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Specialized Section on Standardization of Dry and Dried Produce (Fruit)
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REPORT OF THE FIFTIETH SESSION

Addendum 3

UNECE RECOMMENDATION FOR INSHELL ALMONDS

Note by the Secretariat: The Specialized Section agreed the text at its 50th session and recommends to the Working Party to adopt it as a UNECE Recommendation for Inshell Almonds for a one-year trial period.

UNECE RECOMMENDATION

concerning the marketing and commercial quality control of

INSHELL ALMONDS

moving in international trade between and to
UN/ECE member countries

I. DEFINITION OF PRODUCE

This standard applies to sweet inshell almonds of varieties (cultivars) grown from *Prunus amygdalus* Batsch, syn. *Prunus dulcis* (Mill.) D.A. Webb, from which the fleshy hull (epicarp and mesocarp) has been removed, intended for direct consumption. It does not apply to inshell almonds intended to be cracked or for further industrial processing, or for use in the food industry. It does not apply either to fresh inshell almonds marketed with his attached hull, not to bitter inshell almonds.

Inshell almonds are classified into two groups according to the hardness of the shell, as defined below : [1]

- Soft/Semi-soft : inshell almonds which can be easily cracked with the fingers or with a nutcracker.
- Hard : inshell almonds which can be cracked only with a hammer or similar devices.

II. PROVISIONS CONCERNING QUALITY

The purpose of the standard is to define the quality requirements of inshell almonds 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, inshell almonds must be:

(a) Characteristics of the shell :

- intact; slight cracks and superficial damage are not considered as a defect;[2]
- sound; free from defects likely to affect the natural keeping quality of the inshell almond; free from gum;
- clean, practically free of any visible foreign matter; free of adhering dirt or soil;
- dry; free of abnormal external moisture;

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[1] *Other equivalent denominations commonly used in international trade for the Soft/Semisoft group are accepted, as are "Paper type", "Mollares", "Fitas" etc.*

[2] *Small outer parts of the shell may be missing, provided that the kernel is protected.*

- free from residues of adhering hull;
- free of damage caused by pests;
- free from blemishes or discoloration rendering them unfit for consumption; [3]
- well formed; the shell is not noticeably misshapen;

(b) Characteristics of the kernel:

- sufficiently dry to ensure keeping quality;
- sweet; bitter almonds are excluded;
- intact;
- sound; kernels affected by rotting or deterioration rendering them unfit for consumption are excluded; free from gum and brown spot;
- clean, practically free of any visible foreign matter;
- sufficiently developed; empty shells and shrunken or shrivelled kernels are to be excluded; [4]
- free from insects or mites whatever their stage of development;
- free of damage caused by pests;
- free from blemishes and discoloration rendering them unfit for consumption;
- free from mould;
- free from rancidity;
- free of foreign smell and/or taste.

Inshell almonds must be harvested when fully ripe.

The condition of the inshell almonds 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

Inshell almonds shall have a moisture content not greater than 10.0 per cent for the whole nut, and [7.0 per cent] for the almond kernel. [5]

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[3] *The almond shell may be brushed and bleached, provided that the treatment applied does not affect the quality of the kernel and it is permitted by the regulations of the importing country.*

[4] *Twin or double kernels are not considered as a defect.*

[5] *The moisture content is determined by one of the methods given in Annex II of the Standard Layout - Determination of Moisture content for Dry Produce (Nuts). The laboratory reference method shall be used in cases of dispute.*

B. Classification

Inshell almonds are classified in three classes defined below:

(i) ***"Extra Class"***

Inshell almonds in this class must be of superior quality. They must be characteristic of the variety or of the group of varieties of similar characteristics [6] indicated on the marking,[7] and belong to the soft/semi-soft group.

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

(ii) ***Class I***

Inshell almonds in this class must be of good quality. They must be of similar characteristics, [6] and belong to the soft/semi-soft group.

Slight superficial defects of the shell and slight defects in shape or development may be allowed provided these do not affect the general appearance of the produce, the quality, keeping quality and presentation in the package.

(iii) ***Class II***

This class includes inshell almonds which do not qualify for inclusion in the higher classes but satisfy the minimum requirements specified in part A. They can belong to either the soft/semi-soft group, or the hard group. Mixtures of groups are not allowed.

Superficial defects of the shell and defects in shape or development may be allowed, provided the inshell almonds retain their essential characteristics as regards the quality, keeping quality and presentation.

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[6] *Similar characteristics mean that the inshell almonds in each lot are similar in shape and appearance, and reasonably uniform in degree of hardness of the shell.*

[7] *The reference to a variety or group of varieties is mandatory in "Extra Class", and optional in Class I and Class II.*

III. PROVISIONS CONCERNING SIZING

Inshell almonds may be either sized or screened. Sizing or screening is optional in all Classes.

Sizing and screening are determined by the maximum diameter of the equatorial section of the shell, by means of round-holed or elongated-holed screens. In addition to this system, other optional sizing and screening systems can by used, such as those based in the number of inshell almonds per 100 g or per ounce (28,3495 g).

(i) Sizing is expressed by an interval defined by a minimum and maximum size in millimetres, which must not exceed 2 mm of difference. When a range in count is specified, the inshell almonds shall be fairly uniform in size, and the average count shall be within the range specified. [8]

(ii) Screening is expressed by a reference to a minimum size, in millimetres, followed by the words “and plus” or other equivalent wording, or by a reference to a maximum number of inshell almonds per 100 g or per ounce, followed by the words “and less” or other equivalent wording.

Alternatively, screening could be expressed by a reference to a maximum size, in millimetres, followed by the words “and less” or other equivalent wording, or by a reference to a minimum number of inshell almonds per 100 g or per ounce, followed by the words “and plus” or other equivalent wording. For produce presented to the final consumer under the specification «screened», this alternative reference is not allowed.

[8] *Fairly uniform in size means that, in a representative sample, the weight of 10 per cent, by count, of the largest inshell almonds shall not exceed 1,5 times the weight of the 10 per cent, by count, of the smallest inshell almonds.*

IV. PROVISIONS CONCERNING TOLERANCES

Tolerances in respect of quality and size are allowed in each package for produce not satisfying the requirements of the class indicated.

A. Quality tolerances

Defects allowed [9]	Tolerances allowed (per cent of defective inshell almonds by count)		
	Extra	**Class I**	**Class II**
(a) Total tolerances for shells not satisfying the minimum requirements,	5	10	15
of which no more than:			
- almonds shells with adhering husk and/or affected by blemishes or discoloration, damaged by pests, rotting or deterioration	1	3	5
(b) Total tolerances for kernels not satisfying the minimum requirements,	8	10	15
of which no more than:			
- bitter almonds and kernels having bad smell or taste	1	3	4
- almonds kernels affected by gum or brown spot	3	7	10
- shrunken or shrivelled, not sufficiently developed kernels and empty nuts	3	5	10
- rancid, rotten, mouldy and damaged by insects or other pests [a]	2	5	7
[of which mouldy, no more than:]	0,5	1	2
(c) Other defects (not included in total tolerances):	**(per cent of defects by weight)** (calculated by weight, with regard to the total inshell weight basis)		
- loose shells and shell fragments	1	2	3
- dust and foreign matter	0.25	0.25	0.25

[a] *Living pests are inadmissible in any class.*

In lots not labelled as “hard” on the marking, there is a maximum tolerance of 5 per cent, by count, in Extra Class and Class I, and 10 per cent in Class II, of hard inshell almonds.

When a variety or a group of varieties is indicated in the marking, there is a maximum tolerance of 10 per cent, by count, for Extra Class and Class I, and 20 per cent for Class II, of inshell almonds belonging to other varieties.

[9] *Standard definitions of the defects are listed in the Annex of this document.*

B. Mineral impurities

Ashes insoluble in acid must not exceed 1g/kg.

C. Size tolerances

For all classes, when applicable, in case of sizing or screening by diameter in millimetres, a maximum tolerance of 15 per cent, by count, of inshell almonds not conforming to the size or screen indicated on the marking is allowed.

When sizing or screening by the number of inshell almonds per 100 g or per ounce, no tolerance for counts above or below the specified range or screen shall be allowed.

V. PROVISIONS CONCERNING PRESENTATION

A. Uniformity

The contents of each package must be uniform and contain only inshell almonds of the same origin, crop year, quality and group (soft/semisoft, hard) and, when applicable, variety or group of varieties and size.

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

B. Packaging

Inshell almonds must be packed in such a way 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 produce. The use of materials, particularly of paper or stamps bearing trade specifications is allowed provided that the printing or labelling has been done with non-toxic ink or glue.

Packages must be free of all foreign matter.

C. Presentation

Inshell almonds must be presented in bags or solid containers. All consumer packages within each package must be of the same weight.

VI. PROVISIONS CONCERNING MARKING

Each package[10] 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 [11]

B. Nature of produce

- "Inshell almonds" or "Almonds in the shell"
- Group (optional; mandatory only for the Hard group)
- Variety or group of varieties (optional in Class I and Class II)

C. Origin of produce

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

D. Commercial specifications

- Class;
- Size or screen (optional) expressed in millimetres by (or count per 100 g or per ounce)
  - the minimum and the maximum diameters, or
  - the minimum diameter followed by the words "and plus" or other equivalent wording, or
  - the maximum diameter, followed by the words "and less" or other equivalent wording.

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[10] *Consumer packages for direct sale to the consumer shall not be subject to these marking provisions but shall conform to national requirements of the importing country. However the markings referred to shall in any event be shown on the transport packaging containing such package units.*

[11] *The national legislation of a number of European countries requires the explicit declaration of the name and address. In the case where a code mark is used, the reference "packer and/or dispatcher" (or equivalent abbreviations) has to be indicated in close connection with the code mark.*

- Net weight, or (optional or at the request of the importing country) number of consumer packages, followed by the net unit weight in the case of transport packages containing such units.
- Crop year (optional); mandatory according to the legislation of the importing country.
- "Best before" followed by the date (optional)

E. Official control mark (optional)

First published 1969 (as UNECE Standard for Unshelled Almonds)
Reprinted 1983
Partially Revised 1991 (Standard Layout)
Revised 2003 and published as Recommendation for a one-year trial period
The UNECE Standard for Unshelled Sweet Almonds
has led to the development of an explanatory brochure published by the OECD Scheme

ANNEX

DEFINITIONS OF TERMS AND DEFECTS FOR INSHELL ALMONDS

Bitter almond:	almond kernel with a characteristic bitter taste produced by amygdalin, a natural compound of bitter almond varieties.
Double or twin:	almond kernel of characteristic shape, with one side flat or concave, as a consequence of the development of two kernels in the same shell.
Clean:	practically free from plainly visible adhering dirt or other foreign material.
Well formed:	the shell is not noticeably misshapen and, when appropriate, its shape concords with the varietal characteristics.
Empty nut:	closed almond shell containing no kernel (aborted kernel).
Loose shell and shell fragments:	half or split empty shell, and fragments of almond shell or almond hull.
Sufficiently developed:	almond kernel of normal shape, without aborted or dried out portions; shrunken and shrivelled kernels are not sufficiently developed.
Shrunken or shrivelled:	almond kernel which is extremely flat and wrinkled, or with desiccated, dried out or tough portions, when the affected portion represents more than one quarter of the kernel.
Adhering hull:	residues of hull adhered on the surface of the shell, affecting in aggregate more than 5 per cent of the shell surface; the presence of lesser portions of hull are not considered as a defect.
Mould:	mould filaments visible to the naked eye, either on the shell or on the kernel.
Rancidity:	oxidation of lipids or free fatty acid production giving a characteristic disagreeable flavour.
Rotten:	significant decomposition or decay caused by the action of micro-organisms or other biological processes, normally accompanied by changes in texture and/or colour.
Insect or pest damage:	visible damage or contamination caused by insects, mites, rodents or other animal pests, including the presence of dead insects, insect debris or excreta.
Living pests:	presence of living pests (insects, mites or others) at any stage of development (adult, nymph, larva, egg, etc.).
Gummy:	resinous appearing substance on the surface of the shell or on the kernel, covering in aggregate an area more than the equivalent of a circle of 6 mm in diameter.

Brown spot:	slightly depressed brown spots on the almond kernel, affecting or not the endosperm, either single or multiple, caused by the sting of insects, as the box elder bug (Leptocoris trivittatus Say), covering in aggregate an area more than the equivalent of a circle of 3 mm in diameter.
Blemish and discoloration (on shells):	apparent and spread stains or grey, dark or black discoloration contrasting with the natural colour of the shell, affecting in aggregate more than one quarter of the surface of the shell; it is not considered as a defect the normal colour variations between the shells of one lot.
Blemish and discoloration (on kernels):	apparent and spread stains, other than gum and brown spot, or severe dark or black discoloration contrasting with the natural colour of the kernel skin, affecting in aggregate more than one quarter of the surface of the almond kernel; it is not considered as a defect the normal colour variations between the kernels of one lot.
Abnormal external moisture:	presence of water, moisture or condensation directly on the surface of the product.
Foreign smell and/or taste:	any odour or taste that is not characteristic of the product.
Foreign matter:	any visible and/or apparent matter or material, including dust, not usually associated with the product, except mineral impurities.