BELIZE STANDARD

BZS 37: 202X

BELIZE STANDARD SPECIFICATION FOR PACKAGED NATURAL COCONUT WATER

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BELIZE NATIONAL STANDARD SPECIFICATION FOR PACKAGED NATURAL COCONUT WATER

Committee Representation

The preparation of this standard for the Standards Advisory Council established under the Standards Act 1992 was carried out under the supervision of the Bureau's Technical Committee for Coconut Products, which at the time comprised the following members:

TECHNICAL COMMITTEE

CHAIRMAN	**REPERESENTING**

MEMBERS	**REPERESENTING**

Technical Secretary

Mr. Lloyd Orellano

Belize Bureau of Standards

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BELIZE STANDARD SPECIFICATION FOR PACKAGED NATURAL COCONUT WATER

0 FOREWORD

0.1 This CARICOM Regional Standard CRS 3: 201X, *Packaged natural coconut water – Specification* has been developed under the authority of the CARICOM Regional Organisation for Standards and Quality (CROSQ). It was approved as a CARICOM Regional Standard by the CARICOM Council for Trade and Economic Development (COTED) at its xx th Meeting in MM YYYY.

0.2 This standard is intended to outline the specifications for packaged natural coconut water offered for sale in CARICOM Member States. It was necessary to develop this standard so as to align the industry and clearly differentiate the product of undiluted natural coconut water. This document must be read in conjunction with the CARICOM Regional Code of Practice, CRCP 2, Code of hygienic practice for packaged natural coconut water.

0.3 In formulating this standard considerable assistance was derived from the following:

a) Caribbean Food & Nutrition Institute/Pan American Health Organization
Food Composition Tables for use in the English-speaking Caribbean 2nd Edition, 1998.

b) CODEX Alimentarius Commission Standard
CAC/RCP 4-1971, *Code of hygienic practice for desiccated coconut*

c) European Fruit Juice Association
6.27 Reference Guideline for Coconut Water/Juice – PROVISIONAL (Published May 2017)

d) Food & Agricultural Organization of the United Nations
- *2007 - Rosa Rolle, Good practice for the small-scale production of bottled coconut water*

- Jackson JC, Gordon A, Wizzard G, McCook K and Rolle R, *Changes in chemical composition of coconut (Cocos nucifera) water during maturation of the fruit, Journal of the Science of Food and Agriculture 84: 1049-1052, 2004*

e) Gordon, A and Jackson, J
2017. Case study: application of appropriate technologies to improve the quality and safety of coconut water. In: Gordon, A. (Ed.), Food Safety and Quality Systems in Developing Countries: Volume Two: Case Studies of Effective Implementation. Academic Press, London, UK, pp. 185–215.

f) Jamaican National Standard

JS 36: 1991, *Specification for Processed foods: General requirements*

g) Philippine National Standard
- PNS/BAFPS 179:2016, *Code of Hygienic Practice for Chilled Young Coconut water/drink*
- PNS/BAFPS 28:2006, *Chilled young coconut water/drink – Specification*

h) United States Department of Agriculture
National Nutrient Database for Standard Reference for Nuts, Coconut Water (liquid from coconuts, Release 20, 2007

1 SCOPE

This document is applicable to packaged natural coconut water which is offered for sale and consumption. It only applies to coconut water which has been packaged in its natural state without the use of additives.

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.

2.1 National Standards

a) BZS 1: Part 3, Labelling of Pre-packaged Foods

b) BZ CP 9, Code of Hygienic Practice for Packaged Natural Coconut Water

2.2 CARICOM Regional Organisation for Standards and Quality

a) CRCP 5, Code of Practice - General principles of food hygiene

2.3 CODEX Alimentarius Commission

a) Pesticide residues in food - Maximum residue limits

3 TERMS AND DEFINITIONS

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

3.1 **additive** means substance, natural or artificial, added to the product to enhance its quality or preservation.

3.2 **contaminant** means any biological or chemical agent, foreign matter or other substances not intentionally added to food which may compromise food safety or suitability.

3.3 **natural coconut water** means unadulterated (undiluted, untreated, unsweetened) liquid endosperm of the nut (Cocos nucifera) and which is not expressed (using additives or additional water)) but is obtained from sound fruit by manual or mechanical processes.

3.4 **packaged natural coconut water** means natural coconut water filled into containers of various compositions, forms and capacities and then hermetically sealed.

3.5 **solid endosperm** means white tissue fruit / flesh of the coconut.

3.6 **quality control** means operational techniques and activities including inspection and testing necessary to ensure that materials and products conform to specified requirements.

4 SPECIFICATIONS

4.1 Physio-chemical properties

Packaged natural coconut water shall be in conformity with the physico-chemical quality specifications outlined in Table 1.

Table 1: Physical - Chemical Properties

	Limits
	Min - Max
pH	5.0 – 5.9
Brix	3.8 – 7.5

4.2 Microbiological requirements

Packaged natural coconut water shall be in conformity with the microbiological quality specifications outlined in Table 2.

Table 2: Microbiological limits for Prepackaged Natural Coconut Water

Parameters	**Limits** **CFU/ml**
Total Aerobic Plate Count	$< 1.0 \times 10^4$
Total Coliform Count	<1.0 x 10
E. coli	Absent
Yeast & Mould Count	<250
Staphylococcus aureus	Absent
Salmonella	Absent
Listeria	Absent

4.3 Organoleptic requirements

The end product shall have the normal colour, flavour and odour characteristics of the natural coconut water.

4.4 Defective product

Packaged natural coconut water that fails to meet one or more of the applicable quality requirements, as outlined in 4.1 to 4.3 shall be considered as defective.

4.5 Standard requirements

The packaged natural coconut water shall have all the requirements outlined in 4.1 – 4.4 above in order to be considered safe for consumption.

4.6 Additional parameters

There are additional parameters that impact the quality of packaged natural coconut water. See Annex B (Table B1).

5 QUALITY CONTROL

Quality control shall be performed as set out in Section 4.4, Section 7 in accordance with Annex A and the CRCP 2.

6 FOOD ADDITIVES

No natural or artificial substance or ingredient shall be added to the coconut water to enhance its quality or preservation. Chemicals present in the product shall only be those which are there as a result of the natural development of the fruit while on the tree.

7 CONTAMINANTS

Packaged natural coconut water shall:

a) be free from adulterants and extraneous matter;

b) the heavy metals shall be as per table 3 below;

c) comply with the maximum pesticide residue limits established by the Codex Alimentarius Commission for similar products, as outlined in CODEX Alimentarius Commission Pesticide residues in food - maximum residue limits or the national competent authority; and

d) comply with the maximum residue limits established by the CODEX Alimentarius Commission or the national competent authority for other agents used in the growing process.

Table 3: Heavy metals limits for packaged natural coconut water

Heavy metals	Limits (mg/kg)
Arsenic	0.05
Cadmium	0.05
Lead	0.03
Mercury	0.01

8 HYGIENE

8.1 All steps in the packaging of natural coconut water shall be performed without unnecessary delay and under conditions which shall prevent the possibility of contamination, deterioration or the increase of pathogenic and spoilage micro-organisms.

8.2 Products covered by the provisions of this standard shall be prepared and handled in accordance with the appropriate sections of CRCP 2 and CRCP 5.

9 LABELLING

9.1 The labelling of packaged natural coconut water shall be in accordance with CRS 5. In addition, the following specific provisions apply:

a) the name of the product shall be ‘Packaged Natural Coconut Water’

b) (i) Where the product is presented in a chilled state, the label of the product shall include the statements ‘Keep refrigerated below 4 C’
(ii) Where the product is presented frozen, there shall appear on the label either in conjunction with, or in close proximity to, the name of the food, the word “Frozen Product”, to avoid misleading or confusing the consumer in regard to the true nature and physical condition of the food Clear statement of the instructions for storage and use “Keep Frozen”. Before consumption thawing should be done under refrigerated conditions at 4 °C. Do not refreeze”, “Shake well before use, refrigerate after opening”

b) The label should provide the best before date.

Annex A (normative): Product testing and sampling protocol

A.1 Product Testing

The food safety parameters should be confirmed by product testing by accredited laboratories. The product shall be tested in accordance with Table A.1.

Table 4: Product Testing

Parameter	Recommended Method	Alternate Method
Total Aerobic Plate Count (TAPC)	Salfinger and Tortorello (2015). 8.71 and 8.72 Mesophilic Aerobic Plate Count, Compendium of Methods for the *Microbiological Examinations of Foods* (5th edition), page 98. Washingston, D.C: APHA Press.	3M Rapid Petrifilm Aerobic Plate Count Method
Total coliform coli in foods	AOAC Official Method 991.14 Coliform & E.	3M Rapid Petrifilm Coliform Count
Staphylococcus aureus	BAM 12.0	Neogen Rapid Method (24hrs)
	3M Rapid Petrifilm Staphylococcus aureus	Equivalent Standard Method
	Plate Count (AOAC) Method 2001.05)	
E.coli	Direct count methods and 3M Petrifilm	
Yeast and Mould	AOAC Official Method 997.02 Yeast & Moulds count in foods	3M Rapid Petrifilm Yeast and Mould Count (normally 3 days) or Standard Method (5+ days)
Salmonella	BAM 5.0 and 5.1	Neogen Rapid Method (24hrs)
Listeria *	Neogen Rapid Detection System	30 hours

*Listeria has been added to the standard as it is now one of the organisms for which routine monitoring of foods is done for food safety.

A.2 Sampling Protocol

The sampling exercise is a critical activity, both for quality control and regulatory purposes, and shall follow the requirements below:

Samples for microbiological tests shall be:

a) Taken in a manner to avoid contamination
NOTE: Taken by trained persons (factory and/or regulatory personnel)

b) Representative samples (10 or more) shall be taken from each batch and composited, with duplicate sub- samples of appropriate volume being taken from the composite for analyses. Samples to be composited may be taken from packages of different sizes as long as the product contained in the packaging material is from the same batch of natural coconut water being assayed.

c) Samples shall be transported to the laboratory or for shipment to same at refrigeration temperatures (<4.0°C). For larger shipments being sampled for regulatory action, the sampling shall be carried out in a manner that ensures that it represents the lot/batch. Statistically sound sampling plans shall be developed.

d) Refrigerated samples shall be tested within 24 hours of being taken.

e) If transporting chilled samples is not possible due to distance and lack of appropriate containers, then samples shall be frozen within 24 hours of manufacture and transported frozen. Frozen samples shall be thawed in a refrigerator and once thawed should be tested as soon as possible and not greater than 24 hours after thawing. The process of thawing should not exceed 24 hours.

f) Frozen samples which thaw during transit shall be discarded or, if tested, the laboratory shall be informed that the sample integrity might be compromised due to inadvertent thawing.

g) When samples are to be transported across borders, then arrangements shall be made with the relevant Customs Authorities to reduce the time taken to clear the shipment.

Annex B (informative): Additional Quality Guidelines for Packaged Natural Coconut Water

Table 5: Quality Guidelines[1]

	Range g/100mL
Titratable Acidity % (vol/vol)	0.02 – 0.09
Total fat	0.02 - 0.2
Potassium content	>1,400ppm

1 Data derived from "6.27 Reference Guideline for Coconut Water/Juice – PROVISIONAL (Published May 2017), AIJN European Fruit Juice Association" and the Philippine National Standard PNS/BAFPS 28:2006 Chilled young coconut water/drink specification.

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