

Certain canned fruits — Specification

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Certain canned fruits — Specification

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KS 2688:2019

Foreword

This Kenya Standard was prepared by the Processed Fruits and Vegetables Technical Committee under the guidance of the Standards Projects Committee and it is in accordance with the procedures of the Kenya Bureau of Standards.

The standard stipulates the essential compositional, quality, microbiological, contaminants and labelling requirements for certain canned fruits as defined in this standard.

This standard replaces the following standards:

KS CODEX STAN 159-1987, Canned mangoes.

KS CODEX STAN 61-1981, Canned pears.

In the preparation of this standard useful information was derived from members of the technical committee, Codex standard for canned fruits (CXS 319-2015) and local manufacturers.

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

Certain canned fruits — Specification

1 Scope

This Kenya Standard specifies requirements for certain canned fruits, as defined in clause 2 below, intended for direct human consumption. The products covered in this standard include canned mango, canned pear and canned pineapple. It does not apply to the product when indicated as being intended for further processing.

This Standard does not cover canned applesauce, canned berry fruits, canned citrus fruits, and canned stone fruits which are covered by other Kenya standards.

This Standard does not cover:

- (a) products which are clearly intended or labelled as intended for special dietary uses;
- (b) reduced sugar products or those with a very low sugar content;
- (c) products where the foodstuffs with sweetening properties have been replaced wholly or partially by food additive sweeteners.

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.

- KS 2752, Processed Fruits and Vegetables- Code of practice
- KS CODEX STAN 192, General standard for food additives
- KS CODEX STAN 193, Codex general standard for the contaminants and toxins in foods
- KS EAS 36, Honey — Specification
- KS EAS 38, Labeling of prepackaged foods — Specification
- KS CODEX STAN 193, Codex general standard for the contaminants and toxins in foods
- KS CAC/GL 51, Guidelines for packing media for canned fruits
- KS CAC/GL 66, Guidelines for the use of flavourings
- KS CAC/RCP 23, Code of hygienic practice for low and acidified low-acid canned foods
- KS EAS 38, Labeling of prepackaged foods — Specification
- KS EAS 803, Nutrition labelling — Requirements
- KS EAS 804, Claims — General requirements
- KS EAS 805:2014, Use of nutrition and health claims — Requirements
- KS ISO 5522, Fruits, vegetables and derived products - Determination of total sulphur dioxide content
- KS ISO 6633; Fruits, vegetables and derived products -- Determination of lead content -- Flameless atomic absorption spectrometric method
- KS ISO 17240; Fruit and vegetable products -- Determination of tin content -- Method using flame atomic absorption spectrometric
- AOAC 972.25, Lead in food. Atomic absorption spectrophotometer
- ISO 4833-1, Microbiology of the food chain — Horizontal method for the enumeration of microorganisms — Part 1: Colony count at 30 degrees C by the pour plate technique
- 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/TS 6733, Milk and milk products -- Determination of lead content -- Graphite furnace atomic absorption spectrometric method
- KS ISO 6888-1, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 1: Technique using Baird-Parker agar medium
- KS ISO 7251, Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive Escherichia coli - Most probable number technique
- KS ISO/TS 17919; Microbiology of the food chain -- Polymerase chain reaction (PCR) for the detection of food-borne pathogens -- Detection of botulinum type A, B, E and F neurotoxin-producing clostridia
- ISO 7932; Microbiology of food and animal feeding stuffs-- Horizontal method for the enumeration of presumptive Bacillus cereus -- Colony-count technique at 30 degrees C

3 Descriptions

3.1 Product definition

3.1.1 Canned fruits are the products

3.1.1.1 Prepared from substantially sound fruits, fresh, frozen, thermally processed, or processed by other physical methods, as defined in the corresponding Annexes, having reached appropriate maturity for processing. None of their essential characteristic elements are removed from them. They undergo operations such as washing, peeling, coring, stemming, grading, cutting, etc., depending on the type of product.

3.1.1.2 Packed with or without a suitable liquid packing medium including other optional ingredients as indicated in Section 4.1.4.1

Vacuum packaged with packing medium that does not exceed 20 % of the product's net weight and when the container is sealed in such conditions as to generate an internal pressure in accordance with good manufacturing practices.

3.1.1.3 Processed in an appropriate manner, before or after being hermetically sealed in a container, so as to prevent spoilage and to ensure product stability in normal storage conditions at ambient temperature.

3.1.2 Canned mango

Canned mango is the product conforming to the characteristics of the fruits of *Mangifera indica* L and from which peel has been removed.

3.1.3 Canned pear

Canned pear is the product conforming to the characteristics of the fruit of *Pyrus communis* or *Pyrus sinensis*, which are peeled or unpeeled, cored, and stemmed, except that whole pears may not need to be peeled, cored, or stemmed and half pears may not need to be peeled

3.1.3 Canned Pineapple

Canned pineapple is the product, conforming to the characteristics of *Ananas comosus* (L) Merr. (*Ananas sativus* (L) Lindl.) and from which peel have been removed whether it is cored or uncored

3.2 Styles and sizing

In addition to the styles and sizes defined in the corresponding Annexes, any other styles should be permitted as indicated in clause 3.2.1.

3.2.1 Other Styles

Any other presentation of the product should be permitted provided that the product:

- is sufficiently distinctive from other forms of presentation laid down in the standard;
- meets all relevant requirements of the standard, including requirements relating to limitations on defects, drained weight, and any other requirements which are applicable to that style which most closely resembles the style or styles intended to be provided for under this provision; and
- is adequately described on the label to avoid confusing or misleading the consumer.

3.2.2 Varietal type

Any commercially cultivated variety or type suitable for canning may be used.

4 Essential composition and quality factors

4.1 Composition

4.1.1 Basic ingredients

Fruits as defined in clause 3 and the corresponding Annexes and liquid packing medium appropriate to the product as per 4.1.1.2.

4.1.1.1 Other permitted ingredients

For canned mangoes;

Spices and aromatic plants (in accordance with the relevant Kenya standards for spices and culinary herbs), spice oils.

For canned pears;

- a) Lemon juice (single strength or concentrated) added as an acidulant or flavour enhancer; and
- b) Spices and aromatic plants (in accordance with the relevant Kenya standards for spices and culinary herbs), spice oils.

For canned pineapples;

Spices and culinary herbs¹, spice oils (in accordance with the relevant Kenya standards for spices and culinary herbs).

4.1.1.2 Packing media

In accordance with KS CAC/GL 51-2003;

The cut-out strength for any syrup packing medium shall be determined on average, but no container may have a soluble solids (^oBrix) value beyond the next category of the medium ^oBrix.

clarified pineapple juice is allowed in canned Pineapples

4.2 Quality criteria

4.2.1 Colour, flavour and texture

Canned fruits shall have normal colour, flavour and odour of canned fruits, corresponding to the type of fruits, packing medium, and added optional ingredients used and shall maintain the product's essential texture, physical, chemical, organoleptic, and nutritional characteristics of the fruit(s).

4.2.1.1 Colour

Canned mangoes containing optional ingredients shall be considered to be of characteristic colour when there is no abnormal discolouration of the respective ingredient used.

Canned pears shall have normal colour (except for coloured pears as listed in clause 5). A slight pink discoloration should not be regarded as a defective.

Canned pineapple containing optional ingredients shall be considered to be of characteristic colour when there is no abnormal discolouration for the respective ingredient used. In non-white coloured pineapple varieties, white radiating streaks may be present.

4.2.1.2 Flavour

Canned fruits with optional ingredients shall have the characteristic flavour of the fruit(s) and other substances used

4.2.1.3 Texture

The mangoes shall have degree of fleshiness and fibre characteristic of the variety. They may be variable in tenderness but shall neither be mushy nor excessively firm in regular pack, and shall not be excessively firm in solid packs.

Cored pineapples

The canned pineapple shall have a reasonably good texture, shall be reasonably compact in structure, and the product shall be fairly free from porosity. The drained pineapple - of all styles - may contain no more than 7% by weight of "core material"² for the cored pineapple. In determining the percentage of core material, the areas which consist of core material

are trimmed from the pineapple unit and weighed against the drained fruit ingredient in the container.

Uncored pineapples

The canned pineapple shall have a reasonably good texture, shall be reasonably compact in structure, and the product shall be fairly free from porosity.

4.2.2 Uniformity

4.2.2.1 Uniformity of size for canned mangoes

4.2.2.1.1 Halves styles — Most of the units shall be reasonably uniform in size. Where a unit has broken within the container, the combined broken pieces are considered as a single unit. Tolerances for uniformity of size for halves are given in Table 1.

Table 1 — Tolerances for uniformity of size for halves

	Regular packs	Solid packs
Non uniformity of size for halves	Less than 30 % by count	Less than 30 % by count

4.2.2.2 Uniformity of size for canned pears

4.2.2.2.1 Whole, “halves”, “quarters” - 95% by count of units that are most uniform in size, the weight of the largest unit should be no more than twice the weight of the smallest unit, but if there are less than 20 units, one unit may be disregarded. Where a unit has broken in the container, the broken pieces are reassembled to approximate a single unit of the appropriate style.

4.2.2.3 Uniformity of size and shape for canned pineapples

These requirements do not apply to canned pineapple in the styles of: Whole, broken slices, pieces, chips or crushed.

4.2.2.3.1 Cored pineapples

- (a) Slices or spiral slices or whole slices or rings - the weight of the largest slice in a container shall not be more than 1.4 times the weight of the smallest.
- (b) Half slices or quarter slices - the weight of the largest unit in a container shall be not more than 1.75 times the weight of the smallest, except for an occasional broken piece due to splitting or an occasional whole slice not completely cut through.
- (c) Spears or fingers - the weight of the largest unbroken unit in a container shall be not more than 1.4 times the weight of the smallest unbroken unit.
- (d) Tidbits - not more than 15% of the drained weight of pineapple in the container may consist of tidbits, each of which shall weigh less than three-fourths of the average weight of the untrimmed tidbits.
- (e) Chunks - not more than 15% of the drained weight of pineapple in the container may consist of pieces which weigh less than 5 g each.
- (f) Cubes or dice
 - (i) not more than 10% of the drained weight of pineapple in the container may consist of units of such size that they will pass through a screen that has square openings of 8 mm;
 - (ii) not more than 15% of the drained weight of pineapple in the container may consist of pieces which weight more than 3 g each.

(iii) for dice or cubes less than 8 mm or 3 g, no more than 15% of the drained weight of pineapple in the container may consist of cubes or dice, each of which shall weigh less than three-fourths of the average weight of cubes or dice. **4.2.2.3.2**

Uncored pineapples

(a) Slices or whole slices - the weight of the largest slice in a container shall not be more than 1.4 times the weight of the smallest.

(b) Half slices or quarter slices - the weight of the largest unit in a container shall be not more than 1.75 times the weight of the smallest, except for an occasional broken piece due to splitting or an occasional whole slice not completely cut through.

(c) Spears or fingers - the weight of the largest unbroken unit in a container shall be not more than 1.4 times the weight of the smallest unbroken unit.

4.2.3 Defects and allowances

Canned fruits should be substantially free from defects. Certain common defects should not be present in amounts greater than the limitations fixed in the corresponding Annexes.

4.2.3.1 Classification of “defectives”

A container that fails to meet one or more of the applicable quality requirements, as set out in 4.2 (except those based on sample averages), should be considered as a “defective”.

4.2.3.2 Lot acceptance

A lot should be considered as meeting the applicable quality requirements referred to in 4.2 when:

- a) for those requirements which are not based on averages, the number of “defectives”, as defined in 4.2.3.1, does not exceed the acceptance number (c) of the appropriate sampling plan with an AQL of 6.5; and
- b) The requirements of 4.2.3.1 and 5.2, which are based on sample averages, are complied with.

4.2.3.4 Other permitted ingredients

Packing media may contain ingredients subject to labelling requirements of clause 9 and may include, but is not limited to:

- a) Sugars and Sweetening Agents

Sucrose, glucose (dextrose anhydrous) or fructose with less than 2 % moisture may be added only to products intended for sale to the consumer or for catering purposes.

- b) Honey

The quality of honey used shall comply with KS EAS 36.

- c) Tomato puree.

- d) Regular or concentrated fruit juice;

- e) Vinegar;

- f) Spices and aromatic herbs/plants or extracts thereof, seasoning salt and spices and aromatic herbs (and their natural extracts) may be added to

- g) Oil

4.2.3.5 Nutrients

For the purpose of product fortification, essential nutrients such as vitamins and minerals may be added to products. Such additions shall comply with national legislation established for this purpose.

NOTE Any optional ingredients added are subject to ingredient labelling requirements (see Clause 9)

5 Food additives

Only those food additive classes listed below and in the corresponding Annexes are technologically justified and may be used in products covered by this Standard. Within each additive class only those food additives listed below, or referred to, may be used and only for the functions, and within limits, specified.

5.1 Antioxidants, and firming agents may be used in canned fruits in accordance with Tables 1 and 2 of KS CODEX STAN 192 or listed in Table 3 are acceptable for use for foods conforming to this standard.

5.2 Antifoaming agents may be used in canned pineapple in accordance with Tables 1 and 2 of the General Standard for Food Additives (KS CXS 192-1995) in Food Category 04.1.2.4 (Canned or bottled (pasteurized) fruit) or listed in Table 3 of the General Standard are acceptable for use in foods conforming to this Standard

5.3 In canned pear, colours are (permitted only in special holiday packs) used in accordance with Tables 1 and 2 of KS CODEX STAN 192 or listed in Table 3 are acceptable for use for foods conforming to this Annex.

5.4 Flavourings used in canned pears and canned pineapples shall comply with the Guidelines for the Use of Flavourings (KS CXG 66-2008)

5.5 Colours, only the colours listed in Table 2 are permitted for use in canned fruits.

Table 2 — Colours permitted for use in canned fruits

INS No	Name of the food additive	Maximum level
160a(i),a(iii),e, f	Carotenoids	200 mg/kg
160a(ii)	Carotene beta - vegetable	1 000 mg/kg
120	Carmines	200 mg/kg

6 Contaminants

The products covered by this standard shall comply with the maximum levels of KS CODEX STAN 193.

6.1 Pesticide residues

The products covered by this standard shall comply with the maximum residue limits for pesticides established by the Codex Alimentarius Commission (CAC).

6.2 Heavy metal contaminants

The products covered by the provisions of this standard shall conform to those maximum limits for heavy metal contaminants established by the Codex Alimentarius Commission for these products in Table 3 when tested in accordance with the test methods prescribed therein.

Table 3 — Limits for heavy metal contaminants in canned fruits

S/N	Contaminant	Maximum level	Test method
ii)	Lead (Pb)	0.3 mg/kg	AOAC 972.25 / KS ISO/TS 6733
vi)	Tin (Sn)	250 mg/kg	KS ISO 17240

7 Hygiene

7.1 It is recommended that the products covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of KS CAC/RCP 1, CAC/RCP 23 and other relevant texts such as codes of hygienic practice and codes of practice.

7.2 The products shall conform to microbiological criteria given in Table 4

Table 4 — Microbiological limits for canned fruits

S/N	Microorganism	Limit	Test method
i)	Aerobic plate count, cfu/g, max.	100	KS ISO 4833-1
ii)	<i>Clostridium botulinum</i> , cfu/25 g	Absent	KS ISO/TS 17919:2013
iii)	<i>Bacillus cereus</i> , cfu/g	<100	KS ISO 7932

8 Weights and measures

8.1 Fill of container

8.1.1 Minimum fill

The container should be well filled with the product (including packing medium) which should occupy not less than 90 % (minus any necessary head space according to good manufacturing practices) of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20 °C which the sealed container will hold when completely filled. This provision does not apply to vacuum packaged fruits. This shall be carried out in accordance to CAC/RM 46.

In case of flexible containers and rigid plastic containers, these should be filled as full as commercially practicable.

8.1.2 Classification of “defectives”

A container that fails to meet the requirement for minimum fill of 4.2.3.1 should be considered as a “defective”.

8.1.3 Lot acceptance

A lot should be considered as meeting the requirement of 4.2.3.2 when the number of “defectives”, as defined in 4.2.3.1, does not exceed the acceptance number (c) of the appropriate sampling plan with an AQL of 6.5.

8.1.4 Minimum drained weight

The drained weight of the product should be not less than the percentages indicated in Table 5, calculated on the basis of the weight of distilled water at 20 °C which the sealed container will hold when completely filled.

Table 5 — Drained weight requirements for certain canned fruits

Product	Minimum drained weight (%)	Test method
Canned mangoes:		AOAC 968.30
a) Regular packs	50	
b) Solid pack	70	
Canned pears:	52 – 62.5	
a) Whole style	46 % – 53 %	
b) Halves, quarters, slices, pieces	46 % – 50 %	
c) Diced	50 % – 56 %	

Canned pineapples: 1. Regular pack 1.1 All styles other than “whole” or “crushed” or “chips” styles 1.2 “Crushed” or “chips” styles	58% 63%	
2. Heavy pack “Tidbits” or “dice or cubes” or “pieces” or “chips” or “crushed” styles	73%	
3. Solid pack “Chips” or “crushed” styles	78%	

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8.1.5 Packaging

The products covered by the provisions of this standard shall be packaged in clean food grade packaging material to protect the product from contamination. The packaging materials and process shall not contaminate the product or otherwise affect its technological, nutritional or sensory quality.

9 Labelling

In addition to the requirements of KS EAS 38, the following specific provisions apply:

9.1 Name of the product

9.1.1 The names of the canned fruits shall be those defined in clause 3.

9.1.2 When the fruits are sized, the size (or sizes when sizes are mixed), as defined in the corresponding Annexes, may be declared as part of the name or in close proximity to the name of the product.

9.1.3 The name of the product shall include the indication of the packing medium as set out in 3.2.2.

- a) For canned fruits packaged in accordance with 3.2.2
- b) The words "vacuum packaged" shall be affixed to the commercial designation of the product or in close proximity.

9.1.4 The name of the product shall include indication of the style as set out in Section 3.2

9.1.5 Other styles — If the product is produced in accordance with the other styles provision (3.2.1), the label should contain in close proximity to the name of the product such additional words or phrases that will avoid misleading or confusing the consumer.

9.1.6 If an added ingredient, as defined in 4.1.1, 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.

9.1.7 The name of the product may include the varietal type.

9.1.8 In the case of mixed fruits; list of the names of the various fruit species used in the mix shall be listed in descending order of the proportions

9.2 Additional requirements

9.2.1 Drain weight declaration content

Canned fruits shall be labelled with a declaration of "Drained weight content ___%".

9.2.2 Nutrition declaration

Any added essential nutrients declaration should be labelled in accordance with CAC/GL 2, CAC/GL 1 and KS EAS 804.

9.2.3 Non-retail containers

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, except that for tankers the information may appear exclusively in the accompanying documents.

KS 2688:2019

However, 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.

9.3 List of ingredients

A complete list of ingredients including added syrup shall be declared on the label in descending order of proportion.

9.4 Net contents

The net contents shall be declared by volume in metric units (*Système Internationale*).

9.5 Name or business name and address

Of the manufacturer, packager, distributor, importer, exporter or vendor of the product, whichever may apply, shall be declared.

9.6 Instructions for use shall be declared

9.7 Storage conditions or conditions for use

9.8 Lot identification

Each container shall be embossed or otherwise permanently marked in code or in clear identify the producing factory and the lot.

9.9 Place/country of origin

9.10 Date of Manufacture and expiry

9.11 Irradiation status, where applicable

10 Methods of sampling and test

The products covered by the provisions of this standard shall be tested using appropriate standard methods declared in this standard. Other test may be performed as per the methods given in the latest AOAC/ Codex/ ISO and other internationally recognized methods. Sampling shall be as described in the standard, in the corresponding Annexes

Annex A (normative)

Canned mangoes

A.1 Definition of defects

- a) Blemishes — Surface discolouration and spots arising from physical, pathological, insect or other agents that definitely contrast with the overall colour, and which may penetrate into the flesh. Examples include bruises, scab and dark discolouration.
- b) Crushed or mashed — Means a unit which has been crushed to the extent that it has lost its normal shape (not due to ripeness) or has been severed into definite parts. Partially disintegrated halves are not counted

as broken. All portions that collectively equal the size of a full size unit are considered one unit in applying the allowance herein.

- c) Peel — Considered as a defect. It refers to peel adhering to the pulp of the mango or found loose in the container.
- d) Pit (or stone) material/fragment — Considered a defect in all styles except Whole. In Whole mangoes, the whole stone may be present inside the fruit but no loose or broken fragments shall be present beyond the allowances in the table under A.2
- e) Harmless extraneous material — Means any vegetable substance (such as, but not limited to a leaf or portion thereof or a stem or portion thereof) that is harmless but which tends to detract from the appearance of the product.
- f) Trim — Considered a defect only in halved and sliced canned mangoes in regular packs. The trimming must be excessive and includes serious gouges (whether due to physical trimming or other means) on the surface of the units which definitely detract from the appearance.

A.2 Allowances for defects

The product shall be reasonably free from defects such as harmless extraneous material, pit (stone) material, blemished and trim, crushed or mashed, peel and spotted slices or chunks to the extent indicated below:

Defects	Regular packs	Solid packs
Blemishes and trim	30% by count	3 units per 500 g
Crushed or mashed	5% by weight	not applicable
Peel and or chunks	not more than 6 cm ² aggregate area per 500 g	not more than 12 cm ² aggregate area per 500 g
Pit or pit material (average) ^a	1/8 stone or equivalent per 500 g	1/8 stone or equivalent per 500 g
Harmless extraneous material	2 pieces per 500 g	3 pieces per 500 g
^a		

Annex B
(normative)

Canned pears

B.1 Definition of defects and allowances

B.1.1 Styles

B.1.1.1 whole

KS 2688:2019

“peeled stemmed” or “unstemmed” or “unpeeled stemmed” or “unstemmed” with cores removed “cored” or left in “not cored”

B.1.1.2

Halves

peeled or unpeeled, with stems and cores removed, and cut into two approximately equal parts

B.1.1.3

quarters

peeled or unpeeled and cut into four approximately equal parts

B.1.1.4

Sliced

peeled and cut into wedge-shaped sectors

B.1.1.5

Diced

peeled and cut into cube-like parts

B.1.1.6

pieces or Irregular pieces

peeled and comprising irregular shapes and sizes

B.2.2 Definition of defects

B.2.2.1

blemished and trimmed pear units

blemished units with surface discoloration and spots that definitely contrast with the overall colour and which may penetrate into the flesh, such as bruises, scab, and dark discoloration. Trimmed units that have deep gouges, whether due to physical trimming or other means, and which definitely detract from the appearance; trimmed units are considered defects only in whole, halved, and quartered styles.

B.2.2.2

broken

a unit severed in two or more parts should be considered as one unit when reassembled to the approximate size and shape of an average unit in the container.

B.2.2.3

core material

consisting of the seed cell, whether loose or attached, with or without seeds. For the purposes of calculating the defects allowance, all pieces of a core in the sample should be aggregated and pieces totalling approximately one-half of a core should be counted as one unit.

B.2.2.4

harmless plant material

stems or stalks and leaf (or similar vegetable material)

B.2.2.5

peel

peel that adheres to pear flesh or is found loose in the container

B.2.2.6

seeds

any one pear seed or the equivalent in pieces of one seed that are not included in core material

B.2.3 Allowances for defects

The product should be substantially free from defects such as harmless plant material, peel (in peeled styles), core material, blemished and trimmed units, seeds and broken units to the extent indicated below:

Defects		Maximum limits
(a) Blemished and trimmed pear units		(i) Total, 20% by count; or 3 units per container when count is less than 10; provided the sample average is no more than 20% - but limited to - (ii) 20% by count blemished; or 2 units per container when count is less than 10; provided the sample average is no more
(b) Broken - in “whole”, “halves”, and “quartered” styles only.		20% by count; or 2 units per container when count is less than 10; provided the sample average is no more than 10%.
(c) Core material (average) - except in “whole-not-cored” styles.		2 units per kg of total contents.
(d) Harmless plant material	(i) Stems or stalks (in styles in which the stem is customarily removed)	3 pieces per 3 kg of total contents.
	(ii) Leaf (or similar vegetable material)	
(e) Peel (Average) - except in “unpeeled” styles.		10 cm ² (10 sq. cm.) aggregate area per kg of total contents.
(f) Seeds (average) - except in “whole-not-cored” styles.		8 per kg of total contents.

Annex C
(normative)

Canned Pineapple

C.1.1 Styles

Canned pineapple may be packed in the following cored or uncored styles:

1.2.1 Cored pineapples

1.2.1.1 Whole - cylindrical whole unit with the core removed

1.2.1.2 Slices or spiral slices or whole slice or rings - uniformly cut circular slices or rings cut across the axis of the peeled, cored pineapple cylinders.

1.2.1.3 Half slices - uniformly cut approximately semi-circular halves of slices.

1.2.1.4 Quarter slices - uniformly cut, one-fourth portions of slices of cored pineapples.

1.2.1.5 Broken slices - arc-shaped portions of cored pineapples which may not be uniform in size and/or shape.

1.2.1.6 Spears or fingers - long, slender pieces cut radially and lengthwise of the cored pineapple cylinder, predominantly 65 mm or longer.

1.2.1.7 Tidbits - reasonably uniform, wedge-shaped sectors cut from slices or portions thereof, predominantly from 8 mm to 13 mm thick.

1.2.1.8 Chunks - short, thick pieces cut from thick slices and/or from peeled cored pineapple and predominantly more than 12 mm in both thickness and width, and less than 38 mm in length.

1.2.1.9 Dice or cubes - reasonably uniform, cube-shaped pieces, predominantly 14 mm or less in the longest edge dimensions.

KS 2688:2019

1.2.1.10 Pieces - irregular shapes and sizes not identifiable as a specific style and does not include “chunks” or “chips” styles.

1.2.1.11 Chips - small, irregular shapes and sizes of pineapple pieces similar to that left over after dicing of pineapple and which may be included in “crushed” style.

1.2.1.12 Crushed or crisp cut - finely cut or shredded or grated or diced pieces of pineapple and which may include chips in the crushed mass.

1.2.2 Uncored pineapples

1.2.2.1 Slice or whole slices - uniformly cut circular slices across the axis of the cylindrical whole unit.

1.2.2.2 Half slices - uniformly cut approximately semi-circular halves of slices.

1.2.2.3 Quarter slices - uniformly cut, one-fourth portions of slices.

1.2.2.4 Spears or fingers - long, slender pieces cut radially and lengthwise of the whole pineapple cylinder, predominantly 65 mm or longer.

1.3 Types of Pack

Canned pineapple may be packed in the following types of pack:

1.3.1 Regular pack: refers to all styles, with a liquid packing medium.

1.3.2 Heavy pack: “Tidbits” or “dice or cubes” or “pieces” or “chips” or “crushed” styles containing at least 73% drained fruit weight.

1.3.3 Solid pack: “Chips” or “crushed” styles containing at least 78% drained fruit weight.

C.1.2 Definition of defects and allowances

(a) **Blemish** - surface areas and spots which contrast strongly in colour or texture against the normal pineapple tissue or which may penetrate into the flesh. Such blemishes are normally removed in preparation of pineapple for culinary use and include deep fruit eyes more than 2 mm, pieces of shell, brown spots, bruised portions and other abnormalities.

(b) **Broken** - (considered a defect only in sliced and spear styles). A unit severed into definite parts; all of such portions that equal the size of a full-size unit are considered to be one defect in applying the allowances herein.

(c) **Excessive trim** - (considered a defect only in the styles of whole, slices including spiral slices, half slices, quarter slices and spears). A unit trimmed to the extent that its normal shape and conformation is destroyed and detracts from the appearance of such unit. Trim will be considered “excessive” if the portion trimmed away exceeds five percent of the apparent physical bulk of the perfectly formed unit and if such trimming destroys the normal circular shape of the outer or inner edge of the unit.

(d) **Woody** – tough and fibrous core

C.1.3 Allowances for defects

Canned pineapple shall not contain excessive defects greater than the extent indicated below:

Defects for Cored Pineapples

Styles	Units with Excessive Trim	Blemishes or Broken Units
Whole	10% by count of fruit units (cylinders) ₃	3 blemishes per fruit unit (cylinder) 1 unit if 5 or less per can;
Slices or spiral slices or whole slices; Half slices; Quarter slices	1 unit if 10 or less per can; 2 units if over 10 but not over 27 per can; or 7.5% by count if over 27 per can	2 units if over 5 but not over 10 per can; 4 units if over 10 but not over 32 per can; or
Spears	15% by count of all units	12.5% by total number of units if over 32 per can
Broken slices; tidbits; chunks; cubes; pieces	Not applicable	1 unit if 5 or less per can; 2 units if over 5 but not over 10 per can; 4 units if over 10 but not over 32 per can;

		or 12.5% by total number of units if over 32 per can 12.5% by total number of units
Chips; crushed	Not applicable	Not more than 1.5% by weight of the drained fruit

Defects for Uncored Pineapples Styles	Units with Excessive Trim	Blemishes or Broken Units	Woody
Whole slices; Half slices; Quarter slices	1 unit if 10 or less per can; 2 units if over 10 but not over 27 per can; or 7.5% by count if over 27 per can	1 unit if 5 or less per can; 2 units if over 5 but not over 10 per can; 4 units if over 10 but not over 32 per can; or 12.5% by count if over 32 per can	5% by weight
Spears	15% by count of all units	1 unit if 5 or less per can; 2 units if over 5 but not over 10 per can; 4 units if over 10 but not over 32 per can; or 12.5% by count if over 32 per can	5% by weight

Annex D (normative)

Determination of water capacity of containers (CAC/RM 46-1972)

C.1 Scope

This method applies to glass containers.

C.2 Definition

The water capacity of a container is the volume of distilled water at 20°C which the sealed container will hold when completely filled.

C.3 Procedure

C.3.1 Select a container which is undamaged in all respects.

C.3.2 Wash, dry and weigh the empty container.

KS 2688:2019

C.3.3 Fill the container with distilled water at 20 °C to the level of the top thereof, and weigh the container thus filled.

C.4 Calculation and expression of results

Subtract the weight found in C.3.2 from the weight found in C.3.3. The difference shall be considered to be the weight of water required to fill the container. Results are expressed as ml of water.

C.5 Sampling plans

The appropriate inspection level is selected as follows:

Inspection level I	Normal Sampling
Inspection level II	Disputes, (Codex referee purposes sample size), enforcement or need for better lot estimate

Sampling plan 1 (Inspection level I, AQL = 6.5)

Net weight is equal to or less than 1 kg (2.2 LB)		
Lot size (N)	Sample size (n)	Acceptance number (c)
4,800 or less	6	1
4,801 - 24,000	13	2
24,001 - 48,000	21	3
48,001 - 84,000	29	4
84,001 - 144,000	38	5
144,001 - 240,000	48	6
more than 240,000	60	7
Net weight is greater than 1 kg (2.2 LB) but not more than 4.5 kg (10 LB)		
Lot size (N)	Sample size (n)	Acceptance number (c)
2,400 or less	6	1
2,401 - 15,000	13	2
15,001 - 24,000	21	3
24,001 - 42,000	29	4
42,001 - 72,000	38	5
72,001 - 120,000	48	6
more than 120,000	60	7
Net weight greater than 4.5 kg (10 LB)		
Lot size (N)	Sample size (n)	Acceptance number (c)
600 or less	6	1

Net weight is equal to or less than 1 kg (2.2 LB)		
Lot size (N)	Sample size (n)	Acceptance number (c)
601 - 2,000	13	2
2,001 - 7,200	21	3
7,201 - 15,000	29	4
15,001 - 24,000	38	5
24,001 - 42,000	48	6
more than 42,000	60	7

Sampling plan (Inspection level II, AQL = 6.5)

Net weight is equal to or less than 1 kg (2.2 LB)		
Lot size (N)	Sample size (n)	Acceptance number (c)
4,800 or less	13	2
4,801 - 24,000	21	3
24,001 - 48,000	29	4
48,001 - 84,000	38	5
84,001 - 144,000	48	6
144,001 - 240,000	60	7
more than 240,000	72	8
Net weight is greater than 1 kg (2.2 LB) but not more than 4.5 kg (10 LB)		
Lot size (N)	Sample size (n)	Acceptance number (c)
2,400 or less	13	2

KS 2688:2019

2,401 - 15,000	21	3
15,001 - 24,000	29	4
24,001 - 42,000	38	5
42,001 - 72,000	48	6
72,001 - 120,000	60	7
more than 120,000	72	8
Net weight greater than 4.5 kg (10 LB)		
Lot size (N)	Sample size (n)	Acceptance number (c)
600 or less	13	2
601 - 2,000	21	3
2,001 - 7,200	29	4
7,201 - 15,000	38	5
15,001 - 24,000	48	6
24,001 - 42,000	60	7
more than 42,000	72	8