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Dried pears — Specification

Poires séchées — Spécifications

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Foreword

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Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Dried pears — Specification

1 Scope and field of application

This International Standard specifies requirements for dried pears obtained from fruits of the pear tree [*Pyrus communis* (Linnaeus)], for human consumption.

2 Definitions

For the purpose of this International Standard, the following definitions apply.

2.1 pest-infested dried pears : Dried pears damaged by insect infestation and/or mite infestation.

2.2 spoiled dried pears : Dried pears damaged by bruises, or darkened in colour or showing mushy tissue, or any other indications of disease.

2.3 immature dried pears : Dried pears obtained from unripe green pears, having poor flavour, hard tissue and undesirable appearance.

3 General requirements

Dried pears are the sun-dried or artificially dried ripe fruits of *Pyrus communis* (Linnaeus). Dried pears are prepared from pear fruits having a suitable stage of ripeness that have been cut into halves lengthwise, the stems pulled or cut and the calyx ends taken out. They should be sound and clean.

It is not customary to peel pears, nor to remove the cores unless damaged. Only damaged areas should be trimmed.

4 Specific requirements

4.1 Grading

Dried pears may be graded on the basis of colour and the presence of defects and extraneous matter. They may also be separated into various sizes.

4.2 Odour and taste

Dried pears shall have an odour and taste characteristic of the variety. They shall be free from foreign odour and taste.

However, a slight odour of sulfur dioxide (SO_2) is not considered to be foreign.

4.3 Freedom from insects, moulds, etc.

Dried pears shall be free from living insects and moulds, and shall be practically free from dead insects, insect fragments and rodent contamination visible to the naked eye (corrected, if necessary, for abnormal vision) or with such magnification as may be necessary in any particular case. If the magnification exceeds X 10, this fact shall be stated in the test report.

4.4 Extraneous matter

The proportion of extraneous matter such as dirt, pieces of stem and calyx (attached or separate), leaf and any other foreign matter, adhering to the flesh or not, shall not exceed the values given in the table, according to the grade.

Skin, cores and seeds are not considered to be extraneous matter.

4.5 Pest-infested and spoiled dried pears

The proportion of pest-infested and spoiled dried pears shall not exceed the values given in the table, according to the grade.

4.6 Immature dried pears

The proportion of immature dried pears shall not exceed the values given in the table, according to the grade.

4.7 Colour

The colour of dried pears shall be light and cream (yellowish white) with little browning of the cut edges, or light brown.

4.8 Moisture content

The moisture content of dried pears shall not exceed 26 % (m/m).

4.9 Sulfur dioxide content

The residual quantity of sulfur dioxide shall not exceed 2 000 mg/kg.

5 Sampling

Methods of sampling dry and dried fruits and vegetable products will form the subject of a future International Standard.

6 Methods of test

Test samples of dried pears for conformity of the product to the requirements of the table by the method of test specified in annex A.

Determine the sulfur dioxide content (4.9) in accordance with annex B and the moisture content (4.8) in accordance with annex C.

7 Packing and marking

7.1 Packing

Dried pears shall be packed in clean and sound containers made of a material which does not affect the product. If wooden boxes are used, they shall be lined with a suitable paper.

For direct consumption, small consumer packages may be used. The quantities packed in such packages may be 0,5, 1,0 and 2,5 kg net mass, and if required, more or less. A suitable number of such small packages shall be placed in large wooden or cardboard cases.

The size of the packages and the number of small packages packed in a case shall be subject to agreement between the purchaser and the vendor. However, the mass of the large containers or cases shall not be more than 25 kg.

7.2 Marking

The container and case shall be marked or labelled with the following particulars :

a) name of the product or variety, and the trade mark or brand name, if any;

b) name and address of the producer or packer;

c) batch or code number;

d) net mass or gross mass (according to the request of the importing country);

e) grade;

f) producing country;

g) any other marking required by the purchaser, such as the year of harvest and date of packing (if known);

h) if possible, a reference to this International Standard.

Table — Requirements by grade

Grade	Pest infested % max.	Spoiled % max.	Immature fruits % max.	Extraneous matter % max.	Colour	Deviations from the main colour % max.
I	0,25	2,00	2,00	0,50	Light and cream with little browning of the cut edges	5
II	0,50	4,00	4,00	1,00	Light brown	10

Annex A

Determination of the proportion of pest-infested and spoiled dried pears, immature fruits, extraneous matter and deviations from the main colour

A.1 Principle

Visual inspection of a test portion of dried pears and physical separation of pest-infested and spoiled dried pears, immature fruits, extraneous matter and dried pears which show deviations from the main colour.

A.2 Procedure

Weigh, to the nearest 0,02 g, a test portion of about 500 g. Separate the pest-infested and spoiled dried pears, immature fruits, extraneous matter and the dried pears which show deviations from the main colour carefully by hand or using tweezers.

Weigh, to the nearest 0,02 g, each of the categories separately.

A.3 Expression of results

The content, expressed as a percentage by mass, of each category, is equal to

$$\frac{m_1}{m_0} \times 100$$

where

m_0 is the mass, in grams, of the test portion;

m_1 is the mass, in grams, of the relevant category (see clause A.2).

Annex B

Determination of sulfur dioxide — Tetrachloromercurate(II) *p*-rosaniline spectrometric method

B.1 Definition

sulfur dioxide content of dried pears : The quantity of sulfur dioxide determined in accordance with the method specified in this annex.

It is expressed in milligrams per kilogram.

B.2 Principle

Colour development by the addition of *p*-rosaniline solution to a test solution of dried pear which has been treated with sodium tetrachloromercurate(II) solution. Measurement of the absorbance of the test solution at 550 nm against a blank.

B.3 Reagents

During the analysis, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

B.3.1 Sulfuric acid (H_2SO_4), 0,25 mol/l solution.

B.3.2 Sodium hydroxide (NaOH), 0,5 mol/l solution.

B.3.3 Formaldehyde (HCHO), 0,015 % (*m*/*m*) solution.

Prepare from 40 % (*m*/*m*) formaldehyde by diluting in two steps : 10 → 1 000; and 75 → 2 000.

B.3.4 Sodium tetrachloromercurate(II) solution.

WARNING — Mercury(II) salts are very toxic, particularly in aqueous solution. Use skin and respiratory protection when dry mercury(II) salts are used. Use skin protection when handling concentrated solutions of mercury(II) salts.

Place 23,4 g of sodium chloride (NaCl) and 54,3 g of mercury(II) chloride ($HgCl_2$) in a 2 000 ml one-mark volumetric flask (B.4.3). Dissolve in about 1 900 ml of water, make up to the mark with water and mix.

B.3.5 Hydrochloric acid-bleached *p*-rosaniline hydrochloride [$C_{20}H_{21}N_3O \cdot HCl$, bis (4-aminophenyl) 4-amino-3-tolyl hydroxymethane] solution.

Place 100 mg of *p*-rosaniline hydrochloride and 200 ml of water in a 1 000 ml one-mark volumetric flask. Add 160 ml of hydrochloric acid (diluted 1 + 1) and make up to the mark with water. Allow to stand for 12 h before use.

B.3.6 Sulfur dioxide (SO_2), standard solution, corresponding to about 100 mg of SO_2 per litre.

Dissolve about 170 mg of sodium hydrogensulfite ($NaHSO_3$) in water in a 1 000 ml one-mark volumetric flask, make up to the mark with water and mix. Standardize with an iodine standard reference solution [c(I) = 0,01 mol/l] before use.

1 ml of this standard solution contains about 100 µg of SO_2.

B.4 Apparatus

Usual laboratory equipment and in particular

B.4.1 Spectrometer, with selectors for continuous or discontinuous variation, suitable for measurement of absorbance at 550 nm.

B.4.2 Fruit chopper, made of material which does not absorb moisture.

B.4.3 One-mark volumetric flasks, short-necked, of capacities 100 ml, 1 000 ml and 2 000 ml.

B.4.4 Blender, of capacity at least 300 ml.

B.4.5 Pipette, free-running, of capacity 10 ml, calibrated.

B.5 Procedure

B.5.1 Preparation of test sample

Take approximately 50 g of dried pear and pass it through a fruit chopper (B.4.2) three times, mixing thoroughly after each grinding.

B.5.2 Test portion and preparation of test solution

Weigh, to the nearest 0,02 g, about 10 g of the test sample (B.5.1) and transfer to a blender (B.4.4) with 290 ml of water. Cover and blend for 2 min. Withdraw a 10 ml aliquot from the bottom of the blender with a pipette (B.4.5) and transfer to a 100 ml one-mark volumetric flask (B.4.3) containing 2 ml of sodium hydroxide solution (B.3.2). Swirl and mix for 15 to 30 s. Add 2 ml of sulfuric acid (B.3.1) and 20 ml of sodium tetrachloromercurate(II) solution (B.3.4), and make up to the mark with water.

B.5.3 Blank test

Carry out a blank test in parallel with the determination, by the same procedure, using the same quantities of all reagents as in the determination, but replacing the aliquot (B.5.2) with 10 ml of water.

B.5.4 Calibration

B.5.4.1 Preparation of the set of calibration solutions

Add 5 ml of sodium tetrachloromercurate(II) solution (B.3.4) to a series of 100 ml one-mark volumetric flasks (B.4.3). Then add 0 (the zero member); 1,0; 2,0; 3,0; 4,0 and 5,0 ml of sulfur dioxide standard solution (B.3.6). Make up to the mark with water and mix.

B.5.4.2 Colour development

Transfer 5,0 ml volumes of the calibration solutions (B.5.4.1) to 200 ml test tubes containing 5 ml of *p*-rosaniline hydrochloride solution (B.3.5). Add 10 ml of formaldehyde solution (B.3.3), mix and leave for 30 min at 22 °C.

B.5.4.3 Spectrometric measurements

Measure the absorbance at 550 nm against the zero member.

B.5.4.4 Plotting the calibration graph

Plot a graph of absorbance against mass of sulfur dioxide.

B.5.5 Determination

Carry out the determination in duplicate.

B.5.5.1 Colour development

Proceed in accordance with B.5.4.2, but using 2 ml of test solution (B.5.2) instead of the calibration solutions.

B.5.5.2 Spectrometric measurements

Measure the absorbance at 550 nm against the blank (B.5.3).

NOTE — If the same spectrometer cell is used for successive samples, clean it between runs with hydrochloric acid (diluted 1 + 1) and water.

B.6 Expression of results

B.6.1 Calculation

Convert the absorbance measurements (B.5.5.2) to mass of sulfur dioxide by means of the calibration graph (B.5.4.4). Convert the results to milligrams per kilogram of sample.

B.6.2 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 on the same test sample shall not exceed 5 % of the mean value.

B.7 Test report

The test report shall show the method used and the results obtained. It shall also mention any operating details not specified in this annex or regarded as optional, together with details of any incidents likely to have influenced the results.

The test report shall include all the information necessary for the complete identification of the sample.

Annex C

Determination of moisture content

C.1 Definition

moisture content of dried pears : Conventionally, the loss in mass determined under the operating conditions specified in this annex.

C.2 Principle

Heating and drying of a test portion of dried pear at a temperature of 70 ± 1 °C under pressure not exceeding 13 kPa.

C.3 Apparatus

Usual laboratory equipment and in particular

C.3.1 Electric oven, capable of being maintained at 70 ± 1 °C at a pressure of 13 kPa.

C.3.2 Dish, with tight-fitting lid, of corrosion-resistant metal, of diameter about 8,5 cm.

C.3.3 Fruit chopper, made of material which does not absorb moisture.

C.3.4 Desiccator, containing an effective desiccant.

C.3.5 Steam-bath.

C.3.6 Sand.

C.3.7 Analytical balance.

C.4 Procedure

C.4.1 Preparation of test sample

Take approximately 50 g of dried pear and pass it through a fruit chopper (C.3.3) three times, mixing thoroughly after each grinding.

C.4.2 Preparation of the dish and lid

Add about 2 g of sand (C.3.6) to the dish and dry, with the lid, for 2 h in the oven. Leave to cool in the desiccator and weigh to the nearest 0,01 g.

C.4.3 Test portion

Weigh, to the nearest 0,02 g, about 5 g of test sample and spread this test portion as evenly as possible over the bottom of the dish containing the sand.

C.4.4 Determination

Moisten the test portion and the sand thoroughly with a few millilitres of hot water. Mix the test portion and sand with a spatula. Wash the sample residue on the spatula into the dish with the minimum volume of hot water. Heat the open dish on a steam-bath (C.3.5) to evaporate the water to dryness. Then put the dish, with the lid alongside, in the oven (C.3.1) and continue drying for 6 h at 70 ± 1 °C under a pressure not exceeding 13 kPa. Do not open the oven during this period. During drying, admit to the oven a slow current of air (about 2 bubbles/s) dried by passing through sulfuric acid. The metal dish shall be placed in direct contact with the metal shelf of the oven. After drying, remove the dish, cover it immediately with its lid and place it in the desiccator (C.3.4). After cooling to ambient temperature, weigh it, still covered, to the nearest 0,02 g.

C.5 Expression of results

C.5.1 Calculation

The moisture content, expressed as a percentage by mass, of the test portion is equal to

$$\frac{m_1 - m_2}{m_1 - m_0} \times 100$$

where

m_0 is the mass, in grams, of the dish with its lid and sand;

m_1 is the mass, in grams, of the dish and its lid with the test portion before moistening and oven drying;

m_2 is the mass, in grams, of the dish and its lid with the test portion after oven drying.

Take as the result the arithmetic mean of two determinations if the repeatability condition (C.5.2) is met.

Give the result to one decimal place.

C.5.2 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.

C.6 Test report

The test report shall show the method used and the results obtained. It shall also mention any operating details not specified in this annex, or regarded as optional, together with details of any incidents likely to have influenced the results.

The test report shall include all the information necessary for the complete identification of the sample.