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**REVISION OF UNECE STANDARDS**

**ALMOND KERNELS**

Transmitted by Spain

**Note by the secretariat :** The Rapporteur (Spain) has prepared a revised proposal for the Standard for Almond Kernels based on comments received from delegations.

**REVISED UNECE STANDARD**  
concerning the marketing and commercial quality control of

**ALMOND KERNELS**

moving in international trade between and to  
UNECE member countries

**I. DEFINITION OF PRODUCE**

This standard applies to sweet almond kernels of varieties (cultivars) grown from *Prunus amygdalus* Batsch, **syn. Prunus dulcis (Mill.) D.A. Webb**, from which the **shell** (ligneous endocarp) has been removed. The standard [also applies to sweet blanched almond kernels<sup>1</sup> (kernels from which the **skin or tegument** has been removed), but it] does not apply to bitter almonds **kernels**, nor to **[blanched almonds and]** almond halves, pieces, sticks, **slices**, dices etc. **Salted, sugared, roasted and other processed almond kernels are excluded.**

**II. PROVISIONS CONCERNING QUALITY**

The purpose of the standard is to define the quality requirements of sweet almond 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 almond kernels must be:
- sufficiently dry to ensure keeping quality (~~see moisture content~~);
  - intact; ~~the absence of small parts of the tegument or outerskin, and~~ very slight scratches ~~on the endosperm~~ shall not be considered as a defect;<sup>2</sup>
  - sound; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded;
  - sufficiently developed; shrunken and shrivelled kernels are to be excluded;
  - normally developed (~~see specific provisions for~~ twins or doubles **are subjected to specific provisions**);
  - clean, practically free of any visible foreign matter;
  - free from insects or mites (**living pests**) whatever their stage of development;

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<sup>1</sup> [With specific provisions related to moisture content, size and tolerances, and the absence of skin.]

<sup>2</sup> [In blanched almonds, all the skin has to be removed, but the presence of small parts of adhered skin shall not be considered as a defect.]

- free of damage caused by pests;
- **free from gum and brown spot;**
- **free from blemishes and discoloration rendering them unfit for consumption;**
- free from mould;
- free from rancidity;
- free of abnormal external moisture;
- free of foreign smell and/or taste;
- [free of heat damage (for blanched almonds)].

The condition of the almond 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

Almond kernels shall have a moisture content not greater than **7.0** per cent.<sup>3 4</sup> ~~, except in the case of~~ **[For** blanched almond ~~where~~ the moisture content shall not be greater than 6.5 per cent.]

## B. Classification

Almond kernels are classified in three classes defined below:

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

Almond kernels in this class must be of superior quality. They must be characteristic of the variety **and**/or of the commercial type.

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***

Almond kernels in this class must be of good quality. They must be characteristic of the variety

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<sup>3</sup> The moisture content is determined by one of the methods given in Annex I of this document. The laboratory reference method shall be used in cases of dispute.

<sup>4</sup> Reservation by Germany for a maximum moisture content of 6.0 per cent.

and/or of the commercial type.

The following slight defects may be allowed provided these do not affect the general appearance of the produce, the quality, keeping quality and presentation in the package.

- slight defects in shape and/or development
- slight defects on the colour of the skin
- superficial or slight scratches
- ~~lack of part of the tegument~~

(iii) **Class II**

This class includes almond kernels which do not qualify for inclusion in the higher classes but satisfy the minimum requirements specified [above] in Part A. <sup>5</sup>

The following defects may be allowed provided the almond kernels retain their essential characteristics as regards the quality, keeping quality and presentation.

- defects in shape and/or development
- defects on the colour of the skin
- small scratches and/or absence of small parts of the skin ~~lack of part of the tegument~~

### III. PROVISIONS CONCERNING SIZING

Almonds kernels <sup>6</sup> are either sized or screened. Sizing and screening are determined by the maximum diameter of the equatorial section of the almond kernel, by means of round-holed or elongated-holed screens. In addition to this system, other optional sizing and screening systems can be used, such as those based in the number of almond kernels per 100 g or per ounce (28.3495 g), provided that the equivalent size or screen in mm would be expressed in the marking. (former footnote 8 transfered here)

Sizing or screening are compulsory for Extra Class and Class I, but optional for Class II. No minimum size is set up for any Class. ~~For Extra Class, the minimum size allowed is 10 mm, and 9 mm for Class I.~~

- (i) Sizing is expressed by an interval defined by a maximum and minimum size in millimetres,

<sup>5</sup> ~~In Class II the reference to a variety or commercial type is optional. When this reference is expressed in the marking or in the commercial documents, the kernels must be characteristic of the variety and/or commercial type.~~

<sup>6</sup> [Provisions concerning sizing are identical for blanched almonds, but the size or screen reference is related to the almond before blanching.]

which must not exceed 2 mm of difference. All sizes are allowed. ~~subject to observance of this maximum interval and the minimum sizes fixed for Extra Class and Class I~~

- (ii) Screening is expressed by a reference to a minimum size in millimetres, followed by the words “and above” or “and plus”, or by reference to a maximum size in millimetres, preceded or followed by the words “under” or “and less”. All sizes are allowed. ~~subject to observance of the minimum sizes fixed for Extra Class and Class I.~~

For produce presented to the final consumer under the specification screened, the reference “under” or “and less” is not allowed.

**IV. PROVISIONS CONCERNING TOLERANCES**

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

**A. Quality tolerances**

Defects allowed <sup>7</sup>	Tolerances allowed (per cent of defective fruit by weight)		
	Extra	Class I	Class II
<b>a) Total tolerance <u>for kernels not satisfying the minimum requirements, of which no more than:</u></b>	5	10	15
– Rancid, rotten, [mouldy] and damaged by insects or other pests <sup>a</sup>	1	2	3
– Gummy, <del>and</del> brown spot, <b><u>blemishes and discoloration</u></b>	<del>+</del> <b><u>2</u></b>	<del>±</del> <b><u>3</u></b>	<del>±</del> <b><u>6</u></b>
– Bitter almonds	<del>±</del> <b><u>1</u></b>	3	4
– Shrunken or shrivelled and not sufficiently developed kernels	<del>0.5</del> <b><u>1</u></b>	2	4
– Split, <del>or</del> broken and halves <sup>[ b]</sup>	1	3	5
– Pieces <sup>[ c]</sup>	1	1	3
– Inshell almonds, shell or skin fragments, dust and foreign matter	0.15	0.25	0.25
<b>b) <u>Others defects not included in the total tolerance:</u></b>			
– Chipped and scratched [(and heat damage in blanched almonds)]	<del>3</del> <b><u>5</u></b>	10	15
– Doubles or twins <sup>d</sup>	5	15	20 <sup>e</sup>

<sup>a</sup> *Living pests are inadmissible in any class.*

<sup>7</sup> *Standard definitions of the defects are listed in Annex II.*

- <sup>b</sup> *[For blanched almonds, these tolerances are increased to 3 per cent, 7 per cent and 10 per cent respectively for Extra Class, Class I and Class II.]*
- <sup>c</sup> *[For blanched almonds, these tolerances are increased to 2 per cent, 3 per cent and 5 per cent respectively for Extra Class, Class I and Class II.]*
- <sup>d</sup> *When the marking indicates “without doubles” or “without twins”, these tolerances shall be reduced to 1 per cent, for Extra Class and 3 per cent for Class I and Class II.*
- <sup>e</sup> *In Class II, when the marking indicates “with doubles” or “with twins”, **no limit of doubles or twins is applied.** [the amount of doubles or twins is not limited.] ~~the 20 per cent maximum tolerance shall not apply.~~*

For Extra Class and Class I, there may be a maximum of 10 per cent, by weight, of kernels belonging to different varieties or commercial types, from the same local production area. For Class II, in case the variety or commercial type are indicated in the marking, ~~this requirement is also applicable with~~ **it is allowed** a maximum tolerance of 20 per cent.<sup>8</sup>

## **B. Mineral impurities**

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

## **C. Size tolerances**

For all classes, **it is allowed a maximum of** 15 per cent, by weight, of almond kernels not according to the size or screen indicated on the marking.

*{attention: this model is unworkable for count by 100 g or by ounce. May be we have to add, as in the USDA standard: “When sizing or screening by the number of almond kernels per 100 g or per ounce, no tolerance shall be allowed.”}*

## **V. PROVISIONS CONCERNING PRESENTATION**

### **A. Uniformity**

The contents of each package must be uniform and contain only sweet almond kernels of the same origin, [crop year], quality and size (if sized). For “Extra” Class and Class I the almond kernels must be of the same variety and/or commercial type<sup>8</sup> and, for “Extra” Class, similar in shape and appearance.

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<sup>8</sup> *Class I and Class II lots using the terms “assorted”, “mixed” or similar phraseology, are not subject to this requirement.*

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



**B. Packaging**

Almond kernels 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**

Almond kernels must be presented in bags or solid containers. All pre-packages [consumer packages] within each package must be of the same weight.

**VI. PROVISIONS CONCERNING MARKING**

Each package <sup>9</sup> 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 <sup>10</sup>

**B. Nature of produce**

- "Almond kernels" or "Almonds"
- Variety or commercial type (optional in Class II)
- ~~Type process~~ **Additional specifications** (in case, following or preceding the name of the produce), as ["blanched"], "assorted", "mixed", "without doubles" or "without twins", "with doubles" or "with twins", etc.

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<sup>9</sup> *Package units of produce prepacked [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.*

<sup>10</sup> *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.*

**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<sup>11</sup> (optional for Class II); expressed in millimetres either by:
  - the minimum and the maximum diameters, or
  - the minimum diameter followed by the words “and above” or “and plus”, or the maximum diameter, preceded or followed by the words “under” or “and less”
- Net weight, or the number of pre-packages [*consumer packages*], followed by the net unit weight in the case of [*transport*] packages containing such units (optional or at the request of the importing country).
- Crop year (optional); mandatory according to the legislation of the importing country.
- "Best before" followed by the date (optional)

**E. Official control mark (optional)**

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<sup>11</sup> *Or count per 100 g or per ounce, provided that the equivalent size or screen in mm would be expressed.*

## ANNEX II

## DEFINITIONS OF TERMS AND DEFECTS FOR ALMOND KERNELS

Blanched almond:	almond kernel from which the tegument or outerskin has been removed.
<b>Commercial type:</b> <i>(former footnote 5 transferred here)</i>	commercial type means that the kernels in each lot belong to a mix of sweet almond varieties, officially defined by the producing country, of similar industrial use; the terms “assorted”, “mixed” or similar are not considered as commercial types; lots with these mentions can only be marketed in Class I and Class II.
Assorted or Mixed almonds:	lot of sweet almond kernels which consists of a mixture of two or more dissimilar varieties or commercial types.
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.
Normally developed:	almond kernel with its characteristic varietal shape; double or twin kernels are not normally developed.
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 dessicated, dried out or tough portions, when the affected portion represents more than one <del>eight</del> <b>quarter</b> of the kernel.
[Heat damage:]	[damage caused by excessive heat during the drying or blanching process, that significantly affects the flavour, appearance or edibility of the product, like kernels with internal or external parts scorched or toasted, or with very apparent changes in colour.]
Absence of skin:	<del>loss in aggregate of more than one eighth of the surface of the tegument or outerskin; the absence of lesser portions of the tegument are not considered as a defect.</del>
Chipped kernel:	mechanically damaged almond kernel from which less than one <del>eight</del> <b>quarter</b> of the kernel is <del>chipped or</del> missing; <b>when</b> the loss in aggregate of less than the equivalent of a circle of <del>5</del> <b>3</b> mm <del>of in</del> diameter, <b>it</b> is not considered as a defect.

- Scatched kernel: superficially mechanically damaged almond kernel, **with absence of part of the skin** affecting **or not** the endosperm; ~~loss~~ **when the lack of skin or scratched area is less** in aggregate ~~of less~~ than the equivalent of a circle of ~~5~~ **3** mm ~~of~~ **in** diameter, **it** is not considered as a defect.
- Half: longitudinally split almond kernel from which the two halves (cotyledons) are separated.
- Split or broken kernel: **mechanically damaged** almond kernel from which more than one ~~eighth~~ **quarter** of the kernel is missing. ~~but no more than one half of the kernel.~~
- Piece: fragment of almond kernel ~~inferior to one half of the kernel, but which do not~~ **which** pass through a ~~3~~ **10** mm ~~round~~ meshed sieve.
- Mould: mould filaments visible to the naked eye, either inside or outside of the almond kernel.
- Rancidity: oxidation of lipids or free fatty acid production giving a characteristic disagreeable flavour; an oily appearance of the flesh does not necessarily indicate a rancid condition.
- 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, affecting or not the endosperm, covering in aggregate an area more than the equivalent of a circle of ~~3~~ **6** mm ~~of~~ **in** diameter of the almond kernel.
- Brown spot: **slightly depressed** brown ~~or dark~~ 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 ~~of~~ **in** diameter.

**Blemish and  
discoloration**

**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; colour variations between kernels are not considered as a defect.**

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.