



DRAFT TANZANIA STANDARD

Raw Almond kernels – Specification

draft for public comments

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0 Foreword

Raw almond kernels are obtained from almond fruit (*Amygdalus communis* L.) and are commonly used in the food industry.

This Tanzania standard lays down specifications aiming at ensuring the safety and quality of almond kernels produced or traded in the country for human consumption.

In preparation of this Tanzania standard considerable help was derived from:
UNECE STANDARD DPP-06 *Almond kernels* published by the United Nations, New York and Geneva, 2003.

In reporting the results of a test or analysis made in accordance with this Tanzania Standard, if the final value observed or calculated is to be rounded off, it shall be done in accordance with TZS 4.

1 Scope

This Tanzania Standard specifies requirements, methods of sampling and test for raw almond kernels obtained from almond fruit (*Amygdalus communis* L.) intended for direct human consumption. This standard does not apply to bitter almond kernels

2 Normative references

The following documents are 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;

Codex Stan 193, *General Standard for Contaminants and Toxins in Food and Feed*
TZS 4, *Rounding off numerical values*

TZS 109, *Food processing units – Code of hygiene – General*

TZS 122, *Microbiology of food and feeding Stuffs – Horizontal method for the detection of Salmonella spp*

TZS 538, *Packaging and labeling of foods*

TZS 731, *Microbiology of food and feeding Stuffs-Horizontal method for the detection and enumeration of presumptive Escherichia Coli – Most Probable Number Technique*

TZS 742, *Oleaginous seeds – Sampling*

TZS 799, *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*

TZS 1314 – 1, *Oilseeds – Determination of content of impurities*

TZS 1314 – 2, *Oilseeds – Determination of moisture and volatile matter content*

TZS 1314 – 4, *Oilseeds – Determination of acidity of oils*

TZS 2426 - 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 Tanzania Standard, the following terms and definitions shall apply:

3.1 raw almond kernels

edible seeds obtained from varieties of the species (*Amygdalus communis* L.)

3.2 dissimilar

typically used for whole almond applications or for further processing such as blanching and roasting

3.3 foreign matters

any visible and/or apparent matter or material, including dust, not usually associated with the raw almond kernels.

3.4 doubles

raw almond kernel of characteristic shape, with one side flat or concave, as a consequence of the development of two kernels in the same shell.

3.5 split or broken kernel

mechanically damaged raw almond kernel from which more than one quarter of the kernel is missing.

3.6 shrunken or shrivelled

raw almond kernel which is extremely flat and wrinkled, or raw almond kernel with desiccated, dried out or tough portions when the affected portion represents more than one quarter of the kernel.

3.7 chipped and scratch kernel

loss of kernel skin as a result of mechanical processing.

3.8 other defect

any defect that materially detracts from the appearance of the individual kernel or the edible or shipping quality of the almonds. The defects include gum, shrivel, brown spot and discolored.

3.9 serious defect

any defect that makes a kernel or piece of kernel unsuitable (includes decay, rancidity, insect injury and damage by mold)

4. Requirements

4.1 General requirements

4.1.1 Raw almonds kernels shall be:

- a) sweet, whole, mature and uniform in shape, size and colour according to variety and grade.
- b) free from dead or living insects, insect fragments and mites;
- c) clean, practically free of any visible foreign matter;
- d) free from off- odours and off-flavour and/or taste;
- e) free from decayed and mould - damaged kernels.
- f) intact; slight superficial damage or very slight scratches are not considered as a defect;
- g) sufficiently developed; shrunken and shriveled kernels are to be excluded;

4.1.2 Raw almond kernel with greater than 1/8" (3.2mm) in diameter, shall be considered as injury; if affecting, in aggregate, greater than 1/4" (6.4mm) in diameter, shall be considered as defect. The requirements for defects and injuries are expressed in Annex A.

4.2 Specific requirements

Raw almond kernels shall comply with specific requirements given in Table 1 when tested in accordance with the methods specified therein;

Table 1- Specific requirements for raw almond kernels

S/N	Characteristic	Requirement	Test methods
i)	Moisture content,% (m/m) max.	6	TZS 1314 - 2
ii)	Free fatty acids as oleic %, m/m, max	1.5	TZS 1314 -4
iii)	Foreign matters	As in Annex A	TZS 1314-1

5 Grading

Grading of raw almond kernels shall be as given in annex A.

6. Contaminants

6.1 Metal contaminants

Raw almond kernels shall comply with those maximum metal contaminants stipulated in CODEX STAN 193.

6.2 Pesticide residues

Raw almond kernels shall comply with those maximum residue limits established by the Codex Alimentarius Commission.

6.3 Aflatoxin

Raw almond kernels shall comply with the level of aflatoxin specified in Table 2 when tested in accordance with the methods specified therein;

Table 2- Aflatoxin limits for raw almond kernels

S/N	Aflatoxin	Maximum limit	Method of test
i)	Total aflatoxin	10 µg/kg	TZS 799
ii)	aflatoxin B1	5 µg/kg	

7 Hygiene

7.1 Raw almond kernels shall be produced, processed, handled and stored in accordance with TZS 109.

7.2 Raw almond kernels shall comply with microbiological limits specified in Table 3 when tested in accordance with the methods specified therein;

Table 3 - Microbiological limits for raw almond kernels

S/No	Organism	Maximum limit	Method of test
iii)	Yeast and Moulds cfu/g,max	10 ²	TZS 2426 - 2
i)	<i>Escherichia coli</i> , MPN/g	absent	TZS 731
ii)	Salmonella per 25 g	absent	TZS 122

8 Sampling and methods of test

8.1 Sampling

Sampling of raw almond kernels shall be done in accordance with TZS 742.

8.2 Methods of test

Raw almond kernels shall be tested in accordance with the methods specified in this standard.

9 Packing, Marking and Labeling

9.1 Packing

Raw almond kernels shall be packed in suitable and hygienic food grade packaging materials which ensure that the safety and quality requirements specified in this standard are maintained throughout the shelf life of the product.

9.2 Marking and labeling

9.2.1 The product shall be marked and labeled in accordance with TZS 538. In addition each container/packet of product shall be legibly and indelibly marked with the following information:

- a) Name of the product as 'Raw almond kernels'
- b) Grades
- c) Trade name or brand, if any;
- d) Name, address of the processor and/or packer;
- e) Batch, lot or code number;
- f) Date of packing;
- g) Expiry date;
- h) Net weight;
- i) Country of origin;
- j) Storage conditions

9.2.2 The containers shall also be marked with TBS Standards Mark of Quality.

NOTE - The TBS Standards Mark of Quality shall be used by the manufacturers only under license from TBS. Particulars of conditions under which the licenses are granted, shall be obtained from TBS.

Annex A

(normative)

Grading Requirements for raw almond kernels

USDA GRADES	WHOLE KERNELS	MINIMUM DIAMETER	DISSIMILAR	DOUBLES	CHIP&SCRATCH	FOREIGN MATTER	PARTICLES & DUST	SPLIT&BROKEN	OTHER DEFECTS	SERIOUS DEFECTS	UNDER SIZE
U.S FANCY	-	-	5%	3%	5%	0.05%	0.1%	1%	2%	1%	-
U.S EXTRA NO.1	-	-	5%	5%	5%	0.05%	0.1%	1%	4%	1.5%	-
U.S NO.1 (SUPREME)	-	-	5%	15%	10%	0.05%	0.1%	1%	5%	1.5%	-
U.S SELECTED SELLER RUN	-	-	5%	15%	20%	0.1%	0.1%	5%	3%	2%	-
U.S STANDARD SELLER RUN	-	-	5%	25%	35%	0.2%	0.1%	15%	5%	2%	-
U.S NO.1 WHOLE&BROKEN	30%	20/64 UOS	5%	35%	-	0.2%	0.1%	-	3%	3%	5%
U.S NO1 PIECES	-	8/64	-	-	-	0.2%	1%	-	5%	3%	5%
UOS-Unless Otherwise Specified											

Calculation of grading percentages(Examples):

$$\%[\text{Dissimilar kernels}] = \frac{\text{Weight of Dissimilar Kernels(g)}}{\text{Weight of Total Sample(g)}} \times 100$$

Weight of Total Sample(g)