UNECE STANDARD DDP-12

concerning the marketing and

commercial quality control of

DECORTICATED PEELED

PINE NUTS

1993 EDITION

UNITED NATIONS
New York and Geneva, 1993

NOTE

Working Party on Agricultural Quality Standards

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UNECE Standard DDP-12
concerning the marketing and commercial quality control of

Decorticated Peeled Pine Nuts

I. DEFINITION OF PRODUCE

This standard applies to seed from species of *Pinus Spp* from which the ligneous endocarp (shell) and the tegument (seed coat) have been removed, in particular the commercial types known as Mediterranean pine nut (*Pinus/pinea/L*) and Chinese or oriental pine nut (*Pinus koraiensis*). It applies both to pine nuts for direct consumption and to those for use in the food processing industry.

II. PROVISIONS CONCERNING QUALITY

The purpose of the standard is to define the quality requirements of pine 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 pine nus must be:

- Whole;
- sound; produce affected by decay or with flaws which would make it unfit for consumption is excluded;
- sufficiently developed, without signs of germination;
- clean, brushed and washed, virtually free from visible extraneous matter, including parts of the seed coat and the shell;
- free from living insects or mites whatever their stage of development;
- free from visible damage by insects, mites or other parasites;
- free from mould;
- free from rancidity and fermentation;
- free from abnormal external moisture;
- free from foreign smell and/or taste.

The condition of the pine nuts 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**

Pine nuts must not contain more than 6% moisture.[1]

B. Classification

Pine nuts are classified in three classes defined below.

(i) **"Extra" class**

Pine nuts in this class must be of superior quality. They must be characteristic of the species or commercial type and be of uniform colour.

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

(ii) **Class I**

Pine nuts in this class must be of good quality. They must be characteristic of the species and/or commercial type.

The may have the following slight defects, provided that these do not affect the general appearance of the produce, its quality, its conservation or its presentation the package:

- slight defects in shape
- slight defects in development
- slight defects in colouring.

(iii) **Class II**

This class includes pine nuts which do not qualify for inclusion in the higher classes, but which satisfy the minimum requirements specified above.

III. PROVISIONS CONCERNING SIZING

Pine nuts are not required to be size-graded in any class but they may be presented size-graded or screened according to their longest transverse diameter, expressed in millimetres or fractions of millimetres.

[1] *The moisture content shall be determined byone of the two methods indicated in Annex I to this document. In case of disagreement the laboratory reference method shall be used.*

IV. PROVISIONS CONCERNING TOLERANCES

Quality tolerances shall be permitted in each package for produce which does not comply with the requirements of the class indicated.

A. Quality tolerances

Permitted defects [2]	**Permitted tolerances per cent by weight**		
	Extra	**Class I**	**Class II**
Total tolerances	5	10	15
Specific defects :			
Stunted or excessively dried pine nuts	1	3	5
Pine nuts in the germination stage	1	2	4
Rancid or fermented pine nuts	0.2	0.5	1
Mouldy or rotten pine nuts[3]	0.2	0.4	0.8
Pine nuts damaged by insects [3]	0.2	0.4	0.8
Pieces, broken or flattened pine nuts	3	6	10
Pine nuts with superficial defects or traces of seed coat	2	4	6
Extraneous vegetable matter (Shell, seed coat, dust, etc.	0.2	0.3	0.5

B. Size tolerances

For all classes, if pine nuts are presented size-graded or screened, 20% by weight of pine nuts not of the stated size.

V. PROVISIONS CONCERNING PRESENTATION

A. Uniformity

The contents of each package must be uniform and contain only pine nuts of the same origin and quality.

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2 Definitions of the defects mentioned are given in annex II.

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

The visible part of each package must be representative of the entire contents.

B. Packaging

Pine nuts must be packed in such a way that they are properly protected

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 produce. The use of materials, including paper or stamps, giving commercial indications is permitted provided that non-toxic ink or glue is used for printing or labelling.

Packages must be free from all extraneous matter.

C. Presentation

In all cases, the pine nuts to which this standard applies shall be packed in rigid containers, with the net weight not exceeding 25 kg, or in bags, with the net weight not exceeding 50 kg. The pre-packages in each package must all be of the same weight and contain pine nuts of the same class, species and commercial type.

VI. PROVISIONS CONCERNING MARKING

Each case or partitioned 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 [4]

B. Nature of Produce

- "Pine nuts" or “Decorticated peeled pine nuts”
- Name of the variety and/or commercial type

C. Origin of produce

Country of origin and, optionally, district where grown or national, regional or local place name

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

D. Commercial specification

- Class.
- Brushed or washed.
- Crop year (optional)
- Net weight, or the number of pre-packages, followed by the net weight for packages containing such units.

E. Official control mark (optional)

Adopted 1993
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 ± 2º 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 105º 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 ± 2º 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. [5]

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

[5] *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.*

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.

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

A. Defects of kernels

Superficial damage:	Damage adversely affecting the appearance of the product, including blemishes, areas of discoloration, adhering seed coat.
Significant defects:	Defects which greatly affect the appearance or the keeping quality of the product, including splitting, crushing, mechanical lesions and lesions from other cause.
Intrinsic defects:	*Insufficient development* Immature, malformed and aborted fruit *Germination* Fruit of greenish colour

B. Other defects from external causes

Mould:	Mould filaments visible to the naked eye.
Fermentation:	Damage by fermentation such that the characteristic appearance and/or flavour of the produce is substantially affected.
Rotting:	Significant decomposition caused by the action of micro-organisms. The albumin of the fruit has a soft and watery appearance and a brownish colour which finally turns black.
Insect damage:	Visible damage caused by insects and animal parasites, or the presence of dead insects or insect debris.
Extraneous vegetable Material:	Harmless vegetable matter associated with the product.
Rancidity:	Oxidation of lipids, producing a disagreeable taste.
Abnormal odour or Flavour:	Any odour or flavour that is not characteristic of the product.
Heat damage:	Damage caused by excessive heat that affects the flavour or appearance of the produce (superficial brown blemishes).
Broken pine nuts:	Pine nuts having more than one third of the whole nut missing.
Pieces:	Pine nut parts, less than one third of a whole nut in size.