dried fruits by loss of mass after drying at a temperature of 103°C (+2°C) in a temperature controlled oven at ambient pressure for 6 hours.

##### 2. Apparatus

- 2.1. Ceramic mortar with appropriate pestle or food chopper.
- 2.2. Analytical balance assensitive to 1 mg.
- 2.3. Cylindrical, flat bottomed glass or metal containers, 12 cm in diameter and 5 cm in depth, provided with well fitting lids.
- 2.4. Electrically heated temperature controlled oven with good natural ventilation, regulated so that the temperature is maintained at 103°C (+2°C)S
- 2.5. Desiccator containing an effective desiccant (e.g. calcium chloride) and provided with a metal plate which allows the containers to cool rapidly.

##### 3. Preparation of the Sample

Shell the sample if required and crush the kernels in the mortar, or chop them finely, to obtain fragments of 2-4 mm across.

##### 4. Test Portion and Determining

- 4.1. Dry the containers and their lids in the oven for at least 2 hours and transfer to the desiccator. Allow the containers and lids to cool to room temperature.
- 4.2. Carry out the determination on 4 test portions of approximately 50g each.
- 4.3. Weigh the empty container and lid to the nearest 0.001 g ( $M_0$ ).
- 4.4. Weigh approximately 50 g of the test material into the container to the nearest 0.001 g. Spread the material all over the base of the container, seal the container quickly with the lid and weigh the whole ( $M_1$ ). Perform these operations as quickly as possible.



4.5. Place the open containers, with their lids beside them, in the oven. Close the oven and allow to dry for 6 hours. Open the oven, quickly cover the containers with their individual lids, and place them in the desiccator to cool. After cooling to ambient temperature, weigh the covered dish to the nearest 0.01 g( $M_2$ ).

4.6. The moisture content of the sample, as percentage by mass is given by the expression:

$$\text{Moisture} = \frac{(M_1 - M_2)}{(M_1 - M_0)} \times 100$$

4.7. Report the average value obtained from the four determinations.

## I. METHOD II- RAPID METHOD

### 1. Principle

Determination of the moisture content using a measuring instrument based on the principle of electrical conductivity. The measuring instrument must be calibrated against the laboratory method.

### 2. Apparatus

- 2.1. Ceramic mortar with appropriate pestle or food chopper.
- 2.2. Measuring instrument based on the principle of electrical conductivity.

### 3. Determination

- 3.1. Fill the glass with the substance to be examined (previously ground in the mortar) and tighten the press until a constant pressure is obtained.
- 3.2. Read the values of the scale.
- 3.3. After each determination, clean the glass thoroughly with a spatula, stiff bristled brush paper napkin, or compressed air pump.

## ANNEX II

### **DEFINITIONS OF DEFECTS FOR ~~DECORTICATED, AND DECORTICATED PEELED PISTACHIO NUTS~~ PISTACHIO KERNELS AND PEELED PISTACHIO KERNELS**

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