

DRAFT UGANDA STANDARD

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Dried fruits — Specification



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Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Product description	2
5 Requirements	3
5.1 Ingredients	3
5.2 General requirements	3
5.3 Specific requirements	4
6 Food additives	5
7 Contaminants	5
7.1 Heavy metals	5
7.2 Pesticide residue	5
7.3 Mycotoxins	5
8 Hygiene	5
9 Packaging	6
10 Weights and measures	6
11 Labelling	6
11.1 General labelling requirements	6
11.2 Nutritional declaration	6
11.3 Non-retail containers	6
12 Sampling	7
Annex A (normative) Sampling of dried fruits	8
A.1 Definitions	8
A.1.1 Package	8
A.1.2 Sales package	8
A.1.3 Pre-packages	8
A.1.4 Consignment	8
A.1.5 Lot	8
A.1.6 Sampling	9
A.2 Sampling method	9
A.2.1 Identification of lots and/or getting a general impression of the consignment	9
A.2.2 Presentation of product	9
A.2.3 Control of product	10
Bibliography	12

Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Trade, Industry and Cooperatives established under Cap 327, of the Laws of Uganda, as amended. UNBS is mandated to co-ordinate the elaboration of standards and is

- (a) a member of International Organisation for Standardisation (ISO) and
- (b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and
- (c) the National Enquiry Point on TBT Agreement of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of key stakeholders including government, academia, consumer groups, private sector and other interested parties.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

The committee responsible for this document is Technical Committee UNBS/TC 2, *Food and Agriculture*, Subcommittee SC 4, *Fruits, vegetables, spices and related products and processes*.

This second edition cancels and replaces the first edition (US 877:2011), which has been technically revised.

Dried fruits — Specification

1 Scope

1.1 This Draft Uganda Standard specifies requirements, sampling and test methods for dried fruits offered for direct consumption, or intended to be mixed with other products for direct consumption without further processing, including for catering purposes or for repackaging, if required.

1.2 It does not apply to dried fruits that are processed by frying, roasting or intended for further/industrial processing

This standard does not apply to vegetables and herbs for which specific standards have been declared

2 Normative references

The following referenced documents referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

AOAC 934.06, *Determination of the moisture content for dried fruits*

US 38, *Labelling of pre-packaged foods - General requirements*

US EAS 39, *Code of practice for hygiene in the food and drink manufacturing industry*

US 45, *General standard for food additives*

US 738, *General standard for contaminants and toxins in foods*

US EAS 803, *Nutrition labelling — Requirements*

US EAS 804, *Claims on food — Requirements*

US EAS 805, *Use of nutrition and health claims — Requirements*

US ISO 763, *Fruits and vegetable products — Determination of ash insoluble in hydrochloric acid*

US ISO 4125, *Dry fruits and dried fruits — Definitions and nomenclature*

US ISO 6633, *Fruit and vegetable products — Determination of lead content — Flameless atomic absorption spectrometric method*

US ISO 7251, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive Escherichia coli — Most probable number technique*

US ISO 6561-1, *Fruits, vegetables and derived products - Determination of cadmium content - Part 1: Method using graphite furnace atomic absorption spectrometry*

US ISO 6561-2, *Fruits, vegetables and derived products - Determination of cadmium content - Part 2: Method using flame atomic absorption spectrometry*

US ISO 16050, *Foodstuffs — Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products — High-performance liquid chromatographic method*

US ISO 21527-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 2: Colony count technique in products with water activity less than or equal to 0.95*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in US ISO 4125 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Product description

Dried fruits are the products:

- a) Prepared from substantially sound reasonably mature, sufficiently developed or ripe fruits, according to type of dried fruit/ characteristic. They are dried or dehydrated either by the sun or other recognized drying methods.
- b) That may undergo pre-drying operations such as washing, peeling, coring, seed removal, stemming, slicing, cutting, sorting, grading, and pasteurizing, depending on the type of product.

4.1 Styles

Dried fruits may be presented in the following styles as shown in Table 1

Table 1— Presentation and presentation description

S/N	PRESENTATION	PRESENTATION DESCRIPTION
i.	Whole	peeled and unpeeled, with core and coreless/unpitted or pitted of an entire fruit;
ii.	Halves	peeled and unpeeled, with core and coreless/unpitted or pitted fruits that have been cut longitudinally into two approximately equal parts;
iii.	Quarters	peeled and unpeeled, with core and coreless/unpitted or pitted fruits that have been cut into four approximately equal parts
iv.	Slices	peeled and unpeeled with coreless /pitted fruits that have been cut longitudinally into slices or rings
v.	Half slices	uniformly cut, approximately semi-circular halves of slices;
vi.	Broken Slices	arc-shaped portions which are not required to be uniform in size and /or shape;
vii.	Tidbits	reasonably uniform wedge-shaped sectors
viii.	Chunks	short and thick units
ix.	Dices or cubes	reasonably uniform, cube-shaped units
x.	Strips	long fine narrow pieces

xi.	Sticks	long thin straight pieces
xii.	Spears	slender sectors cut radially and lengthwise
xiii.	Pieces	mixed pieces or irregular pieces, irregular shapes and sizes not identifiable as a specific style
xiv.	Flattened	flattened whole, half or portions of fruits of irregular shape, size and thickness
xv.	Sheets	a large piece of thin dried fruits
xvi.	Shreds/ Chips	small, thin pieces and irregular shapes and sizes
xvii.	Granules	broken shreds/chips or small pieces and irregular shapes and sizes
xviii.	Coins	small flat round pieces

4.2 Other presentations

Any other presentation of the product may be used provided the product is

- a) sufficiently distinctive from other forms of presentation laid down in the standard and;
- b) adequately described on the label to avoid confusing or misleading the consumer

4.3 Species and varietal types

Several varieties or types of fruit may be dried

5 Requirements

5.1 Ingredients

5.1.1 Essential ingredients

Fruits as defined in Section 4, (part (a and b))

5.1.2 Optional ingredients.

The following ingredients may be used appropriately but not limited to:

- a) Spices and culinary herbs and /or their extracts;
- b) Edible coatings/stuffing material from fruits such as chocolate;
- c) Edible vegetable oils
- d) Citrus juice extracts such as lemon juice

5.2 General requirements

Dried fruits shall:

- a) have their characteristics colour, odour and flavour corresponding to the fruit involved, the type of treatment and added optional ingredients.
- b) possess texture characteristic of the product
- c) be clean and practically free of any visible foreign matter;

- d) be free from mouldy fruits visible to the naked eye
- e) be free from living pests whatever their stage of development, including the presence of dead insects and/or mites, their debris or excreta.
- f) be free of fermentation
- g) free of foreign smell and/or taste except for a slight salty taste of sodium chloride or a slight sour taste of citric acid and a slight smell of preservatives/additives.

5.3 Specific requirements

Dried fruits shall comply with the specific requirements but not limited those in Table 2 when tested in accordance with the methods specified therein.

Table 2 — Specific requirement for dried fruits

S/N	Characteristic		Requirement		Test method
			Un Treated	Treated	
i	Moisture, % (m/m), max	Dried Pineapples	20	$26 \geq x \leq 35^a$	AOAC 934.06
		Dried bananas	20	25	
		Dried ripe papayas			
		Dried melons	22	$26 \geq x \leq 40^b$	
		Dried pears		25	
		Dried Apples	25	$32 \geq x \leq 40^c$	
		Dried apricots		$26 \geq x \leq 40^d$	
		Dried figs	26	$26 \geq x \leq 40^d$	
		Ripe Jack fruit	19		
		Dried green immature jackfruit	TBD	TBD	
ii	Acid insoluble ash, % (m/m), (on dry basis), max.	0.1			US ISO 763

^a This requirement is for dried pineapples treated with preservatives or preserved by other means (e.g. pasteurization). Products between 26.0 and 40.0 per cent should be labelled as soft fruit/high moisture.

^b This requirement is for dried pears treated with preservatives or preserved by other means (e.g. pasteurization). Products between 26.0 and 40.0 per cent should be labelled as soft fruit/high moisture.

^c This requirement is for dried apricots treated with preservatives or preserved by other means (e.g. pasteurization). Products between 32.0 and 40.0 per cent should be labelled as soft fruit/high moisture.

^d This requirement is for dried figs treated with preservatives or preserved by other means (e.g. pasteurization). Products between 26.0 and 40.0 per cent should be labelled as soft fruit/high moisture.

Note For products not covered by the Table, dried fruits shall comply with the maximum moisture content specific to the individual fruit variety; and dried fruits shall be sufficiently dried to ensure food safety, taking into consideration the effects of preservatives, etc., when used

6 Food additives

Dried fruits may contain food additives in accordance with US 45

7 Contaminants

7.1 Heavy metals

Dried fruits shall comply with those maximum levels for contaminants and toxins given in US 738 and shall comply with the limits for heavy metals given in Table 3 when tested in accordance with the test methods specified therein

Table 3 — Heavy metal contaminants limits for dried fruits

Heavy metal	Maximum limits, mg/kg	Method of test
Lead	0.1	US ISO 6633
Cadmium	0.05	US ISO 6561-1 US ISO 6561-2

7.2 Pesticide residue

Dried fruits shall comply with the pesticide maximum residue limits provided by the Codex Alimentarius Commission.

7.3 Mycotoxins

When determined in accordance with US ISO 16050, the maximum content of aflatoxins in dried fruits shall not exceed 10 µg/kg for total aflatoxins

8 Hygiene

Dried fruits shall be produced and handled in accordance with US EAS 39. The products shall comply with the microbiological limits given in Table 4 when tested in accordance with the methods specified therein.

Table 4 — microbiological limits in dried fruits

S/N	Characteristic	Limit	Test method
i	Total plate count, cfu/g, max.	5x10 ⁴	ISO 4833-1 ISO 4833-2
ii	E coli, cfu/g, max.	Absent	US ISO 7251
iii	Yeast and moulds, cfu/g, max	1x10 ³	US ISO 21527-2
iv	Salmonella spp, /25 g	Absent	US ISO 6579-1
v	<i>Staphylococcus aureus</i> , cfu/g	50	US ISO 16649-2

9 Packaging

Dried fruits shall be packaged in a food grade packaging material that will safeguard the hygienic, safety, nutritional, technological and organoleptic qualities of the product which comply with US 1659.

10 Weights and measures

Dried fruits shall be packaged in accordance with the weights and measures regulations of Uganda

11 Labelling

11.1 General labelling requirements

The following specific labelling requirements shall apply and shall be legibly and indelibly marked in accordance with the requirements of US EAS 38.

- a) name of product
 - i. as “Dried X”, “Dehydrated X” and/or “Freeze dried X” where X is the name of the fruit(s)
 - ii. shall include indication of the style as set out in Section 4.2
 - iii. the label shall contain in close proximity to the name of the product such additional words or phrases to avoid misleading or confusing the consumer. if the product is produced in accordance with the other styles provision)Section 4.3)
 - iv. if an added ingredient, as defined in Section 5.2, alters the flavour characteristic of the product, the name of the food shall be accompanied by the term “flavoured with X” or “X flavoured” as appropriate
 - v. Where a characteristic coating or similar treatment has been used, appropriate terms shall be included as part of the name of the product or in close proximity to the name: e.g., "Sugar Coated", "Coated with X".
- b) name and address of manufacturer/packer/importer;
- c) date of manufacture;
- d) best before date;
- e) country of origin;
- f) net content in metric units;
- g) lot identification;

11.2 Nutritional declaration

Nutritional labelling, nutrition and health claims may be made in accordance with US EAS 803, US EAS 804 and US EAS 805.

11.3 Non-retail containers

11.3.1 Information for non-retail containers not destined to final consumers shall be given either on the container or in accompanying documents, except that the name of the product, lot identification, net contents

and the name and address of the manufacturer, packer, distributor or importer as well as storage instructions shall appear on the container

11.3.2 Lot identification, and the name and address of the manufacturer, packer, distributor or importer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

12 Sampling

Representative samples of the material shall be drawn and tested for conformity to this specification as prescribed in Annex A.

Annex A (normative)

Sampling of dried fruits

A.1 Definitions

A.1.1 Package

Individually packaged part of a lot, including contents so as to facilitate handling and transport of a number of sales units or of products loose or arranged, in order to prevent damage by physical handling and transport. Road, rail, ship and air containers are not considered as packages.

A.1.2 Sales package

Individually packaged part of a lot, including contents, which is so as to constitute a sales unit to the final user or consumer at the point of purchase

A.1.3 Pre-packages

Pre-packages are sales packages such as the packaging which encloses the foodstuff completely or only partially, but in such a way that the contents cannot be altered without opening or changing the packaging. Protective films covering single product are not considered as a pre-package.

A.1.4 Consignment

Quantity of product to be sold by a given trader found at the time of inspection and defined by a document. A consignment may consist of one or several types of product; it may contain one or several lots of dried fruit.

A.1.5 Lot

Quantity of product which, at the time of inspection at one place, has similar characteristics with regard to:

- a) packer and/or dispatcher;
- b) country of origin;
- c) nature of product;
- d) class of product;
- e) size (if the product is graded according to size);
- f) variety or commercial type (according to the relevant provisions of the standard); and
- g) type of packaging and presentation.

If it is difficult to distinguish between different lots and/or presentation of individual lots is not possible, all lots of a specific consignment may be treated as one lot if they are similar in regard to type of product, dispatcher, country of origin, class and variety or commercial type, if this is provided for in the relevant marketing standard.

A.1.6 Sampling

Collective samples taken temporarily from a lot during conformity check

A.1.6.1 Primary sample

Package taken at random from the lot, in case of packed product or, in case of bulk product (direct loading into a transport vehicle or compartment thereof), a quantity taken at random from a point in the lot

A.1.6.2 Bulk sample

Several primary samples supposed to be representative for the lot so that the total quantity is sufficient to allow the assessment of the lot with regard to all criteria

A.1.6.3 Secondary sample

An equal quantity of product taken at random from the primary sample. The secondary sample shall comprise 30 units, in case the net weight of the package is 25 kg or less and the package does not contain any sales packages. In certain cases this means that the whole content of the package has to be checked, if the primary sample contains not more than 30 units.

A.1.6.4 Composite sample

A composite sample is a mix, weighing at least 3 kg, of all the secondary samples taken from the bulk sample. Product in the composite sample shall be evenly mixed.

A.1.6.5 Reduced sample

Quantity of product taken at random from the bulk or composite sample whose size is restricted to the minimum quantity necessary but sufficient to allow the assessment of certain individual criteria.

If the inspection method would destroy the product, the size of the reduced sample shall not exceed 10 % of the bulk sample. In the case of small dry or dried products (that is, 100 g include more than 100 units) the reduced sample shall not exceed 300 g.

Several reduced samples may be taken from a bulk or composite sample in order to check the conformity of the lot against different criteria.

A.2 Sampling method

A.2.1 Identification of lots and/or getting a general impression of the consignment

The identification of lots shall be carried out on the basis of their marking or other criteria. In the case of consignments which are made up of several lots it is necessary for the inspector to get a general impression of the consignment with the aid of accompanying documents or declarations concerning the consignments. The inspector shall then determine how far the lots presented comply with the information in these documents.

If the product is to be or has been loaded onto a means of transport, the registration number of the latter shall be used for identification of the consignment.

A.2.2 Presentation of product

The inspector shall decide which packages are to be checked. The presentation shall be made by the operator and shall include the presentation of the bulk sample as well as the supply of all information necessary for the identification of the consignment or lot.

If reduced or secondary samples are required, these shall be identified by the inspector from the bulk sample.

The inspector shall determine the size of the bulk sample in such way as to be able to assess the lot. The inspector selects at random the packages to be inspected or in the case of bulk product the points of the lot from which individual samples shall be taken.

Care shall be taken to ensure that the removal of samples does not adversely affect the quality of the product.

Damaged packages shall not be used as part of the bulk sample. They shall be set aside and may, if necessary, be subject to a separate examination and report.

The bulk sample shall comprise the following minimum quantities whenever a lot is declared unsatisfactory or the risk of a product not conforming to the standard has to be examined:

Number of packages in the lot	Number of packages to be taken (primary samples)
Packaged products	
Up to 100	5
From 101 to 300	7
From 301 to 500	9
From 501 to 1 000	10
More than 1 000	15 (minimum)
Product in bulk	
Quantity of lot in kg or number of bundles in the lot	Quantity of primary samples in kg or number of bundles
Up to 200	10
From 201 to 500	20
From 501 to 1 000	30
From 1 001 to 5 000	60
More than 5 000	100 (minimum)

In the case of bulky dried fruit and vegetables (over 2 kg per unit), the primary samples shall be made up of at least five units. In the case of lots comprising fewer than five packages or weighing less than 10 kg, the check shall cover the entire lot.

If the inspector discovers, after an inspection, that a decision cannot be reached, another physical check shall be undertaken and the overall result reported as an average of the two checks.

A.2.3 Control of product

In case of packed product, the primary samples shall be used to check the general appearance of the product, the presentation, the cleanliness of the packages and the labelling. In all other cases, these checks shall be done on basis of the lot or transport vehicle.

The product shall be removed entirely from its packaging for the conformity check. The inspector may only dispense with this where the sampling is based on composite samples.

The inspection of uniformity, minimum requirements, quality classes and size shall be carried out on the basis of the bulk sample, or on the basis of the composite sample.

When defects are detected, the inspector shall ascertain the respective percentage of the product not in conformity with the standard by number or weight.

External defects shall be checked on the basis of the bulk or composite sample. Certain criteria on the degree of development and/or ripeness or on the presence or absence of internal defects may be checked on the basis of reduced samples. The check based on the reduced sample applies in particular to checks which destroy the trade value of the product.

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Bibliography

- [1] US 877, *Dried Fruits — Specification*
- [2] UNECE standard DDP - 29, *Dried bananas: 2018 edition*
- [3] CL 2020_46 – *Proposed Draft general standard for dried fruits (At Step 5/8) - Under development*

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