DRAFT SAINT LUCIA NATIONAL STANDARD

DNS 114

VIRGIN COCONUT OIL — SPECIFICATION

(Stage 40 – Enquiry Stage: JUNE 2017)

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GENERAL STATEMENT

The Saint Lucia Bureau of Standards was established under the Standards Act (No. 14 of 1990) and started operations on 01 April 1991. A broad-based 15-member Standards Council directs the affairs of the Bureau.

The Standards Act gives the Bureau the responsibility to develop and promote standards and codes of practice for products and services for the protection of the health and safety of consumers and the environment as well as for industrial development in order to promote the enhancement of the economy of Saint Lucia. The Bureau develops standards through consultations with relevant interest groups. In accordance with the provisions of the Standards Act, public comment is invited on all draft standards before they are declared as Saint Lucia National Standards.

The Bureau also administers the Metrology Act No. 17 of 2000. This legislation gives the Bureau the responsibility to regulate all weights and measures and to manage and co-ordinate the metrication of Saint Lucia.

The Bureau operates a Product Certification Scheme applicable to all products for which national standards exist. If a product satisfies all the requirements for certification, a licence to carry the Saint Lucia Standard Mark is issued to the manufacturer of the product. The presence of the mark on a product indicates that the product conforms to all the requirements of a specific national standard and assures consistent quality (of the product) to the consumer.

The Bureau is a member body of the International Organisation for Standardisation (ISO), an affiliate member of the International Electrochemical Commission (IEC) and a member of the CARICOM Regional Organisation for Standards and Quality (CROSQ) and the Pan American Standards Commission (COPANT). The Bureau is the local agent for several foreign standards bodies such as the British Standards Institution (BSI) and the ASTM International (formerly known as the American Society for Testing and Materials). The Bureau serves as the enquiry point for the World Trade Organisation (WTO) on matters pertaining to the Technical Barriers to Trade (TBT) Agreement. The Bureau also serves as the National CODEX Alimentarius enquiry point with responsibility for coordinating national positions on CODEX matters.

In accordance with good practice for the adoption and application of standards, Saint Lucia National Standards are subject to review every five years. Suggestions for improvements are always welcomed at any time after publication of the standard.

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AMENDMENTS ISSUED SINCE LAST PUBLICATION

Amendment No.	Date of Issue	Type of Amendment	Text(s) Affected

ATTACHMENT PAGE FOR SLBS AMENDMENT SHEET

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VIRGIN COCONUT OIL — SPECIFICATION

TECHNICAL COMMITTEE FOR NATIONAL CODEX, FOOD SAFTEY AND FOOD PRODUCTS

The following persons comprised the Technical Committee, which responsible for overseeing the formulation of this standard:

Chairman	**Representing**
Auria King-Cenac	Ministry of Agriculture, Fisheries, Physical Planning, Natural Resources & Cooperatives
Vice Chairman	
Cheddi St. Juste	General Interest
Members	
Cardee Alexis	Baron Foods Limited
Diodata Preville Alfred	Sir Arthur Lewis Community College
Ermine Herman	Caribbean Public Health Agency
Ernie Pierre	Ministry of Health & Wellness
Euthalia Philgence	General Interest
Loraine Francois	National Consumers' Association
Louvette Louisy	Caribbean Agriculture Business Association
Paula James	Saint Lucia Manufacturers' Association
Hubert Reynolds	Saint Lucia Bureau of Standards
Xanthe Dubuison	Saint Lucia Bureau of Standards
Jilian King	Saint Lucia Bureau of Standards
Kensha Neptune (Recording Secretary)	Saint Lucia Bureau of Standards
Tzarmallah Haynes (Technical Secretary)	Saint Lucia Bureau of Standards

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SUBCOMMITTEE FOR FATS AND OILS

The following persons comprised the Technical Committee which was responsible for the overseeing the adoption:

Chairperson	**Representing**
Desmond St Rose	Back to Roots
Members	
Brent Theophile	Inter-American Institute for cooperation on Agriculture
Euthalia Philgence	General Interest
Franka De Freitas	Natmed Limited/ Caribbean Blue Naturals
Ivan Prevose	Coconut Factory Saint Lucia
Peter Jean	Frootsy Foods Limited
Renee Deymers	Saint Lucia Manufactures Association
Suzette Lewis Jean	Ministry of Industry, Commerce, Enterprise Development and Consumer Affairs
Jilian King (Technical Secretary)	Saint Lucia Bureau of Standards
Kensha Neptune (Recording Secretary)	Saint Lucia Bureau of Standards

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Foreword

This national standard is a newly developed standard that provides essential composition, quality characteristics, labelling and methods of analysis for the manufacturing of virgin coconut oil. This new national standard was approved by the Standards Council on…

Virgin Coconut Oil (VCO) is obtained from fresh and mature kernel (12 months old from pollination) of the coconut (Cocos nucifera L.) by the mechanical or natural means with or without the application of heat, which does not lead to alteration of the nature of the oil. Virgin Coconut Oil (VCO) has not undergone chemical refining, bleaching or deodorizing. It can be consumed in its natural state without the need for further processing.

Virgin Coconut Oil (VCO) consists mainly of medium chain triglycerides, which are resistant to peroxidation. The fatty acids in virgin coconut oil are distinct from animal fats which contain mainly of long chain saturated fatty acids. Virgin coconut oil is colourless, free of sediment with natural fresh coconut scent. It is free from rancid odour or taste.

The manufacturing of Virgin Coconut Oil in Saint Lucia is growing. Virgin coconut oil is used for cooking, medicinal purposes and cosmetic products. It is vital for manufacturers, retailers and consumers to have a fundamental understanding of the requirements for Virgin Coconut Oil to ensure that the product offered is safe for consumption and of good quality.

In development of this standard assistance was derived from the following:

— Philippine national standards PNS/BAFPS 22: 2004 virgin coconut oil;

— CODEX Alimentarius Standard Vegetable oils 210-1999. Revision 2001, 2003, 2009. Amendment 2005, 2011;

— Processing manual for virgin coconut oil, its Products and By-products for Pacific Island Countries and Territories;

— Virgin Coconut oil production manual for micro and village-scale processing;

— Asian Pacific Coconut Community Standards for virgin coconut oil.

1 Scope

This standard specifies the commercial quality requirements and methods of testing for virgin coconut oil intended for human consumption.

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.

American Organization of American Chemists

— *AOAC Official Methods, Official Methods of Analysis of AOAC International*

American Oil Chemists' Society (AOCS)

— *AOCS Cd 8d-90, Peroxide Value Acetic Acid-Isooctane Method*

International Organization for Standardization

— ISO 6321, *Animal and vegetable fats and oils — Determination* of *melting point in open capillary tubes (Slip point)*

— ISO 662, *Animal and vegetable fats and oils — Determination* of *moisture and volatile matter Content*

— ISO 6883, *Animal and vegetable* fats *and oils — Determination* of *conventional mass per volume (litre weight in air)*

— *ISO 3961 Animal and vegetable fats and oils —Determination of iodine value*

— *ISO 6320, Animal and vegetable fats and oils —Determination of refractive index*

— *ISO 3657, Animal and vegetable fats and oils — Determination of saponification value*

— *ISO 3596, Animal and vegetable fats and oils —Determination of unsaponifiable matter —Method using diethyl ether extraction*

— *ISO 15305, Animal and vegetable fats and oils — Determination of Lovibond colour*

Saint Lucia Bureau of Standards

— *SLNS 1-3, Labelling of retail packages of commodities – Part 3: Labelling of pre-packaged foods*

— *SLCP 1-1, Code of practice for general principles of food hygiene – Part 1: Food production and processing.*

3 Terms and definitions

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

3.1 virgin coconut oil

oil obtained from the mature kernel of the coconut *(Cocos nucifera* L.) by mechanical or natural means with or without the application of minimal heat which does not lead to alteration of the product

4 Identity characteristics

The product shall meet the chemical and physical properties as specified in Table 1.

Table 1 — Chemical and physical properties

Parameter	Range
Relative density, 40 °C / water at 20 °C	0.908 – 09.926
≤ Refractive index, at 40 °C	1.447 – 1.450
Saponification value, mg KOH/g oil	248 – 265
Iodine value, Wijs method	5.5 – 10.6
Slip Melting Point, °C	24 – 26
Unsaponifiable matter, %	≤ 0.2

5 Essential composition and quality characteristics

5.1 Fatty acid composition

Fatty acid composition of the product shall fall within the appropriate ranges as specified in Table 2.

Table 2 — Fatty acid composition

Common name	Carbon name	Composition, %
Caproic acid	$C_{6:0}$	ND – 0.95
Caprylic acid	$C_{8:0}$	4.5.00 – 10.00
Capric acid	$C_{10:0}$	5.00 – 8.00
Lauric acid	$C_{12:0}$	45.00 – 56.00
Myristic acid	$C_{14:0}$	16.00 – 21:00
Palmitic acid	$C_{16:0}$	7.50 – 10.2
Palmitoleic acid	$C_{16:1}$	Non- detectable
Stearic acid	$C_{18:0}$	2.00 – 4.00
Oleic acid	$C_{18:1}$	5.00 – 10.00
Linoleic acid	$C_{18:2}$	1.00 – 2.5
Linolenic acid	$C_{18:3}$	Non-detectable-0.2

5.2 Quality characteristics

Virgin coconut oil shall meet the quality characteristics as specified in Table 3.

Table 3 — Quality characteristics

Parameter	Range/Description
Clarity/ Colour	Water clear (A fully transparent oil at or above 30 °C)
Odour and taste	Free from foreign and rancid odour and taste
Free fatty acids, max	0.5 %
Peroxide value, max	maximum 3 meq/ kg oil
Moisture	< 0.2 %
Total Plate Count	< 10 cfu/ml
Insoluble impurities	< 0.05 %

6 Contaminants

6.1 Volatile matter

Virgin coconut oil shall contain < 0.2 % volatile matter at 105 °C when tested according to ISO 662.

6.2 Pesticide residues

Virgin coconut oil shall be free from any pesticide residues.

6.3 Heavy metals

Virgin coconut oil shall comply with the following maximum limits of heavy metals as outlined in Table 4.

Table 4 — Maximum limits of heavy metals

Metal	Maximum limit mg/kg
Iron	5.0
Copper	0.4
Lead	0.1
Arsenic	0.1

7 Hygiene

It is recommended that virgin coconut oil be prepared and handled in accordance with the requirements of *SLCP 1-1, Code of practice for general principles of food hygiene – Part 1: Food production and processing*.

8 Packaging and labelling

In addition to the requirements of *SLNS 1-3 Labelling of retail packages of commodities Part 3 Labelling of pre-packaged foods*, each individual package shall be marked to give the following information:

a) name of product "virgin coconut oil";

b) brand name or trade name;

c) net content; in SI units;

d) lot or batch identification;

e) name and address of the manufacturer and/or packer, or distributor;

f) directions for use (optional);

g) process of manufacture;

h) best before; and

i) nutritional values.

9 Methods of analysis

Product analysis shall be carried out according to the method specified in Table 5.

Table 5 — Methods of analysis

Parameter	Method
Relative Density	ISO 6883
Refractive Index	ISO 6320
Saponification Value (SV)	ISO 3657
Iodine Value (IV)	ISO 3961
Unsaponifiable matter	ISO 3596
Slip Melting Points (SMP)	ISO 6321
Free fatty acids composition	AOAC Ce 1e-91
Moisture and Volatile matter content	ISO 662
Peroxide Value (PV)	AOCS Cd 8d-90
Lead, Iron, Copper	AOAC 999. 11
Arsenic	AOAC 986-15
Total Plate Count	AOAC 966.23
Colour	ISO 15305

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