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DRAFT ZANZIBAR NATIONAL STANDARD

Canned peas — specification

DRAFT FOR STAKEHOLDER'S COMMENT

ZANZIBAR BUREAU OF STANDARDS

Foreword

The Zanzibar Bureau of Standards (ZBS) was established under Standard Act No. 1 of 2011.

In the preparation of this Standard, the reference was derived from:

CXS 297-2009 Standard for certain canned vegetables Amended in 2022 published by Codex Alimentarius

IS 3245 : 2021 *Canned Peas — Specification, published by Bureau of Indian Standards*

Acknowledgement is hereby made for the assistance derived from these sources.

In reporting the results of a test or analysis made in accordance with Zanzibar National Standard, if the final value, observed or calculated is to be rounded off, it shall be done in accordance with ZNS 94.

Technical Committee Representatives

This Zanzibar National Standard was prepared by Food Technical Standard Committee which consists of representatives from the following organizations:

Chief Government Chemist Laboratory Agency (CGCLA)
Ministry of Health Zanzibar
Said Salim Bakhresa & Company LTD
The State University of Zanzibar (SUZA)
Umoja wa Wazalishaji Wadogo Wadogo Zanzibar (UWAZI)
Ministry of Agriculture, Irrigation, Natural Resources and Livestock (MANRL)
Zanzibar Food and Drug Agency (ZFDA)
Zanzibar Livestock Research Institutes (ZALIRI)
Zanzibar National Chamber of Commerce (ZNCC)
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Canned peas — specification

1 Scope

This draft Zanzibar standard specifies requirements, method of sampling and test for canned peas (*Pisum sativum* L.) intended for direct human consumption.

2 Normative references

The following referenced documents are indispensable for the application of this draft Zanzibar National Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

AOAC 912.02, *Tin in food. Volumetric method*

AOAC 915.02, *Tin in food. Gravimetric method*

AOAC 999.11, *Determination of Lead, Cadmium, Copper, Iron, and Zinc in Foods, Atomic Absorption Spectrophotometry after Dry Ashing*

Codex Stan 192, *General Standard For Food Additives*

Codex Stan 193, *Codex general standard for contaminants and toxins in food and feed*

EAS 39, *Hygiene in the food and drink manufacturing industry — Code of practice*

EAS 900, *Cereals and pulses — Sampling*

EAS 901, *Cereals and pulses — Test methods*

ISO 2173; *Fruit and vegetable products — Determination of soluble solids — Refractometric method*

ISO 6579-1; *Microbiology of the food chain — Horizontal method for the detection, enumeration and serotyping of Salmonella — Part 1: Detection of Salmonella spp.*

ISO 7937; *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of Clostridium perfringens — Colony-count technique*

ISO 16649-2; *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli — Part 2: Colony-count technique at 44 degrees C using 5-bromo-4-chloro-3-indolyl beta-D-glucuronide*

ISO 21527-1; *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 1: Colony count technique in products with water activity greater than 0,95*

ZNS 61, *Packaging and labeling of food*

ZNS 94, *Rounding off numerical values*

3 Terms and definitions

For the purposes of this standard, the following terms and definitions shall apply.

3.1

head space

distance between the top of the double seam and the level of the surface of the contents.

3.2

extraneous matter

free from organic and inorganic matter other than peas

3.3

filth

impurities of animal origin including dead insect

3.4

unbroken pea seed

pea seed of which the two cotyledons are held together by the skin, even though the cotyledons may be cracked or the skin split.

3.5

blemished pea seeds

units blemished with some injury, such as worm-hole, insect damage, discolouration, pathological and hail injury, spotted or otherwise discoloured peas (creamy white or vivid green) or any other abnormality readily visible to the naked eye to a noticeable degree.

3.6

food grade packaging material

material which shall safeguard the hygienic, safety, nutritional, technological, and organoleptic qualities of the product

4 Requirements

4.1 Raw material

- a) green peas and
- b) liquid packing media which may contain ingredients
 - i. Water and salt
 - ii. sugars and/or other foodstuffs with sweetening properties such as honey;
 - iii. aromatics plants, spices or extracts thereof, seasoning;
 - iv. vinegar;
 - v. regular or concentrated fruit juice;
 - vi. edible oil;

4.2 General requirements

Canned peas shall:

- a) have normal colour, flavor, odour of peas and corresponding to the packing medium used and shall possess texture characteristic of the product;
- b) be free of off flavors and objectional odours;
- c) be free from filth, fungi and extraneous matter;
- d) have uniform tender texture;

4.3 Specific requirements

Canned peas shall conform to the specific requirements in Table 1 when tested in accordance with the methods specified therein.

Table 1 — Specific requirements for Canned peas

SN	Characteristic	Requirement	Test method
i.	Total soluble solid, Brix, min	2	ISO 2173
ii.	Salt content (as sodium chloride), % m/m, max	1.2	Annex A
iii.	Head space of the can in mm, <i>Max</i>	16	Annex B
iv.	Vacuum of the can in mm, <i>Min</i>	125	Annex C
v.	Drained weight, % of net weight min	65	Annex D

4.4 Defects and tolerances

Canned peas shall not exceed limits sets for common defects as defined in Table 2.

Table 2 :Classification of defects

Sn	Defects	Maximum limits (based on weight of drained canned peas)	Test method
i.	Blemished peas, % m/m max	5	EAS 901
ii.	Seriously blemished peas, % m/m max	1	
iii.	Pea fragments, % m/m max	10	
iv.	Yellow peas, % m/m max	2	
v.	Extraneous plant material, % m/m max	0.5	
vi.	Total defects*	12	
*The parameter, total defective grains is not the sum total of the individual defects. It is limited to 70 % of the sum total of individual defects.			

5 Food Additives

The canned peas shall be free from preservatives and artificial flavouring agents. Permitted colours may be used in accordance with Codex Stan 192.

6 Contaminants

6.1 Pesticide residues

Canned peas shall conform to those maximum residue limits established by the Codex Committee on Pesticide Residues for this commodity.

6.2 Metal contaminants

Canned peas shall comply with those maximum metal limits given in Table 3 when tested in accordance with test methods specified therein.

Table 3: Maximum limits for metal contaminants in canned peas

S/N	Parameter	Maximum limit (mg/kg)	Test method
i.	Lead (Pb)	0.1	AOAC 999.11
ii.	Tin (Sn)	150	AOAC 912 /915.02

7 Hygiene

Canned peas shall be produced and handled under hygienic conditions in accordance with EAS 39 and shall comply with microbiological limits given in Table 4 when tested in accordance with the methods specified therein.

Table 4:Microbiological limits for Canned peas

S/N	Micro-organism	Limits	Test methods
i.	<i>Escherichia coli</i> cfu/g	absent	ISO 16649-2
ii.	<i>Salmonella</i> sp.,cfu per 25g	absent	ISO 6579-1
iii.	Yeasts and moulds, cfu/ml, max.	10 ²	ISO 21527-1
iv.	<i>Clostridium botulinum</i> , cfu/g	absent	ISO 7937

8 Weights and measures

Canned peas shall be packed in accordance with the weights and measures regulations of Zanzibar.

9 Packaging and Labelling

9.1 Packaging

Canned peas shall be packaged in food grade material

9.2 Labelling

9.2.1 In addition to the labelling requirements specified in ZNS 61, the containers shall be also legibly and indelibly labelled with the following: -

- a) name of the product as 'Canned peas;
- b) brand name/trade name if any;
- c) name and address of producer/packer/distributor;
- d) storage and transportation condition;
- e) date of manufacturing;
- f) best before date;
- g) declaration of drained weight;
- h) list of ingredient
- i) lot identification or batch or code number;
- j) country of origin; and
- k) instruction for disposal of used packaged material.

9.2.2 The language on the label shall be 'Kiswahili' and/or English. Additional language may be used depending on the designated market.

10 Sampling

Sampling of canned peas shall be done according with EAS 900.

Annex A (normative)

Determination of salt content as sodium chloride

A.1 General

The chloride content corresponds to the sum of all anions (halides) calculated as sodium chloride precipitable with silver ions in a nitric acid solution.

A.2 Principle

Quantitative precipitation of the halides extracted from the ash in a nitric acid solution with AgNO₃ in excess. Back titration of the surplus AgNO₃ with ammonium thiocyanate, using ferric alum (ferric ammonium sulphate) as the indicator.

A.3 Reagents

- A.3.1 Distilled or demineralized water.
- A.3.2 AgNO₃ solution, 0.1 N (16.9888 g AgNO₃).
- A.3.3 NH₄SCN solution, 0.1 N (7.6113 g NH₄SCN). In practice a slightly higher weight is taken and the solution is adjusted by dilution against a 0.1 N AgNO₃ solution.
- A.3.4 Cold saturated NH₄Fe (SO₄) 2.12H₂O solution (approximately 40 %). The ensuing brown colouring is eliminated by adding pure nitric acid drop wise.
- A.3.5 HNO₃ (approximately 30 %)
- A.3.6 Diethyl ether of nitrobenzene

A.4 Apparatus

- A.4.1 Measuring flask, 100 ml
- A.4.2 Burette, 50 ml
- A.4.3 Erlenmeyer flask, 200 ml
- A.4.4 Pipettes
- A.4.5 Funnel, filtering paper

A.5 Procedure

The ash (residue after carbonization and incineration of the beans at a maximum temperature of 550 °C in a muffle furnace) obtained from 1 g – 2 g dry matter is extracted by means of 80 ml – 90 ml hot distilled water acidified with a few drops of nitric acid. The washings are filtered off into a 100 ml measuring flask; after cooling distilled water is added until the mark is reached (stock solution). In proportion to the expected chloride content aliquot part of this solution, which should preferably contain 50 mg – 100 mg NaCl, taken off, distilled water being added to obtain a quantity of approximately 100 ml. Subsequently 5 ml ferric alum solution (see A.3.4), 20 ml 0.1 N AgNO₃ solution (see A.3.2) and 5 ml – 10 ml ether or 1 ml nitrobenzene are added; titration is carried out by means of an ammonium thiocyanate solution 0.1 N (see A.3.3), until the red coloring remains after stirring.

A.6 Expression of results

A.6.1 Sodium chloride content shall be calculated using the formula below:

$$x = \frac{5.56(V_2 - V_3) \times V \times 100}{V_1 \times P}$$

where,

- P is the test portion, in milligrams, incinerated;
- V is the millilitres of the stock solution derived from the ash;
- V₁ is the volume, in millilitres, of stock solution used from titration;
- V₂ is the volume, in millilitres, of AgNO₃ added; and
- V₃ is the volume, in millilitres, of NH₄SCN necessary for back titration.

A.6.2 Report the results in percentage by weight to one decimal place.

Annex B
(normative)
Determination of head space

B.1 Apparatus

B.1.1 A.1.1 Rotary cutter

B.1.2 A.1.2 Measuring stick- a clean straight flat piece of wood of suitable type not more than 3.2 mm in thickness and 6.4 mm in width.

B.2 Procedure

Cut out the lid on the edge of the end-plate partially by the rotary cutter, and lift the cut portion carefully so that the shape of the end-plate is not altered. Introduce the measuring stick in the can and make certain that it goes straight in and rests flat against the bottom of the can and against the body plate. Rest for a short time and lift the stick straight. Find out the length of the stick which is wet, the space occupied by the contents of the can. Empty out the contents of the can carefully and fill it completely with water. Again introduce a similar measuring stick and find out the length of the stick which is wet. The difference between the readings gives the gross head space. Net head space is equal to gross head space less 5 mm, Take four recordings. The average of the four net head space recordings taken at different points shall be the head space of the can

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Annex C
(normative)

Determination Of Vacuum Of The Cans

The vacuum in the cans shall be determined with an electric recording type machine without opening the can. If such a machine is not available, a vacuum gauge of the piercing type shall be used. Report vacuum in millimetres of mercury. Necessary corrections for altitude may be made

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Annex D (normative)

Determination Of Drained Weight

D.1 Principle

The sample is drained on a standard mesh sieve. The weight of the material remaining on the sieve is expressed as percentage of the can contents.

D.2 Apparatus

Sieve with square openings, 2.5 mm × 2.5 mm (No. 6 B.S.). Use a sieve of 20 cm if the total weight of contents is under 1.5 kg and of 30 cm if the weight is more than 1.5 kg.

D.3 Procedure

Weigh the full can. Open and pour the entire contents on a circular sieve. Without shifting the product, incline the sieve to facilitate drainage. In the case of products with a cavity, such as peach halves, invert if necessary, so that the liquid can drain through the cavity but otherwise the product should not be disturbed. Drain for two minutes.

Weigh the drained solids and the empty can.

$$\% \text{ Drained Weight} = \frac{\text{Drained weight}}{\text{Net weight of contents}} \times 100$$

Net wt. of contents = Gross weight – tare weight of the can

For products in sauce, use a sieve with square openings of 0.3 mm × 0.3 mm.

Wash the contents on the sieve with water until free of adhering substances. Spread on sieve and drain for 5 min, dry the underside of the sieve and weigh.

Table for Sieve Size				
Method	Capacity of container	Sieve Diameter, mm	Mesh opening, mm	Draining time, min
Canned fruits and vegetables	a. Less than 850 ml	20	2.5 × 2.5	2
	b. Above 850 ml	30	2.5 × 2.5	2
Canned tomatoes	a. Less than 850 ml	20	11.2 × 11.2	2
	b. Above 850 ml	30	11.2 × 11.2	2
Other Products in Sauce		20	0.3 × 0.3	5