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Specialized Section on Standardization of Dry and Dried Produce

Standard Layout for Dry and Dried Produce

Submitted by the secretariat

The following document is submitted to the Working Party for adoption as the revised UNECE Standard Layout for Dry and Dried Produce. This document is prepared according to ECE/CTCS/2019/10 section IV, ECE/CTCS/2019/2 decision 2019-8.6, and A/74/6 (Sect.20) and supplementary information.

Introduction

The Standard Layout is a guide to follow when developing or revising standards. Due to various commodity characteristics not all sections of the Standard Layout may apply. It is permissible to use optional texts for those specific commodities.

STANDARD LAYOUT FOR UNECE STANDARDS

concerning the marketing and commercial quality control of

DRY AND DRIED PRODUCE

In the text, the following conventions are used:

{ text } : For text which explains the use of the Standard Layout. This text does not appear in the standard.

< text > : For optional texts or text for which several alternatives exist, depending on the product.

UNECE STANDARD DDP-*{code of produce}*

concerning the marketing and commercial quality control of {name of produce}

I. Definition of produce

This standard applies to *{name of produce}* of varieties (cultivars) grown from ... {Latin botanical reference *in italics*, followed where necessary by the author's name}, intended for direct consumption or for food when intended to be mixed with other products for direct consumption without further

processing. This standard does not apply to *{name of produce}* that are processed by salting, sugaring, flavouring, or roasting or for industrial processing.

II. Provisions concerning quality

The purpose of the standard is to define the quality requirements of *{name of produce}* after preparation and packaging.

However, if applied at stages following export or dispatch, the holder/seller shall be responsible for observing the requirements of the standard. The holder/seller of products may not display such products or offer them for sale, or deliver or market them in any manner other than in conformity with this standard.

A. Minimum requirements¹

In all classes, subject to the special provisions for each class and the tolerances allowed, the *{name of produce}* must display the following characteristics:

{The appropriate section should be included in the standard}

(a) {Characteristics of inshell *{name of produce}*}

The shell must be:

- intact; however, slight superficial damage is not considered as a defect, provided the kernel is physically protected {Depending on the nature of the produce}
- clean; practically free of any visible foreign matter, including residues of adhering hull affecting in aggregate more than ... per cent of the total shell surface
- free from blemishes, areas of discolouration or spread stains in pronounced contrast with the rest of the shell affecting in aggregate more than ... per cent of the surface of the shell
- well formed; not noticeably misshapen.

The kernel must be:

- free from rancidity
- sufficiently developed. Shrunken or shrivelled kernels which are extremely flat and wrinkled, or with desiccated [dehydrated], dried out or tough portions affecting more than ... per cent of the kernel and empty shells, are to be excluded
- free from blemishes, areas of discoloration or spread stains in pronounced contrast with the rest of the kernel affecting in aggregate more than ... per cent of the surface of the kernel
- well formed; <twin or double kernels, i.e. kernels of characteristic shape with one side flat or concave, as a consequence of the development of two kernels in the same shell, are not considered as a defect>.

The whole produce (shell and kernel) must be:

- sound; produce affected by rotting or deterioration such as to make it unfit for human consumption is excluded
- free from mould filaments visible to the naked eye
- free from living pests whatever their stage of development

¹ Definitions of terms and defects are listed in Annex III of the Standard Layout – Recommended terms and definition of defects for standards of dry (Inshell Nuts and Nut Kernels) and dried produce <http://www.unece.org/trade/agr/standard/dry/StandardLayout/StandardLayoutDDP_e.pdf>.

- free from damage caused by pests, including the presence of dead insects and/or mites, their debris or excreta
- free of abnormal external moisture
- free of foreign smell and/or taste.

{additional provisions may be added, depending on the nature of the produce}

(b) {Characteristics of the *{name of produce}* kernel}

- intact; however, slight superficial damage is not considered as a defect
- {Individual standards may provide that the produce need not be intact, depending on the nature of the produce and its intended presentation.}
- sound; produce affected by rotting or deterioration such as to make it unfit for human consumption is excluded
- clean; practically free of any visible foreign matter
- {provisions may be made for the use of flour, sugar, salt or other permitted substances according to the nature of the product}
- sufficiently developed; no shrunken or shrivelled kernels which are extremely flat and wrinkled, or with desiccated [dehydrated], dried out or tough portions affecting more than ... per cent of the kernel
- free from blemishes, areas of discolouration or spread stains in pronounced contrast with the rest of the kernel affecting in aggregate more than ... per cent of the surface of the kernel
- well formed
- free from living pests, whatever their stage of development
- free from damage caused by pests, including the presence of dead insects and/or mites, their debris or excreta
- free from mould filaments visible to the naked eye
- free from rancidity
- free of abnormal external moisture
- free of foreign smell and/or taste.

{provisions may be added or deleted depending on the nature of the produce}

(c) {Characteristics of the dried produce}

- intact; however, slight superficial damage is not considered as a defect
- {Individual standards may provide that the produce need not be intact, depending on the nature of the produce and its intended presentation.}
- sound; produce affected by rotting or deterioration such as to make it unfit for human consumption is excluded
- clean, practically free of any visible foreign matter
- {provisions may be made for the use of permitted coating substances according to the nature of the product}
- sufficiently developed
- free from living pests whatever their stage of development
- free from damage caused by pests, including the presence of dead insects and/or mites, their debris or excreta

- free from blemishes, areas of discolouration or spread stains in pronounced contrast with the rest of the produce affecting in aggregate more than ... per cent of the surface of the produce
- free from mould filaments visible to the naked eye
- free of fermentation
- free of abnormal external moisture
- free of foreign smell and/or taste.

{Provisions may be added or deleted depending on the nature of the produce}

{Provisions for inshell produce, kernels and dried produce}.

The condition of the {name of produce} must be such as to enable them:

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

B. Moisture content²

The {name of produce} shall have a moisture content

- not exceeding ... per cent
- < above ... per cent and not exceeding ... per cent for dried {name of produce} should be labelled as high moisture or equivalent denomination. >

{The percentage should always be given with one decimal place, e.g. 10.0 per cent. For inshell dry produce the moisture content may be fixed for the kernel or the whole produce.}

The {name of produce} may be treated with preservatives or preserved by other means (e.g. pasteurization).

C. Classification

In accordance with the defects allowed in section “IV. Provisions concerning tolerances”, {name of produce} are classified into the following class(es):

<“Extra” Class>, Class I <and Class II>.

The defects allowed must not affect the general appearance of the produce as regards quality, keeping quality and presentation in the package.

III. Provisions concerning sizing

Sizing is <optional/mandatory>. Size is determined by one of the following:

- screening, i.e. minimum diameter (mm, inch)
- count, i.e. the number units/pieces per unit of weight <and larger/smaller, if specified>

² The moisture content is determined by one of the methods given in <Annex I of the Standard Layout – Determination of the moisture content for dried produce> or <Annex II of the Standard Layout – Determination of the moisture content for dry produce> <http://www.unece.org/trade/agr/standard/dry/StandardLayout/StandardLayoutDDP_e.pdf>. The laboratory reference method shall be used in cases of dispute. {only the appropriate annex should be mentioned} definitions of terms and defects are listed in Annex III of the Standard Layout – Recommended terms and definition of defects for standards of dry (Inshell Nuts and Nut Kernels) and dried produce <http://www.unece.org/trade/agr/standard/dry/StandardLayout/StandardLayoutDDP_e.pdf>. The laboratory reference method shall be used in cases of dispute {only the appropriate annex should be mentioned}.

- size range, i.e. minimum and maximum diameter (mm, inch); the size is determined by the maximum diameter of the equatorial section

< Size methods/ranges other than those specified above are allowed provided that the range used is labelled accordingly. >

{Any definition using fixed size scales or size codes should be avoided so that the standard can be used in different countries with different trade and sizing habits.}

IV. Provisions concerning tolerances

At all marketing stages, tolerances in respect of quality and size shall be allowed in each lot for produce not satisfying the minimum requirements of the class indicated.

< (a) Table for inshell produce >

| <i>Defects allowed</i> | | <i>Tolerances allowed, percentage of defective produce, by number or weight (with regard to the total inshell weight basis)</i> | | |
|------------------------|--|---|----------------|-----------------|
| | | <i>Extra</i> | <i>Class I</i> | <i>Class II</i> |
| (a) | Tolerances for produce not satisfying the minimum requirements | | | |
| | of which no more than: | | | |
| | Not sufficiently developed or empty shells | | | |
| | Mouldy | | | |
| | Rancid or damaged by pests, rotten or deteriorated | | | |
| | Living pests | 0 | 0 | 0 |
| | {specify special tolerances where necessary} | | | |
| (b) | Size tolerances (if sized) | | | |
| | For produce not conforming to the size indicated, in total, depending on the characteristics of the product {size tolerances do not apply if sizing is by number per weight unit and this size is defined by a size range (e.g. size 2 = 45-50 units/kg)} | 10 | 10 | 10 |
| (c) | Tolerances for other defects | | | |
| | Extraneous matter (of organic origin) such as loose shells, shell fragments, fragments of hull, leaves, dust (by weight) | 0.25 | 0.25 | 0.25 |
| | Foreign matter (of inorganic origin) such as stones, metal, and glass (by weight) | 0.25 | 0.25 | 0.25 |
| | {name of produce} belonging to varieties or commercial types other than that indicated – depending on the characteristics of the product | 10 | 10 | 10 |

{Note: The defects and the tolerances can be combined or separated based on the attributes of the product and trade practices.

Note: Total tolerances for defects allowed in each class can be used solely for defects affecting the shell, provided no other defects are present.

< (b) Table for kernels {dry produce presented without the shell}>

| <i>Defects allowed</i> | | <i>Tolerances allowed, percentage of defective produce, by number or weight</i> | | |
|------------------------|---|---|----------------|-----------------|
| | | <i>Extra</i> | <i>Class I</i> | <i>Class II</i> |
| (a) | Tolerances for produce not satisfying the minimum requirements | | | |
| | of which no more than: | | | |
| | Not sufficiently developed, shrunken and shrivelled | | | |
| | Mouldy | | | |
| | Rancid or damaged by pests, rotten or deteriorated | | | |
| | Living pests | 0 | 0 | 0 |
| (b) | Size tolerances (if sized) | | | |
| | For produce not conforming to the size indicated, in total { size tolerances do not apply if sizing is by number per weight unit and this size is defined by a size range (e.g. size 2 = 45-50 units/kg)} | 10 | 10 | 10 |
| (c) | Tolerances for other defects | | | |
| | Extraneous matter (of organic origin) such as loose shells, shell fragments, fragments of hull, leaves, dust (by weight) | 0.25 | 0.25 | 0.25 |
| | Foreign matter (of inorganic origin) such as stones, metal, and glass (by weight) | 0.25 | 0.25 | 0.25 |
| | {name of produce} belonging to varieties or commercial types other than that indicated – depending on the characteristics of the product | 10 | 10 | 10 |

{Note: The defects and the tolerances can be combined or separated based on the attributes of the product and trade practices.}

<(c) Table for dried produce >

| <i>Defects allowed</i> | | <i>Tolerances allowed, percentage of defective produce, by number or weight</i> | | |
|------------------------|---|---|----------------|-----------------|
| | | <i>Extra</i> | <i>Class I</i> | <i>Class II</i> |
| (a) | Tolerances for produce not satisfying the minimum requirements | | | |
| | of which no more than: | | | |
| | Not sufficiently developed (optional) | | | |
| | Mouldy | | | |
| | Fermented or damaged by pests, rotten or deteriorated | | | |
| | Living pests | 0 | 0 | 0 |
| | {specify special tolerances where necessary} | | | |
| (b) | Size tolerances (if sized) | | | |
| | For produce not conforming to the size indicated, in total {size tolerances do not apply if sizing is by number per weight unit and this size is defined by a size range (e.g. size 2 = 45-50 units/kg)} | 10 | 10 | 10 |
| (c) | Tolerances for other defects | | | |
| | Extraneous matter (of organic origin) such as loose shells, shell fragments, fragments of hull, leaves, dust (by weight) | 0.25 | 0.25 | 0.25 |
| | Foreign matter (of inorganic origin) such as stones, metal, and glass (by weight) | 0.25 | 0.25 | 0.25 |
| | { <i>name of produce</i> } belonging to varieties or commercial types other than that indicated – depending on the characteristics of the product | 10 | 10 | 10 |

{Note: The defects and the tolerances can be combined or separated based on the attributes of the product and trade practices.}

{When the size is given in terms of a range of numbers of fruit per unit weight, special provision can be made in the specific standard if necessary. The standard may also prescribe a tolerance in relation to the minimum size.}

V. Provisions concerning presentation

A. Uniformity

The contents of each package³ must be uniform and contain only {*name of produce*} of the same origin, quality, <style>, size (if sized), variety <or commercial type> (if indicated), crop year (if indicated).

{In addition, for individual standards, uniformity concerning variety and/or commercial type may be laid down, depending on the nature of the produce.}

³ {Definitions: The term "packages" covers "sales packages" and "prepackages". Packages are individually packaged part of a lot, including contents. The packaging is conceived so as to facilitate handling and transport of a number of sales packages or of products loose or arranged, in order to prevent damage by physical handling and transport. The package may constitute a sales package. Road, rail, ship and air containers are not considered as packages. Sales packages are individually packaged part of a lot, including contents. The packaging of sales packages is conceived so as to constitute a sales unit to the final user or consumer at the point of purchase.}

{Other possible provisions, depending on the nature of produce}

<For “Extra” Class and Class I, the produce must be of the same variety and/or commercial type.> {In addition, depending on the nature of the produce, the standard may require that the produce shall be of the same crop year, shape and/or colour.}

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

B. Packaging

{name of produce} must be packed in such a way as to protect the produce properly.

The materials used inside the package must be 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 the printing or labelling has been done with non-toxic ink or glue.

Packages must be practically free of all foreign and extraneous matter in accordance with the table of tolerances in section “IV. Provisions concerning tolerances”.

VI. Provisions concerning marking

Each package⁴ must bear the following particulars in letters grouped on the same side, legibly and indelibly marked and visible from the outside:

A. Identification

Packer and/or dispatcher:

Name and physical address (e.g. street/city/region/postal code and, if different from the country of origin, the country) or a code mark officially recognized by the national authority⁵ if a country applying such a system is listed in the UNECE database.

B. Nature of produce

- name of the produce
- name of the variety and/or commercial type (optional) {according to the nature of the produce}
- <high moisture> or <soft> {*name of produce*} or equivalent denomination and moisture content, where appropriate
- type or style {according to the definitions of the standard}.

C. Origin of produce

- country of origin⁶ and, optionally, district where grown or national, regional or local place name.

⁴ These marking provisions do not apply to sales packages presented in packages.

⁵ The national legislation of a number of countries requires the explicit declaration of the name and address. However, in cases where a code mark is used, the reference “packer and/or dispatcher” (or equivalent abbreviations) must be indicated in close connection with the code mark, and the code mark should be preceded with the ISO 3166 alpha country code of the recognizing country, if not the country of origin.

⁶ The full or a commonly used name should be indicated.

D. Commercial specifications

- class
- size (if sized); expressed in accordance with section III
- crop year {according to the nature of the produce}
- “Best before” followed by the date (optional <mandatory for high moisture produce>).

E. Official control mark (optional)

Adopted 2020

Annex I

Determination of the moisture content for dried produce

Method 1 - Laboratory reference method

1. Scope and application

This reference method serves to determine the moisture content for dried fruit, as dried or desiccated [dehydrated] apricots, figs, prunes, dates, grapes, apples, pears, etc.

2. Reference

This method is based on the method prescribed by AOAC: AOAC Official Method 934.06 - Moisture in Dried Fruit.

3. Definition

Moisture content for dried fruit: conventionally, loss in mass measured under the operating conditions specified in AOAC Official Method 934.06. The moisture content is expressed as percentage by mass (grams per 100 grams).

4. Principle

Determination of the moisture content of a test portion by drying in an oven 6 h at $70 \pm 1^\circ$ C under pressure ≤ 100 mm Hg (13.3 kPa).

5. Apparatus (see AOAC Official Method 934.06)

5.1 Analytical balance sensitive to 1 mg or better.

5.2 Mechanical mill or food chopper.

5.3 Non-corrosive metal dish, provided with well-fitting lid, about 8.5 cm of diameter, allowing the test portion to be spread to about 0.2 g/cm^2 or less.

5.4 Electric vacuum oven with thermostatic control capable of being regulated in normal operation at $70 \pm 1^\circ$ C under pressure ≤ 100 mm Hg (13.3 kPa.).

5.6 Desiccator containing an effective desiccant.

5.7 Steam-bath.

6. Procedure

Follow the operating conditions as specified in AOAC Official Method 934.06 for Moisture in Dried Fruit, with the following additional specifications, concerning the preparation of the test sample:

Homogenize the laboratory sample and take a minimum of 100 g of dried fruit as a test sample. With non-pitted stone fruit (apricots, prunes, peaches, dates, etc), remove the stones using the rest as a test sample.

Grind or chop the test sample to obtain small particles, using either a mechanical mill or food chopper, without overheating the product, or cut and grind by hand if necessary, using knife, scissors, mortar and pestle or similar.

Use 5.0 to 10 g of the ground or chopped product as a test portion. Mix the test portion with circa 2 g of finely divided glass fiber filter or of washed sand, with the help of a spatula, and weigh to the nearest 0.001 g.

When necessary, moisten the test portion and the glass fibre filter or the washed sand with a few millilitres of water, mix thoroughly with the help of the spatula, and heat the open dish on the steam-bath to near dryness, before completing the drying in the vacuum oven.

Carry out two determinations on the same test sample.

7. Expression of results and test report

The moisture content, W , as percentage by mass of the sample (grams per 100 grams), is equal to:

$$W = \frac{M_1 - M_2}{M_1 - M_0} \times 100$$

where

M_0 is the mass, in grams, of the dish and lid.^{1 2 3}

M_1 is the mass, in grams, of the dish and lid, and the test portion before drying.^{1 2}

M_2 is the mass, in grams, of the dish and lid, and the test portion after drying.^{1 2}

Take as a result the arithmetic mean of the results of the two determinations, if the difference between the results is less than 0.2 per cent. The result has to be reported to one decimal place.

The test report shall show the method used and the results obtained. It shall mention any operating details not specified or optional and incidents likely to have influenced the results. It shall also include all the information necessary for the complete identification of the sample.

8. Repeatability

The difference between the results of two determinations carried out simultaneously or in rapid succession by the same analyst, using the same apparatus and in the same laboratory, should not be greater than 0.2 g of moisture per 100 g of sample.

Method 2 - Rapid method

1. Scope and application

This rapid method serves to determine the moisture for dried fruit.⁴

2. Reference

This method is based on the method prescribed by AOAC: AOAC Official Method 972.20 - Moisture in Prunes and Raisins (Moisture Meter Method). This method is also commonly used as unofficial method for the determination of moisture content in other kinds of dried fruit.

3. Definition

Moisture content for dried fruit: conventionally, correlation between moisture content and conductance-temperature measured under the operating conditions specified in AOAC Official Method 972.20. The moisture content is expressed as percentage by mass (grams per 100 grams).

¹ Weigh to the nearest 0.001 g.

² In case, plus the glass fibre or washed sand, and spatula.

³ After heating in the oven for 2 hours and cooling in the desiccator.

⁴ It is possible to employ other rapid methods based on different conductance methods or on the principle of loss of mass by heating with apparatus including a halogen or infrared lamp and a built-in analytical balance, always with the condition that the method and the apparatus has to be calibrated according the laboratory method.

4. Principle

Determination of the conductance and temperature of a test portion by the moisture tester meter and under the operating conditions specified in AOAC Official Method 972.20. The moisture tester meter has to be calibrated according to the laboratory method, for each kind of dried fruit, taken into account the variety or commercial type and the type of presentation (whole, pitted, slabs, dices, etc) and, when necessary, the crop year and/or the origin.

5. Apparatus (see AOAC Official Method 972.20)

- 5.1 Moisture tester meter type A series.
- 5.2 Thermometer (if not incorporated in the moisture tester meter).
- 5.3 Mechanical mill or food chopper.

6. Procedure

Follow the operating conditions as specified in AOAC Official Method 972.20 - Moisture in Prunes and Raisins (Moisture Meter Method).

Carry out the determination on two test portions.

7. Expression of results and test report

7.1 Result

The result should be the arithmetic mean of the two determinations. Report the result to one decimal place.

7.2 Test report

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

Annex II

Determination of the moisture content for dry produce

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 the International Organization for Standardization (ISO): ISO 665-2000 Oilseeds - Determination of moisture and volatile matter content.

3. Definition

Moisture 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 percentage, of the mass of the initial sample.

For whole nuts, when moisture content is expressed both for the whole nut and for 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°C 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 one initial period of 6 hours is recommended.

(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.

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

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

Grind the whole nuts using either a Rasse 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 (sections 9 and 11) for method of calculation and formulae, and for test report, without any modification.¹

8. Precision

For conditions of repeatability and reproducibility, apply specifications of ISO 665-2000 (sections 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 infrared lamp and a built-in analytical balance, calibrated according to the laboratory method.

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

¹ The main points specified are as follows:

- Moisture and volatile matter content is expressed as mass fraction, in percentage, 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 per cent (mass fraction).
- The result has to be reported to one decimal place.

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 (sections 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 per cent.

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 III

Recommended terms and definitions of defects for standards of dry (inshell nuts and nut kernels) and dried produce

1. Recommended terms

| <i>Terms</i> | <i>Definitions</i> |
|----------------------------------|---|
| <i>Kernel</i> | Edible part of the inshell nuts, corresponding to the seed of the dry fruit, provided with an outer skin or integument (testa or episperm). |
| <i>Peeled kernel (blanched)</i> | Nut kernel with its outer skin or integument removed. |
| <i>Hull</i> | Inedible fleshy part of the inshell nuts that covers the shell, and has to be removed before packing the produce. |
| <i>Shell</i> | Inedible woody part of the inshell nuts that protect the kernel, corresponding to the endocarp (drupes), the pericarp (nutlets) or the testa (strobilus or cone-like fruit). |
| <i>Stone (pit)</i> | Inedible part of dried drupes corresponding to the endocarp and the seed of the fruit. |
| <i>Direct consumption</i> | Produce which will reach the consumer in its present state, without undergoing any treatment other than conditioning or packaging; operations such as sorting, selection, sizing and mixing shall not be considered as processing. |
| <i>Processing</i> | Operation distinct from conditioning or packaging which involves a substantial modification of the product or its form of presentation, such as decorticating (shelling), peeling (blanching), grilling or roasting, sugaring, salting, or flavouring or the manufacture of sticks, pastes or flour, etc. |
| <i>Food industry</i> | Any other operation involving either the manufacture of processed food products (oils, flavourings, seasonings, etc.) or the use of the produce as an ingredient in the manufacture of various food products. |
| <i>Clean</i> | Produce which is practically free from any visible adhering foreign material and/or adhering dirt. |
| <i>Sufficiently dry or dried</i> | Inshell nut, nut kernel or dried fruit which, as a result of natural or artificial drying, has attained a moisture content that ensures its keeping quality. {the maximum moisture content should normally be indicated in relation with this subject} |
| <i>Natural drying</i> | Loss of moisture achieved solely by aeration and/or ambient heat, without the use of external heat sources, desiccants or dehydrating substances. |
| <i>Ripe</i> | Dried fruit which has reached sufficient maturity, account being taken of its nature and final use. {where appropriate, information concerning minimum sugar content, acidity, minimum coloration, stage of development, etc., may be provided} |

| <i>Terms</i> | <i>Definitions</i> |
|------------------------|--|
| <i>Preservative</i> | Products which prolong the shelf-life of food products by protecting them against deterioration caused by micro-organisms or biological alterations. For a more detailed definition, see Codex General Standard for Food Additives" (GSFA) < http://www.codexalimentarius.net/gsfaonline/index.html > |
| <i>Food Additives</i> | In the context of these standards, food additives are substances intentionally added to food to improve organoleptics, appearance and/or characteristics. For a more detailed definition, see Codex General Standard for Food Additives" (GSFA) |
| <i>Sizing</i> | The measuring of physical dimensions of inshell nuts, nut kernels or dried fruit with reference to their size; it is defined by a range of intervals determined by a minimum size and a maximum size, which may be variously expressed in terms of the diameter of the equatorial section, the maximum diameter, the unit weight, the number of fruit per unit of weight, etc. |
| <i>Screening</i> | Action and result of sizing inshell nuts, nut kernels or dried fruit with reference to a predetermined minimum or maximum size, which may be expressed by mentioning the minimum size followed by the words "or above" or the maximum size followed by the words "and less". |
| <i>Commercial type</i> | Inshell nuts, nut kernels or dried fruit which belong to different varieties that have similar technical characteristics and/or appearance. {when appropriate, select the more precise specification} |
| <i>Lot</i> | Quantity of a product which, at the time of control, presents uniform characteristics as regards the identity of the packer or dispatcher, the nature of the product and its origin, the commercial grade, type of packaging and presentation of the product and, where applicable, the variety and/or commercial type, size or screen, and colour. |

2. Definition of defects

(a) Generic definitions

| <i>Terms</i> | <i>Definitions</i> |
|---------------------------------|--|
| <i>Slight defect or damage</i> | Defect or combination of defects which impairs the appearance of the product, including in particular slight superficial defects such as blemishes, staining, scars, bruises, areas of discolouration, torn skin, mechanical injuries, sun-scald, etc., provided that these do not significantly affect the edibility, keeping quality or commercial quality of the product. |
| <i>Serious defect or damage</i> | Defect or combination of defects which seriously impairs the appearance of the product, or which significantly affects its edibility, keeping quality or commercial quality, including in particular defects such as mould, decay, insect damage, rancidity, abnormal taste, very apparent dirt, crushing or serious mechanical injuries, excess of moisture. |
| <i>Intrinsic defect</i> | Abnormality with regard to the characteristics of mature and properly handled fruit, including immaturity, insufficient development, misshapeness, germination, aborted fruit, excessive dehydration or desiccation, etc. |

| <i>Terms</i> | <i>Definitions</i> |
|--|---|
| <i>Blemish</i> | Noticeable and localized imperfection that significantly impairs the external appearance <of the shell, the kernel or the dried fruit>, from any cause or source, either intrinsic or extrinsic, including staining, dark spots, blotches, scars, hail marks, scabs, blisters, bruises and other similar defects, but excluding blemishes caused by a more serious defect such as mould, decay or damage by pests. {where appropriate, add a definition of what is not considered as a defect and indicate the maximum total or aggregate area allowed per unit} |
| <i>Staining</i> | Apparent and localized alteration of the external colour which significantly impairs the external appearance <of the shell, the kernel or the fruit>, from any cause or source, including dark spots, blotches, etc., but excluding staining caused by a more serious defect such as mould, decay or damage by pests. {where appropriate, add a definition of what is not considered as a defect and indicate the maximum total or aggregate area allowed per unit} |
| <i>Discolouration</i> | Significant and widespread change of the typical external or internal colour, from any cause or source, either intrinsic or extrinsic, including in particular blackening and the appearance of very dark colours, but excluding discolouration caused by a more serious defect such as mould, decay or damage by pests. {where appropriate, add a definition of what is not considered as a defect and indicate the maximal total area allowed per unit} |
| <i>Mechanical injuries</i> | Cracks, splits, tears, bruising or any injury affecting a significant part of either the skin, the integument or the shell, or the fruit flesh or the kernel flesh. {where appropriate, add a definition of what is not considered as a defect and indicate the maximum total or aggregate area or length allowed per unit} |
| <i>Damage caused by pests</i> | Visible damage or contamination caused by insects, mites, rodents or other animal pests, including the presence of dead insects and/or mites and their debris or excreta. |
| <i>Living pests</i> | Presence of living pests (insects, mites or others) at any stage of development (adult, nymph, larva, egg, etc.). |
| <i>Decay (rotten)</i> | Significant decomposition caused by the action of micro-organisms or other biological processes. This is normally accompanied by changes in texture (soft or watery appearance) and/or changes in colour (initial appearance of brownish hues and eventually blackening). |
| <i>Mould</i> | Mould filaments visible to the naked eye, either inside or outside of the fruit or of the kernel. |
| <i>Foreign smell and/or taste</i> | Any smell or taste that is not characteristic of the product. |
| <i>Dirt</i> | Very apparent adhering or embedded dirt, soil, mud or dust, producing a smudgy, smeared, flecked or coated effect that seriously detracts from the appearance of the produce. |
| <i>Extraneous matter of organic origin</i> | Any visible and/or apparent harmless organic matter associated with the produce such as pieces of stem, peduncles, pedicels, lose capstems, wood, leaves, straw, lose shells or fragments of shell, pits or fragments of pits, lose integuments, lose pellicels, lose husks, paper, hair etc. Note: In case of sticky dried produce, the extraneous matter might stick to the produce. |

| <i>Terms</i> | <i>Definitions</i> |
|---|---|
| <i>Foreign matter of inorganic origin</i> | Any visible and/or apparent harmless inorganic matter associated with the produce such as stones, dust, metal, glass etc. |
| <i>Abnormal external moisture</i> | Presence of water, moisture or condensation, on the surface of the product. |

(b) Specific definitions for nuts (inshell nuts and nut kernels)

Defects of the shell

Any defects which adversely affect the appearance or the quality of the shell, such as:

| <i>Terms</i> | <i>Definitions</i> |
|-----------------------------|--|
| <i>Broken shell</i> | Broken, split or seriously mechanically damaged shell. The absence of a very small part of the shell or a slight crack shall not be considered as a defect provided that the kernel is still protected. |
| <i>Mechanically damaged</i> | Shells with very apparent mechanical injuries, even if superficial, such as pronounced marks caused by hulling equipment. {where appropriate, add a definition of what is not considered as a defect and indicate the maximum total or aggregate area or length allowed per unit} |

Defects of the kernel

Any defect which adversely affects the appearance, edibility, keeping quality or quality of the kernel, such as:

| <i>Terms</i> | <i>Definitions</i> |
|-----------------------------|---|
| <i>Empty or hollow nut</i> | Nut in which the kernel has aborted. |
| <i>Mechanically damaged</i> | Kernel which has superficial mechanical lesions (chipped or scratched) or which is incomplete (partially broken), plus halved, split or broken kernels. The absence of a small part of the integument and/or very superficial abrasions or lesions <less than ... mm in diameter or length, and/or up to ... mm deep> shall not be considered as a defect. {where appropriate, insert specific definitions and tolerances for incomplete, halved, split and broken kernels, and exclude them from the mechanically damaged definition} |
| Chipped | Incomplete, partially split or broken kernel, with less than one third of the whole kernel missing, depending on the characteristics of the product. {where appropriate, indicate a different proportion or reference and/or add a definition of what is not considered as a defect} {chipped is an optional definition, as chipped or incomplete kernels can be grouped into the mechanically damaged definition} |
| <i>Broken</i> | Portion of the kernel which is bigger than a piece <but smaller than an incomplete kernel> (<more than one third of the whole kernel is missing> it does not pass through a ... mm round {or square} meshed sieve). {Where appropriate, indicate a different proportion or reference} |

| <i>Terms</i> | <i>Definitions</i> |
|---------------------------------|--|
| <i>Piece</i> | Kernel fragment or small kernel portion of irregular shape that passes through a ... mm round {or square} meshed sieve <but does not pass through a ... mm round {or square} meshed sieve>. {where appropriate, indicate or replace with a different reference} |
| <i>Half</i> | Longitudinally split kernel from which the two cotyledons are separated. {where appropriate, insert specific tolerances for halved or split kernels} |
| <i>Twin or double</i> | Kernel of characteristic shape as a consequence of the development of two kernels in the same shell. {where appropriate, insert specific tolerances for twins or doubles} |
| <i>Insufficiently developed</i> | Kernel which is misshapen, abnormally small or partially aborted, including shrivelled and shrunken kernels. {the shape and size of the kernel may change according to the growing conditions, but not to the extent that the kernel becomes misshapen, shrivelled or shrunken} {where appropriate, insert specific definitions and tolerances for shrivelled or shrunken kernels, and exclude them from the insufficiently developed definition} {for inshell nuts, where appropriate, a reference or specification can be inserted regarding the minimal edible content (edible kernel weight/inshell weight) or the minimal filling of the shell cavity} |
| <i>Shrivelled and shrunken</i> | Kernel which is abnormally wrinkled or flat, and/or dehydrated, dried out or tough. |
| <i>Callus</i> | Scar or deformity due to mechanical lesions, viral or bacterial diseases, or physiological causes. |
| <i>Heat damage</i> | Damage caused by excessive heat during drying or processing, which significantly affects the flavour, appearance or edibility of the product. |
| <i>Rancidity</i> | 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. |
| <i>Germination</i> | Apparent development of the germ, even if not visible from the outside. |
| <i>Adhering skin</i> | When the pellicle or pieces of pellicle are attached to the kernel (edible parts). |

(c) Specific definitions for dried fruit produce

| <i>Terms</i> | <i>Definitions</i> |
|-----------------------------|--|
| <i>Mechanically damaged</i> | Dried fruit with very apparent mechanical injuries that affect a significant part of the skin or the pulp, such as very noticeable tears or bruises, smashing, crushing, and other similar defects; superficial abrasions or injuries <less than ... mm in diameter or length, up to ... mm deep> shall not be considered as a defect. {in the case of dried fruit from which the stone, pips, peduncle or pedicel have been removed, or cutting into slices, wedges, dices, slabs or pieces, normal mechanical lesions resulting from these operations shall not be considered as defects} |

| | |
|--------------------------|--|
| <i>Heat damage</i> | Damage caused by solar radiation or excessive heat during drying, which significantly affects the appearance, flavour or edibility of the product. |
| <i>Defect of texture</i> | Dried fruit with non-fleshy parts (hardened, shrivelled or hollow) affecting more than ... of the fruit. |
| <i>Callus</i> | Scar or deformity due to mechanical injuries (hail, bruising, abrasion, etc.), viral or bacterial diseases, or physiological causes. |
| <i>Fermentation</i> | Produce in which there has been a breakdown of the sugars into alcohol and acetic acid by the action of yeast and bacteria. Detected by a characteristic sour/bitter taste. However, in case of fermented smell when a package is opened care must be taken to verify whether the produce is fermented. Fruit Produce with incipient fermentation but with only a very slight sour taste is not considered as defective. |
| High moisture | <p>High moisture dried produce can be reached in various ways:</p> <ul style="list-style-type: none"> – By direct drying; this produce can be named “soft produce”; – By re-hydrating already dried produce (with or without an additional process of pasteurization); this produce can be named “soften produce”. <p>This produce is not considered as “processing”. High moisture dried produce is not considered as a preparation of fruit. Whatever methods are used, the aim is to attain a defined moisture content established in the respective product specific standard.</p> |
| <i>Piece</i> | <p>Fragment or small portion of dried produce of irregular shape <which passes through a ... mm round meshed sieve> <which is less than ... of the whole dried produce></p> <p>{where appropriate, indicate or replace with a different proportion or reference}</p> <p>{where appropriate, standards can consider pieces, cuts, slabs, etc. as types of presentation, and include specifications on its size and shape}</p> |

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