SAINT LUCIA NATIONAL STANDARD

**SLNS 17: 1992**

# Specification for Biscuits



SAINT LUCIA BUREAU OF STANDARDS
Making Quality & Standards Our Way of Life

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# SPECIFICATION FOR BISCUITS





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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 Standards 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 Organization for Standardization (ISO), an affiliate member of the International Electrochemical Commission (IEC) and a member of the Caribbean Regional Organization 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 American Standards for Testing and Measurement (ASTM). The Bureau also serves as the enquiry point for the World Trade Organization (WTO) on matters pertaining to the Technical Barriers to Trade (TBT) Agreement.

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.



 

# SPECIFICATION FOR BISCUITS

## AMENDMENTS ISSUED SINCE LAST PUBLICATION

| Amendment No. | Date of Issue | Text(s) Affected |
|---|---|---|
| | | |
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| | | |
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**ATTACHMENT PAGE FOR SLBS AMENDMENT SHEET**



 

## Table of Contents

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## 0 FOREWORD

**0.1** This standard has been prepared through the Saint Lucia Standards Council to set levels of quality for biscuits manufactured and traded in Saint Lucia and within the Caribbean Community. It was approved by the Standards Council.

**0.2** Biscuits conforming to this standard, which are made under an approved system of quality assurance, may be identified by the Saint Lucia Standard Mark which is administered by the Saint Lucia Bureau of Standards (SLBS). This programme is supported by the Caricom Export Development Project.

**0.3** This standard sets out the basic requirements for biscuits, and their ingredients, and describes methods of sampling and analysis to be used.

**0.4** In preparing this standard Barbados Standard, BNS 163: 1985 was used as a guide.

**0.5** This standard will be reviewed, and may be revised from time to time to allow for changes in manufacturing technology or in consumer preferences in the Caribbean Community.

## 1 SCOPE

**1.1** This standard prescribes basic and general requirements for biscuits to be sold in the Caribbean Common Market.

**1.2** Biscuits may also be subject to regulation under the food laws of some territories, and conformity to this standard should help manufacturers to meet the legal requirements.

**1.3** This standard does not apply to "crackers", which are covered by a separate standard (in preparation).

## 2 DEFINITIONS

**2.1** **Biscuits** are baked foods with a crisp or brittle texture, consisting mainly of cereal flour and edible fats with other ingredients and having a low concentration of moisture.

**2.1.1** **Coated biscuits** are biscuits which are coated on one or both surfaces with an edible ingredient such as caramel, chocolate, or sugar icing. Coated biscuits may also contain a filling.

**2.1.2** **Filling biscuits** are pairs of biscuits joined by a sandwich filling of edible ingredients such as caramel, cream, flavoured gelatine, fruits, jams, jellies or nuts.

**2.1.3** **Cream** for the purpose of this standard, includes a homogeneous mixture of shortening, icing sugar, flavours and food colours, with or without other ingredients.

## 3 REQUIREMENTS FOR INGREDIENTS

### 3.1 Basic Ingredients

The basic ingredients to be used in biscuits are:

(a) wheat flour;

(b) edible fats or oils such as refined vegetable oil, hydrogenated vegetable oil, butter oil, butter, or margarine or shortening derived from vegetable oil, marine oils, or hydrogenated marine oils;

(c) potable water;

(d) edible common salt (sodium chloride).

### 3.2 Optional Ingredients

The optional ingredients which may be used in the manufacture of biscuits are classified as:

(a) cereals and cereal products;

(b) edible starches;

(c) enzymes and gluten conditioners;

(d) food additives;

(e) fruits, nuts, and their products;

(f) leavening or raising agents;

(g) milk or milk products;

(h) nutrients;

(i) oil seeds and their products;

(j) spices;

(k) sugars.

**3.2.1** Annex A lists examples of these optional ingredients, arranged by class.

**3.2.2** The optional ingredients shall conform to recognised standards or specifications of identity, purity and safety, suitable for use in human foods. Natural products such as cereals, fruits, nuts, oil seeds, spices shall be of grades suitable for use in biscuit manufacture.



 

## 4 REQUIREMENTS FOR FOOD ADDITIVES

**4.1** Food additives (such as those listed in A-4.0 of Annex A) shall be used in accordance with good manufacturing practice, and in amounts which, in the final product, do not exceed the limits set by law.

**4.2** Food additives shall conform to recognised specifications or standards of identity and purity, such as those issued by FAO or the USFDA.

**NOTE 1** Synthetic food colours should not exceed 0.03% by weight (300 ppm).

**NOTE 2** Sodium sulphite, disulphite, or metabisulphite in biscuits should not exceed 500 ppm, calculated as sulphur dioxide.

**NOTE 3** The antioxidants, butylated hydrozyanisole and butylated hydroxytoluene (BHA, BHT) may be used on some packaging materials in contact with biscuits, in accordance with good manufacturing practice.

## 5 REQUIREMENTS FOR BISCUITS

### 5.1 General Requirements

The biscuits shall be properly baked so that they are crisp, and have a uniform texture and appearance. They shall have an agreeable flavour, typical of their type, free from soapy, bitter or unpleasant after taste.

**5.2** Biscuits shall be free from fungus or mould, traces of insect or rodent infestations, rancid flavours or odours.

**5.3** Biscuits shall conform to the requirements set out in Table 1 when sampled and tested in accordance with Section 10.0 and 11.0.

**TABLE 1**

**REQUIREMENTS FOR BISCUITS**

(Section 5.3)

| Characteristic | Requirement | Test Method |
|---|---|---|
| Moisture, percentage | Maximum 6.0 % m/m | Annex B |
| Acid Insoluble Ash | Maximum 0.6 % m/m on a dry basis | Annex C |
| Acidity of Extracted Fat, as oleic acid | Maximum 1.0 % m/m | Annex D |

## 6 HYGIENE

**6.1** Biscuits shall be manufactured, packaged, transported and stored in accordance with codes of hygienic practice that are approved by the competent authority.

**6.2** Particular attention should be given to the preventation of contamination of ingredients, equipment, and packaging materials by dirt, mould, insects, rodents or other vermin, to the personal cleanliness of all staff handling the product between baking and the packaging operation, and to proper house-keeping and sanitation in the manufacturing plant.

## 7 PACKAGING

**7.1** Biscuits shall be packed in such a way as to protect them from breakage, contamination, absorption of moisture, and seepage of fat from the biscuits, into the packaging materials. Packages shall be sealed to prevent attack by insects or other infestation.

**7.2** Biscuits shall not come into direct contact with packing materials other than grease-proof paper, cellulose film, non-toxic plastic trays, or any other non-toxic approved packaging material, which may be covered with a moisture-proof plastic film or laminated foil, waxed or coated paper.

**7.3** Biscuits packaged in metal containers, other than those made of tinplate, shall not come into direct contact with the metal walls.

## 8 MARKING AND LABELLING

**8.1** Biscuits may be marked with any indented or raised design, which should be clearly reproduced and should not convey any misleading information.

**8.2** Labelling on retail packages of biscuits shall be in the English language, clearly and prominently displayed and readily legible under customary conditions of purchase and use. Information presented in other languages shall be clearly separated from that in English.

**8.2.1** The information carried on the label shall include:

(a) the brand name or trade name, if any;

(b) an indication of the type of biscuits (for example, cookies, crackers, creams, crisp bread, wafers, or sandwich);

(c) the name of the manufacturer or of the person controlling the brand or trade name, together with an adequate postal address;

(d) the name of the country of origin;

(e) a complete list of ingredients in descending order of proportion by weight, either by name or using a class name mentioned in Section 3.1, 3.2; colours, flavours,



 

Leavening agents and preservatives may be described as "approved" or "permitted";

(f) the average net contents of each package when packed in terms of mass in grams (g) or kilograms (kg) (which may also be shown in avoirdupois ounces or pounds), using Arabic numerals).

**8.2.2** It is recommended that either that a batch or lot number be included on the label, and an expiry date of the form.

**"Best before 90-09-09"**
or
**"Use before 90-09-09"**

## 9 QUALITY ASSURANCE

**9.1** To be eligible for a licence to use the Saint Lucia Standard Mark the manufacturer shall operate a quality assurance system conforming to the general requirements of International Standard ISO 9002-1987, using adequate staff, sampling procedures and testing equipment as approved by the national standards body.

**9.2** An approved quality assurance system may include sampling or testing procedures suited to routine or continuous production that differ from those mentioned in Section 10 and 11.

**9.3** It is recommended that biscuits to be exported outside Saint Lucia be produced under an approved quality assurance system.

## 10 SAMPLING

**10.1** The following precautions shall be observed in drawing, preparing, storing and handling samples of biscuits intended to testing:

(a) samples shall be taken in a place protected from exposure to damp air, dust or soot;

(b) the samples, product, the container for sample, and any sampling equipment shall be protected against contamination;

(c) samples consisting of loose biscuits or small retail packs shall be placed in clean, dry airtight containers of metal or glass, or in sealable moisture proof plastic bags;

(d) samples shall be stored at room temperature;

(e) the containers used shall be sealed and marked with the date, time, and place of sampling, and other identifying details.

### 10.2 Sampling from a Lot

**10.2.1** In this section, a lot means all the product in a place or consignment that is drawn from the same manufacturing batch. If a consignment consists of product from different batches, and they can be separated, each group shall constitute one lot.

**10.2.2** The number of containers in the lot to be sampled depends on the size of the lot, and shall be in accordance with Table 2.

**TABLE 2**

**NUMBER OF CONTAINERS OF BISCUITS TO BE SAMPLED IN A LOT**

| Number of Containers in Lot (N) | Number of Containers to be sampled (n) |
|---|---|
| Up to 50 | 2 |
| 51 to 150 | 3 |
| 151 to 300 | 4 |
| 301 to 500 | 5 |
| 501 and over | 7 |

**10.2.3** The containers to be sampled shall be selected at random, using random number tables. If such tables are not available, choose every r-th container, by starting to count at any one, and counting 1, 2, 3 ...r, where r is the whole number part of the fraction N/n, until n of the containers have been selected.

### 10.3 Size of Sample Drawn from a Lot

**10.3.1** About 200 g of biscuits shall be taken from each container selected from sampling, which may be loose biscuits, or at least two of the retail packs therein.

**10.3.2** One retail pack (or about 100 g of loose biscuits) from each container shall be set aside in a sealed, labelled sample container for examination and inspection for conformity with Section 5.1 and 5.2.

**10.3.3** The remainder of the sample drawn from a container, if in a retail pack, shall be weighed before and after opening and emptying it, and the net contents calculated by difference.

**10.3.4** Loose biscuits, or the biscuits taken from retail packs, shall be stored in sealed containers, labelled with the number of the container in the lot they were taken, until needed for sample preparation.

### 10.4 Preparation of Test Sample

**10.4.1** The biscuits from each sampled container shall be ground separately, as soon as



 

possible. any coating or filling shall be carefully removed by gentle scraping. Grinding shall be done in a dry atmosphere.

**10.4.2** (a) About 15 g of ground biscuits from each sampled container shall be placed immediately after grinding in the sealed container, labelled appropriately (including the number of the sampled containers), for use in the test for moisture content.

(b) the rest of the ground biscuit from each sampled container shall be placed in one single container, representing the whole, and thoroughly mixed by shaking to produce a composite sample for use in the tests for ash and acidity of extracted fat.

**10.5** In the event of a dispute between a purchaser and the vendor as to the acceptability of a lot of biscuits, the procedure given above may be followed, using three times the amounts mentioned, to give separate sets of samples for the vender, the purchaser, and for reference.

## 11 METHODS OF TEST

**11.1** Samples of biscuits taken as described in 10.3.4 shall be examined and inspected for conformity to be requirements of section 5.1 and 5.2.

**11.2** The sample of ground biscuit representing each of the containers sampled (see 10.4.2 (a)) shall each be tested by the method given in Annex B for moisture content.

**11.3** The composite sample of ground biscuit (see 10.4.2 (b)) shall be tested by the methods given in Appendices C and D for content of acid-insoluble ash and for acidity of extracted fat.

**11.4** These methods should also be used in routine quality assurance, but other methods which are more rapid and of equal or comparable accuracy may be used.

## 12 CONFORMITY

**12.1** The lot sampled shall be deemed to conform to this standard if:

(a) examination of samples taken as in 10.3.4 show that they meet the requirements of 5.1 and 5.2;

(b) tests for the moisture content of each sample of biscuits taken as in 10.4.2 (a) shown that each satisfies the requirements of Table 1;

(c) test on the composite sample of biscuit for acid-insoluble ash and acidity of extracted fat show that it satisfies the requirements of Table 1;

(d) the average net contents of retail packages is found to be not less than that declared on the label, and

(e) the labelling of retail packages is in accordance with Section 8.

**12.2** Biscuits produced under an approved quality assurance scheme shall be deemed to conform to this standard if test results obtained for routine samples taken from production satisfy the requirements of Sections 5.1, 5.2 and Table 1, and if the labelling of retail packages is in accordance with Section 8, and if the average net contents is not less than that declared on the label.



 

## ANNEX A
(normative)

## OPTIONAL INGREDIENTS WHICH MAY BE USED IN THE MANUFACTURE OF BISCUITS

(Section 3.2)

**A - 1 Cereal and Cereal Products**

Barley, barley powder,
Malt, malt flour;
Oat flour, oat brain;
Wheat brain.
Wheat germ,
Wheat meal;
Whole wheat meal;

**A - 2 Edible Starches**

Arrowroot starch;
Cassava starch (or tapioca);
Corn (maize) starch;
Potato starch;
Rice starch;
Sweet potato flour.

**A - 3 Enzymes and Gluten Conditions**

Amylases;
Proteolytic enzymes;
Sodium disulsphite and metabisulphite.

**A - 4 Food Additives**

Antioxidants - citric acid, tartaric acid;

Colours - natural and synthetic food colours that are recognised as safe for use in foods under the laws of Canada, the European Community, or the United States of America, or that are included in the Codex Alimentarius issued by FAO/WHO;

Emulsifying agents;
Flavours - natural and synthetic, in solutions or essences.

**A - 5 Fruits, nuts, and their Products**

Coconuts, creamed, fresh, or desiccated;
Dried fruits - for example, currents, raisins;
Edible nuts - for example, almonds, hazel; Pectin;
Preserved fruits - jams, jellies, marmalades, candied peel, candied cherries.

**A - 6 Leavening or Raising Agents**

Active bakers yeast;
Ammonium Carbonate or bicarbonate;
Baking powder;
Sodium bicarbonate;
Other chemical leavening agents that are officially approved or generally recognised as safe.

**A - 7** **Milk or Milk Products**

Milk, whole milk, liquid milk;
Milk powder, dry milk;
Skim milk powder, dry skim milk;
Sweetened condensed milk;
Buttermilk.
Casein;
Whey solids;
Cheese;
Cheese flavours;

**A - 8** **Nutrients**

Calcium carbonate;
Calcium phosphates;
Lysine monochloride.
Protein concentrates
Vitamins;

**A - 9** **Oil Seeds and their Products**

Edible cottonseed flour
Edible groundnut flour
Edible soybean flour
Peanuts.
Peanut butter;
Sesame seeds;
Soya beans;

**A – 10** **Spices**

Cardamon;
Caraway;
Cumin;
Ginger;
Saffron;
Other spices.

**A – 11** **Sugars**

Dextrose (glucose);
Fructose;
High Fructose starch
Syrup;
Honey;
molasses;
Invert sugar.
Lactose;
Liquid glucose;
Malt extract;
Molasses;
Sucrose (cane sugar) Invert

**A - 12** **Miscellaneous**

Chocolate;
Cocoa powder;
Coffee powder.
Edible vegetables;
Flavoured gelatine;

**ANNEX B**
(normative)

**DETERMINATION OF MOISTURE**

(Table 1)

**B – 1 Apparatus**

(a) *Moisture Dish* - made of porcelain, silica, glass or aluminium.

(b) *Oven* - electric, maintained at $150^{o} \pm 1^{o}C$.

(c) *Desiccators*

**B – 2 Procedure**

Weigh accurately about 5 g of the prepared sample (see 10.4.2) in the moisture dish previously dried in the oven and weighed. Place the dish and the sample in the oven, at a temperature of $105^{o}C \pm 1$, for 4 hours. Cool in the desiccator and weigh. Repeat the process of drying, cooling and weighing at one-hour intervals until the difference between two consecutive weighings is less than one milligram. record the lowest mass.

**B – 3 Calculation**

**B - 3.1** Moisture, percent by mass $= 100 \dfrac{(w_1 - w_2)}{w_1 - w}$

Where

$w_1$ = mass, in g, of the dish with material before drying

$w_2$ = mass, in g, of the dish with material after drying to constant mass

$w$ = mass, in g, of the empty dish.

## ANNEX C
(normative)

## DETERMINATION OF ACID-INSOLUBLE ASH

(Table 1)

**C – 1 Apparatus**

(a) *Dish* - Silica or porcelain

(b) *Muffle Furnace* - maintained at $600^{o} \pm 20^{o}C$

(c) *Water Bath*

(d) *Desiccator*

**C – 2 Reagent**

Dilute hydrochloric acid, approximately 5M.

**C – 3 Procedure**

**C - 3.1** Weigh accurately about 20 g of the biscuit powder (10.4.2 (b) in the dish and ash in the muffle furnace at $600 \pm 20^{o}C$ until light fresh ash is obtained. Remove the dish from the furnace and allow to cool at room temperature. And 25 ml of hydrochloric acid to the dish, cover with a watch glass and heat on the water-bath for 10 minutes. mix the contents with the tip of a glass rod and filter through Whatman filter paper No. 42 or its equivalent. Wash the filter paper with water until the washings are free from acid (test with litmus paper). Return the washed filter paper to the dish for ashing in the furnace. Cool the dish in a desiccator and weigh. Repeat the process of ashing, cooling and weighing until the difference between two successive weighings is less than 1 mg. Filter 25 ml of the hydrochloric acid through a blank filter paper, wash, ash and weigh it as in the case of the insoluble paper, wash, ash and weigh it as in the case of the insoluble ash. Subtract its mass from that of the insoluble ash of the sample $w_1$.

**C – 4 Calculation**

**C - 4.1** Acid-insoluble ash, percent by mass $(A) = 100 \dfrac{(w_1 - w)}{w_2}$

Where

$w_1$ = mass, in g, of the dish containing acid-insoluble ash

$w_2$ = mass, in g, of the empty dish in which the sample is taken for ashing.



 

**C - 4.2** Acid insoluble ash, percent by mass (by basis)

$$= \frac{A \times 100}{100 - b}$$

Where

A = Acid-insoluble ash percent by mass (B - 4.1)

b = percentage of moisture in the biscuit (A - 3.1).

## ANNEX D
**(**normative**)**

## DETERMINATION OF ACIDITY OF EXTRACTED FAT

(Table 1)

**D – 1** Apparatus

*Soxhlet Apparatus* - with a 250 ml flat-bottom flask.

**D – 2** Reagents

(a) *Petroleum Ether* - boiling point 40° to 80°C.

(b) *Benzene-Alcohol-Phenolphthalein Stock Solution* -
to one litre of distilled benzene add one litre of alcohol or rectified spirit and 0.4 g of phenolphthalein. Mix the contents well.

(c) *Standard potassium Hydroxide Solution* - 0.05M.

**D – 3 Procedure**

**D - 3.1** Weigh accurately about 10 g of biscuit powder (10.4.2 (b)) and transfer it to the thimble and plug it at the top with extracted cotton and filter paper. Dry the thimble with the contents for 15 to 30 minutes at 100°C in an oven. Weigh the dry empty Soxhlet flask. Extract the fat in the Soxhlet flask for 3 to 4 hours and evaporate off the solvent in the flask on a water bath. Remove the traces of the residual solvent by keeping the flask in the hot air oven for about half an hour. Cool and weigh the flask, then add 50 ml of benzene-alcohol-phenolphthalein reagent (D - 2 (b)) and titrate with potassium hydroxide from a 100 ml burette until a distinct pink colour is formed. If the contents of the flask become cloudy during titration, add another 50 ml of reagent and continue titration. Make a blank titration of the 50 ml reagent and subtract the blank titre from the titre of the fat.

**D – 4 Calculation**

**D - 4.1** Acidity of extracted fat (as oleic acid), percent by

$$mass = \frac{1.41 \times v}{w_1 - w}$$

Where

v = volume of 0.05 M potassium hydroxide solution used in titration after subtracting the blank,

$w_1$ = mass, in g, of Soxhlet flask containing fat and

w = mass, in g, of the empty Soxhlet flask

**END OF DOCUMENT**



 

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