UNECE STANDARD DF-13
concerning the marketing and commercial
quality control of

DRIED PEARS
moving in international trade between and to
UNECE member countries

I. DEFINITION OF PRODUCE

This standard applies to dried pears from varieties grown from *Pyrus Communis L* and intended for direct consumption. It does not apply to produce destined for use in the food industry.

Dried pears may be presented: [1]

(a) Whole and not peeled;
(b) Whole and peeled;
(c) Whole with core
(d) Whole, without core
(e) Halved and peeled
(f) Halved and not peeled
(g) Sliced
(h) In pieces.

II. PROVISIONS CONCERNING QUALITY

The purpose of the standard is to define the quality requirements of dried pears 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 dried pears must be:

- Sound, in particular free from rotting or deterioration such as to make them unfit for consumption
- Prepared from fruit that is sufficiently ripe
- Clean, practically free from visible foreign matter
- Free from living insects or mites whatever their stage of development
- Free from visible damage by insects, mites or other parasites
- Free from mould or fermentation
- Free from abnormal external moisture
- Free foreign smell and/or taste

1 *Defined in the Annex.*

- Not gritty
- Not over-dried (burned)
- Not hollow.

The condition of the dried pears must be such as to enable them

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

(ii) Moisture content

The moisture content must be no greater than 22% for dried pears not treated with preserving agents and 25% for those treated. [2]

(iii) Preserving agents may be used in accordance with the legislation of the importing country. [3]

B. Classification

Dried pears are classified in three classes defined below:

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

Dried pears in this class must be of superior quality. They must be characteristics of the variety and/or commercial type.

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

(ii) ***Class I***

Dried pears of this class must be of superior quality. They must be characteristic of the variety and/or commercial type

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

- slight defects of the skin for fruit not peeled;
- slight superficial defects;
- slight defects of coloration and of texture.

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[2] *Moisture content shall be determined by one of the methods described in Annex I*

[3] *As information, the Codex Alimentarius has established a 2000ppm $S0_2$ maximum residue level.*

(iii) ***Class II***

This class includes dried pears which do not qualify for inclusion in the higher classes but which satisfy the minimum quality requirements specified above.

The following defects may be allowed provided that the dried pears retain their essential characteristic as regards general appearance, quality, keeping quality and presentation:

- defects of the skin for fruit not peeled;
- superficial defects
- defects of coloration and of texture.

Pieces may be included only Class II.

III. PROVISIONS CONCERNING SIZING

Sizing of whole and halved pears is determined by the diameter of the widest part.

The following minimum sizing is required for each class :

	Not peeled	Peeled
"Extra" class	35 mm	30 mm
Class I	25 mm	22 mm
Class II	20 mm	18 mm

The difference between the diameters of the largest and smallest fruit in any package cannot be greater than 20 mm.

Sizing is compulsory for the "Extra" class and Class I, but is not required for sliced dried pears or dried pears in pieces.

IV. PROVISIONS CONCERNING TOLERANCES

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

A. Quality tolerances

Permitted defect [4]	Tolerances allowed (percentage of defective fruit, by weight for fruit presented in bulk and by number for pre-packed fruit)		
	Extra	**Class I**	**Class II**
Total tolerance	10	15	20
(a) Individual defects within the limits of total tolerances, the following maximum tolerances allowed:			
Bruised fruit	3	5	10
Stem, seeds [4]	2 [4]	5 [4]	7 [4]
Fermentation	0.5	1	2
Slightly affected by decay	0	0.5	1
Mould	0	0.5	1
Foreign matter of plant origin (weight)	1	2	3
Injuries calluses and damage caused by heat during drying	5	8	10
Gritty pears	1	2	3
Insect damage	2	4	6
Mildew spots	1	4	8
(b) Limits not included in total tolerances:			
Fragments of unripe fruit	0	4	10
Presence of pieces among whole and halved pears (weight)	2	7	13

4 *This tolerance only applies to cored fruit.*

B. Mineral impurities

Not greater than 1g/kg acid insoluble ash.

C. Size tolerances

"Extra" class: 10% by number or weight of dried pears not conforming to the size range indicated.

Class I: 15% by number or weight of dried pears not satisfying the size range indicated.

Class II: 20% by number or weight of dried pears not satisfying the size range indicated.

V. PROVISIONS CONCERNING PRESENTATION

A. Uniformity

The contents of each package (or lot for produce presented in bulk) must be uniform and contain only dried pears of the same origin, quality and size (if the produce is sized).

The visible part of the contents of each package (or lot for produce presented in bulk) must be representative of the entire contents. For "Extra " Class and Class I, the fruit must be of the same variety and/or commercial type.

B. Packaging

The dried pears must be packed in such a way so 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 and stamps bearing trade specifications is allowed provided the printing or labelling has been done with non-toxic ink or glue.

Packages (or lot for produce presented in bulk) must be free of all foreign matter.

C. Presentation

Dried pears may be presented as specified below:

- For immediate consumption small packages (e.g pre-packages) may be used
- the buyer and the seller must agree on the size and number of packages packed in a case. In no instance, however, may the weight of large containers or boxes exceed 25 kg.

VI. PROVISIONS CONCERNING MARKING

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

A. Identification

Packer) Name and address or officially issued or
and/or) accepted code mark [5]
Dispatcher)

B. Nature of the produce

- "Dried Apricots", together with the particulars "whole unpitted", "whole pitted", "halves" or "oreillons", or "slabs", if the contents are not visible from the outside.
- "Rehydrated" (when appropriate).

C. Origin of the produce

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

D. Commercial specifications

- class;
- size (if produce is sized);
- crop year(optional);
- net weight, or the number of pre-packages, followed by the unit weight in the case of packages containing pre-packages;
- preservative (if used);
- "Naturally" dried (optional when appropriate);
- "Best by end date" (optional).

E. Official control mark (optional)

Adopted 1996

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

ANNEX I

DETERMINATION OF THE MOISTURE CONTENT FOR DRIED FRUIT

METHOD I - LABORATORY REFERENCE METHOD[6]

1. Definition

The moisture content of dried fruit is defined as being the loss of mass determined under the experimental conditions described in this annex.

2. Principle

The principle of the method is the heating and drying of a sample of dried fruit at a temperature of 70^{o} C $\pm$ 1^{o} C at a pressure not exceeding 100 mm Hg.

3. Apparatus

Usual laboratory apparatus is used together with the following items:

3.1 Electrically heated constant-temperature oven, capable of being controlled at 70^{o} C $\pm$ 1^{o} C at a pressure of 100 mm Hg.

3.2 Dishes with lids, of corrosion-resistant metal of about 8.5 cm in diameter.

3.3 Mincer, either hand or mechanically operated.

3.4 Desiccator, containing an effective desiccant.

3.5 Precision balance.

4. Procedure

4.1 Preparation of the sample

Take approximately 50 g of dried fruit from the laboratory sample, and mince these twice with the mincer.

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[6] *This method is the same as that prescribed by the AOAC: Official Methods of Analysis, XIIIth edition, 1980, 22.013 - Moisture in Dried Fruits, Official Final Action.*

4.2 Test portion

Place 2 g of finely divided asbestos[7] into the dish, tare the dish with its lid and the asbestos, dried beforehand. Weigh, to the nearest 0.01 g about 5 g of prepared sample.

4.3 Determination

Moisten the sample and the asbestos thoroughly with a few ml of hot water. Mix the sample and the asbestos together with a spatula. Wash the spatula with hot water to remove the sample residues from it, letting the residues and the water fall into the dish.

Heat the open dish on a boiling-water bath (bain-marie) to evaporate the water to dryness. Then place the dish, with the lid alongside it, in the oven and continue drying for six hours at 70° C under a pressure not exceeding 100 mm Hg, during which time the oven should not be opened. During drying admit a slow current of air (about two bubbles per second) to the oven, the air having been dried by passing through H_2S0_4. The metal dish must 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. After cooling to ambient temperature, weigh the covered dish to the nearest 0.01 g.

5. Calculation and expression of results

The moisture content of the sample, as percentage by mass is calculated as follows :

$$\text{Moisture content} = \frac{(M_1 - M_2)}{(M_1 - M_0)} \times 100$$

Where:

M_0: is the mass of the empty dish with its lid and containing the asbestos, g.

M_l: is the mass of the dish with its lid, asbestos and test portion before drying, g.

M_2: is the mass of the dish with its lid after drying, g.

The results are expressed to one decimal place.

Duplicate determinations should agree to 0.2% moisture.

[7] *Dried sand which has previously been washed in hydrochloric acid and then rinsed thoroughly with water may be used in the place of the asbestos. Analysts using this technique should note that it is a deviation from the AOAC procedure, and should mention this in their report.*

METHOD II - RAPID ROUTINE METHOD

1. **Principle**

A rapid method based on the principle of electrical conductivity.

2. **Procedure**

Moisture content in pears

Moisture meter method

Final action.

3. **Apparatus**

Dried fruit moisture tester meter - Type A series (DFA of California, PO/Box 270A, Santa Clara, CA 95052); see Fig. 22.03 for elec. circuit.

4. **Determination**

Grind sample three times through food chopper, using cutter with 16 teeth. If testing hot fruit from processor, cool fruit as follows: Mix ca/60 g chopped solid $C0_2$ with fruit and then grind mixture three times before taking moisture reading. Pack ground sample into Bakelite cylinder with fingers, making certain that it is packed tightly around bottom electrode. Fill cylinder completely with tightly packed sample and level.

Lower top electrode and press it into sample until top electrode lever is against stop. Insert thermometer into ground sample until thermometer bulb is ca halfway between electrodes.

Select correct table for type and condition of fruit being tested (Table/22:01: natural or low moisture, tap 6 setting; Table 22:02: processed, tap 3 setting). Set switch (S2) to number given on table selected.

Plug tester into 110 v ac outlet and put switch to "on". (Red light indicates current.) Keep push button down and turn dial so that meter needle moves toward 0. Adjust dial so that needle is at its lowest, or turning, point. After making fine adjustment of dial to meter 0 or turning point, read dial and then read thermometer.

5. **Use of tables**

Choose temperature column of appropriate table nearest to sample temperature. Read down this column to figure closest to dial reading, then read across to "% Moisture" column.

6. **Example**

Examination of processed raisin sample gave following data: dial setting 76 and temperature 74° F, on tap 3. Looking down 74° column (Table 22:02), obtain 75.2 at 18.5% moisture and 78.4 at 19.0% moisture. Since reading is nearer to 18.5 than 19.0%, report sample as containing 18.5% moisture, or interpolate.

(Refs.: JAOAC 52,858 (1969); 54,219 (1971); 55,202 (1972).)

ANNEX II

DEFINITIONS OF DEFECTS

ANNEX II

DEFINITIONS OF TERMS AND DEFECTS OF DRIED PEARS

(a) **Whole pears**: whole pears

(b) **Halved pears**: the pears have been cut longitudinally into approximately equal halves

(c) **Sliced pears**: the pears have been cut longitudinally into several slices

(d) **Pears in Pieces**: the pears have been cut into approximately equal-sized cubes

(e) **Decay**: visible decomposition of any portion of pears caused by micro-organisms

(f) **Mouldy**: mould filaments visible to the naked eye

(g) **Fermentation**: damage by fermentation to the extent that the characteristic appearance and/or flavour is substantially affected

(h) **Mineral impurities**: acid insoluble ash

(i) **Colour**: uniform colour not darker than dark amber

(j) **Foreign matter of plant origin**: any matter other than dried pears

(k) **Damage caused by insects**: visible damage caused by insects and animal parasites or presence of dead insects or insect residues

(l) **Russet**: reddish brown discoloration

(m) **Maturity**: fully ripe

(n) **Grittiness**: the presence of distinct particles in the fruit flesh

(o) **Skin damage**: tears in the skin or damage to the skin by sunburn, hail, limb-rubs or other means which result in darker colour or hard, tough or leathery texture

(p) **Excessively dried**: over-dried (burned) or hollow