



BAHAMAS NATIONAL STANDARD

PROCESSED FOODS – WHEAT FLOUR – SPECIFICATION FDBNS CRS 64:2022

Bahamas Bureau of Standards & Quality (BBSQ)
Verizon Business Park, 1000 Bacardi Road
P.O. Box N- 4843, Nassau, New Providence, Bahamas
Tel: (242) 362-1748 thru 56
Fax: (242) 362-9172
Email: standards@bbsq.bs
Website: www.bbsq.bs



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Our address:

Bahamas Bureau of Standards and Quality (BBSQ)

Verizon Business Park

1000 Bacardi Road

P.O. Box N-4843

Nassau, New Providence

Bahamas

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BBSQ Foreword

This draft national standard is identical to the CARICOM Regional Organisation for Standards and Quality CRS 64:2022. The national committee responsible for reviewing this standard is Technical Committee 15 Food and Food Products. The standard contains the requirements relevant for The Bahamas.

BBSQ Committee Representation

This Bahamas National Standard was adopted as a national standard under the supervision of the National Technical Committee for Food and Food Products (NTC 15) hosted by The Bahamas Bureau of Standards and Quality which at the time comprised of the following members:

Member	Representing
Dr. Patricia Johnson	Bahamas Food Safety Authority
Ms. Shania Smith	Department of Environmental Health Services
Ms. Destinae Munroe	Department of Environmental Health Services
Ms. Kristen Brochu	University of the Bahamas
Ms. Kellie Rolle	Bahamas Food Safety Authority
Mr. Kimball Stubbs	Bahamas Food Safety Authority
Mr. Robert Butler	Ministry of Education
Ms. Raquel Turnquest	Bahamas Department of Education
Ms. Theresa Dorsett	Office of the Auditor General
Ms. Mona Nixon	Bahamas Agricultural and Industrial Corporation
Mr. Joshua Symonette	Independent
Ms. Sheri Fountain	The Bahamas Agriculture Marine Science Institution
Ms. Yvette R. Charlton	Presidential Suites
Ms. Marissa Stubbs	Consumer
Ms. Micah Carey	Quiose Wines
Ms. Sharmaine Smith-Farah	Bahamas Ministry of Tourism Investments & Aviation

Ms. Felistar Butler	Bahamas Food Safety Authority
Ms. Shandera Smith	Ministry of Health & Wellness
Ms. Lathera Lotmore-McKenzie	Ministry of Health & Wellness
Ms. Patrice Adderley	We Buy Sell
Ms. Tamara Munroe	Independent
Mr. Peter Bethell	Police
Mr. Owen Coakley	Princess Margaret Hospital
Ms. Camelta Barnes	Ministry of Health and Wellness
Ms. Michelle Bowleg	Cryshelle's tasty tingz & Cryshelle's Infused Drinks
Mr. Tony Smith	Andros Crab Farm
Ms. Charo Morley	Bahamas Chamber of Commerce
Ms. Tonjia Burrows	Bahamas Agricultural and Industrial Corporation
Ms. Kimberly Trowers	Bahamas Agricultural Health & Food Safety Authority
Ms. Melvern E. Symonette	Public Hospitals Authority – Princess Margaret Hospital
Ms. Camille Stephen	Princess Margaret Hospital
Ms. Joyanne Thompson	University of The Bahamas
Mr. Owen Coakley	Princess Margaret Hospital
Ms. Denise Worrell	Naturally Bahamian
Mr. Long Water	Long Bay Enterprises T/A Out Island Water Company
Mr. Andre Newbold	Royal Bahamas Defense Force
Officer Ingraham	Royal Bahamas Defense Force
Mr. Troy Smith	Andros Crab Forum
Ms. Ethuce Cooper	Ministry of Social Services
Dr. Cherita Moxey	Ministry of Health and Wellness
Ms. Nastazia Hepburn	Ministry of Health and Wellness
Mr. Delmon Rolle	Ministry of Agriculture

Ms. Tiara Stubbs

Ministry of Finance

Ms. Avis Richardson

Food Safety Testing Laboratory

Mr. Elvis Bullard

Royal Bahamas Defense Force

Ms. Greg Rolle

Cryshelle's Tasty Tingz

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CARICOM REGIONAL STANDARD

PROCESSED FOODS – WHEAT FLOUR – SPECIFICATION

CRS 64: 2022



Caribbean Community



CARICOM Regional Organisation for Standards and Quality (CROSQ)

2nd Floor Baobab Tower

Warrens

St Michael

Barbados

T: 246.622.7670 | F: 246.622.7678

Website: <http://www.crosq.org>

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2nd Floor, Baobab Tower

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Website: <http://www.crosg.org>

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ATTACHMENT PAGE FOR CRS AMENDMENT SHEETS

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Committee representation

This CARICOM Regional Standard was developed under the supervision of the Regional Project Team for Wheat flour, hosted by CARICOM Member State Guyana which at the time comprised of the following members:

Member	Representing
Mr. Raymond Ramsaroop (Chairperson)	Guyana Manufacturers and Services Association
Ms. Taijwattie William	National Milling Company Guyana Limited
Ms. Gillian Trim	Food Policy Division, Guyana
Ms. Donette Bobb	Government Analyst Food and Drug Department, Guyana
Mr. Trevor Nero	Banks DIH Limited, Guyana
Ms. Lanel Black	East Caribbean Group of Companies, St. Vincent and the Grenadines
Ms. Kiri Charles	ADM Caribbean Agro Industries Limited, Grenada
Ms. Sandra Newton	ADM Mills Limited, Barbados
Ms. Tzarmallah Joseph (Observer)	St. Lucia Bureau of Standards
Ms. Andrea Mendonca (Technical Secretary)	Guyana National Bureau of Standards

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Foreword

This CARICOM Regional Standard 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 52nd Meeting in June 2021.

This CARICOM Regional Standard is intended to provide a uniform level of acceptable quality for wheat flour manufactured and traded in the CARICOM Community. It specifies the requirements for wheat flour and the methods of tests which can be used for verifying the quality, nutrient values, and the microbiological content of the wheat flour. The methods of sampling were extracted from international standards; namely CODEX, AOAC International, Food and Drug Administration/Bacteriological Analytical Manual and the International Organization for Standardization; and listed as normative references and bibliography of this standard.

In formulating this standard considerable assistance was derived from the following: CARICOM Regional Organisation of Standards and Quality

Standard

- CRS 5, *Labelling of prep-packaged foods*

CODEX Alimentarius Commission Standard

- CODEX Stan 152:1985, *Standard for wheat flour*
- CODEX Stan 193:1995, *General Standard for contaminants and toxins in food and feed*

Guyana Standard

- GYS 33: 2003, *Specification for wheat flour*

Saint Lucia National Standard

- SLNS 24: 2015, *Specification for wheat flour*

1 Scope

This CARICOM Regional Standard specifies the characteristics of wheat flour for human consumption prepared from *Triticum aestivum* L. (common wheat) or, *Triticum compactum* Host (club wheat) or mixtures thereof which is pre-packaged for sale or sold in bulk.

This standard is applicable to “self-rising flour”.

This CARICOM Regional Standard is not applicable to:

- a) any product made from durum wheat (hard wheat, *Triticum durum* Desf.), singly or in combination with other wheat;
- b) the following products:
 - 1) whole meal,
 - 2) whole wheat flour or semolinas,
 - 3) farina milled from *Triticum aestivum* L. (common wheat), *Triticum compactum* Host (club wheat), or mixtures thereof,
 - 4) wheat flour to be used in brewing, for the production of starch or gluten, or for non-food industrial use;
 - 5) wheat flour in which the protein content has been reduced;
 - 6) wheat flour after the milling process which has been subjected to special treatments other than bleaching or drying;
 - 7) wheat flour which have been added ingredients other than those stipulated in this standard.

2 Normative references

The following documents are referred to in the text in such a way that some or all 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.

AOAC International

AOAC International Official Method 942.23, Thiamine (Vitamin B1) in Human and Pet Foods
AOAC International Official Method 944.02, Iron in Flour Spectrophotometric Method
Final Action
AOAC International Official Method 944.03, Calcium in Flour titrimetric Method
First Action
AOAC International Official Method 961.14, Niacin and Niacin amide in Drugs, Foods and Feed
AOAC International Official Method 970.65, Riboflavin (Vitamin B2) in Foods and Vitamin Pr.

AOAC International Official Method 986.15, Arsenic, Cadmium, lead, Selenium and Zinc
AOAC International Official Method 986.32/990.12, Aerobic Plate Count in Foods

AOAC International Official Method 990.11/991.14, Coliform and *Escherichia coli* counts in food
AOAC International Official Method 2000.06/998.09, Salmonella in foods

AOAC International Official Method 995.21/997.02, Yeast and Mould Counts in foods

AOAC International Official Method 975.55/987.09/2001.05/2003.07, *Staphylococcus aureus* in foods

CODEX Alimentarius Commission

CODEX STAN 192, General Standard for food additives
CAC/GL 50, General guidelines on Sampling

International Organization for Standardization

ISO 712, Cereals and cereal products- Determination of moisture content-Reference method
ISO 16050, Foodstuffs- Determination of aflatoxin B1 and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products-High performance liquid chromatographic method
ISO 1871, Food and feed products-General guidelines for the determination of nitrogen by the Kjeldahl method
ISO 2171, Cereals, pulses, and dry products- Determination of ash yield by incineration
ISO 24333, Cereal and cereal products-Sampling

3 Terms and Definitions

3.1

enriched wheat flour

flour containing vitamins and iron, in the proportions specified in **Table 3**.

3.2

food additive

any substance, the use of which results in it or its by-products becoming a part of or affecting the characteristics of the flour.

3.3

self-rising flour

flour that has a leavening agent already added.

3.4

type of flour

description of the end use for which it is recommended, such as 'bread', 'cake', 'pastry', 'cookie', 'biscuit', 'general purpose' or 'all purpose.'

3.5

wheat flour

product prepared from grains of *Triticum aestivum* L.(common wheat) or; *Triticum compactum* Host (club wheat); or mixtures of these two species by grinding or milling processes in which the bran and germ are partly removed and the rest of the grain is comminuted to a suitable degree of fineness and which may contain any of the ingredients and food additives listed in **Clauses 5.3 and 6**.

4 General requirements

4.1 The wheat flour from which the flour is milled shall be free from the additive potassium bromate; any objectionable matter; be of sound and marketable quality; and complies with good agriculture practice.

4.2 Any added ingredient shall be of food grade quality.

4.3 Food additives shall conform to the specifications of the 'CODEX STAN 192.

4.4 All processing in the mill, including drying and milling of the wheat; handling of the intermediate products and other treatments of the wheat flour, shall be done so that there are minimal adverse effects on the nutritional value and useful technological characteristics of the flour.

4.5 The particle size of wheat flour should be such that not less than 98% by mass of the flour will pass a 212 micron (No. 70) sieve.

5 Specific requirements

5.1 Wheat flour shall conform to the requirements of **Tables 1 and 2**.

Table 1 — Specific requirements for wheat flour on a dry matter basis

Characteristics	Requirements	Method of Test
Moisture	Max. 15 %	ISO 712
Protein content (N x 5.7)	Min. 7.0 %	ISO 1871
Ash, before adding inorganic matter	Max. 1.2 %	ISO 2171, AOAC 923.03
NOTE If the listed methods of tests are unavailable, other internationally recognized test methods can be used. Alternatively, the national competent authority may recommend alternative test.		

5.1.1 Further to the general minimum and maximum protein and ash requirements of Table 1, Table 2 provides specific requirements for different types of flour.

Table 2 — Specific requirements for wheat flour on a dry matter basis

Type of flour	Protein content (calculated on a 14 % moisture basis)	Ash content (calculated on a 14 % moisture basis)
General All purpose	10.5 to 12.5 %	Up to 0.75 %
Biscuit / cookies/ crackers	8.0 to 10.0 %	Up to 0.60 %
Bread	12.0 to 14.0 %	Up to 0.70 %
Cake, pastry	7.0 to 10.5 %	Up to 0.55 %
NOTE Other types of flours may be used in other countries through contractual agreements between buyer and seller.		

5.2 The vitamins and minerals in **Table 3** shall be present in wheat flour within the limits specified or conform to the legislation of the country where the product is sold.

Table 3 — Limits of vitamins and minerals in wheat flour

Substances	Requirements		Method of test
	Minimum mg/100g	Maximum mg/100g	
Thiamin	0.44	0.77	AOAC International Official Method 942.23
Riboflavin	0.25	0.48	AOAC International Official Method 970.65
Niacin, Niacinamide	3.5	6.5	AOAC International Official Method 961.14
Iron	2.8	5.5	AOAC International Official Method 944.02
Calcium (optional)	105	145	AOAC International Official Method 944.03
Folic Acid (optional)	0.12	0.18	None defined
NOTE Where there is a legislation of nutritional factors warranting its addition, calcium may be added within the limits specified in Table 3 . Also, there may be special contractual arrangements between buyer and seller for requirements which may differ from the above.			

5.3 Wheat flour may contain the following ingredients in amounts necessary for technological purposes:

- a) malted wheat flour;
- b) malted barley flour;
- c) malted rye flour;
- d) wheat gluten;
- e) soya bean flour;
- f) legume flour.
- g) The following enzymes:
 - 1) amylase
 - 2) bromelain
 - 3) glucoamylase
 - 4) lactase
 - 5) lipoxidase
 - 6) protease
 - 7) glucose oxidase
 - 8) lipase
 - 9) xylanase
- a) L-cysteine, as hydrochloride not more than 90 ppm;
- b) Calcium carbonate, calcium sulfate, ground limestone, ground chalk, in amounts needed to conform to the requirements of Table 2 for calcium; and

shall not be obtained from any animal source;

- c) Ascorbic acid, not more than 300 ppm;
- d) Monocalcium phosphate, not more than 2500 ppm.

5.4 Self-rising flour shall contain no less than 0.4% of available carbon dioxide.

6 Food additives which may be used

The following food additives may be used in wheat flour, within the limits specified, or where no limits are stated in accordance with good manufacturing practice:

- a) acetone peroxide;
- b) ammonium chloride, not more than 2000ppm;
- c) ammonium persulfate, not more than 250ppm;
- d) benzoyl peroxide, not more than 60ppm (combined with not more than 900ppm of one or more of the following as carriers: calcium carbonate, calcium sulfate, di-calcium or tri-calcium phosphate, magnesium carbonate, starch, potassium or sodium aluminum sulfate);
- e) chlorine;
- f) chlorine dioxide;
- g) lecithin, not more than 2000ppm;
- h) calcium peroxide, not more than 75ppm;
- i) sulfur dioxide (in flours intended for use in making biscuits or pastry, not more than 200 ppm);
- j) ADA- azodicarbonamide 45mg/kg;

7 Heavy metals

Wheat flour shall be in accordance with those maximum levels for heavy metals established by the CODEX Alimentarius Commission for this commodity.

8 Pesticide residues

Where wheat grain used in the production of wheat flour is fumigated to destroy or control infestations by insects, mites, molds or rodents, the residues of pesticides in the flour shall not exceed those maximum pesticide residue limits established by the CODEX Alimentarius Commission for pesticides or the requirements of the National Competent Authority.

9 Mycotoxins limits

Wheat flour shall be in accordance with those maximum mycotoxin limits established by the CODEX Alimentarius Commission for this commodity. In particular, total aflatoxin levels in wheat grains for human consumption shall not exceed 20µg/kg (ppb) with Aflatoxin B1 not exceeding 5µg/kg (ppb) when tested according to ISO 16050. Total deoxynivalenol (DON) levels shall not exceed 1000ppb.

10 Microbiological limits

Wheat flour shall be free from any pathogenic microorganisms and shall be in accordance with the microbiological limits specified in **Table 4** when tested with the methods approved by the relevant competent authority.

Table 4 — Microbiological limits and test methods

Microorganism	Maximum limits	Method of tests
Total Aerobic Plate Count	10 ⁵ CFU/g	AOAC Official Method 986.32/ 990.12
<i>Escherichia coli</i>	Not detected (<10 CFU/g or MPN/g)	AOAC Official Method 990.11/ 991.14
Salmonella	Not detected in 25g	AOAC Official Method 2000.06/ 998.09
Yeast and Moulds	10 ⁴ CFU/g	AOAC Official Method 995.21/ 997.02
<i>Staphylococcus aureus</i>	Not detected (<10 CFU/g or MPN/g)	AOAC Official Method 975.55/ 987.09/ 2001.05 / 2003.07
NOTE Where the above methods of tests are not available, any other approved methods by the relevant competent authority may be used. Also, some alternative methods of test can be found in Annex A.		

11 Hygiene

Wheat flour shall be free from any objectionable matter, micro-organisms and any substances originating from micro-organisms, dirt and filth, rodent contamination and foreign matter in amounts that may reasonably be considered to represent a hazard to health.

12 Packaging requirements

12.1 Wheat flour shall be packaged to safeguard the hygienic, nutritional and technological characteristics of the flour, and protect against contamination or absorption of moisture.

12.2 Packaging shall be food grade and made of materials which are safe and suitable for the purpose.

EXAMPLE Packaging include inter alia bags or sacks of new cotton cloth, multi-wallpaper, polypropylene film/fibre or new plastic film.

12.3 Packaging shall not contaminate the product by migration of any toxic substance or give the flour any undesirable odour or flavour.

13 Labelling requirements

13.1 Labelling shall be done in accordance with latest version of the CRS 5 or the regulatory requirements in the country of which the flour is traded. In the case of bulk flour, shall be accompanied with standard of identity mutually agreed on by the parties involved and meeting applicable legal requirements of traceability.

- 13.2 The information carried on the label shall include:
- a. the name of the food, “flour”, “wheat flour” or “white flour;”
 - b. storage instructions prominently displayed; store in a cool, dry place.
- 13.4 Where an indication of the type of flour is included on the label, the protein and ash contents of the flour shall be within the limits set out in Table 1.
- 13.5 Safe handling instructions and instructions for use should also be included on the label.

14 Methods of sampling

Sampling shall be done in accordance with the latest version of the ISO 24333.

Annex A (normative)

Alternative methods of tests for wheat flour

A.1 The following alternative methods of tests may be used for testing microorganisms in wheatflour.

Table 5 — Alternative methods of tests

Microorganism	Method of test	Method of test	Method of test
Total Aerobic Plate Count	AACC International Approved Method 42-11/42-11.01	BAM Chapter 3	CCFRA Method 1.1.1:2007
Escherichia coli	AACC International Approved Method 42-15/42-15.01	BAM Chapter 4	CCFRA Method 2.4.2:2003
Salmonella	AACC International Approved Method 42-25B/42-25.03	BAM Chapter 5	CCFRA Method 3.1.2:2007 & 3.1.5:2007
Yeast and Moulds	AACC International Approved Method 42-50/42-50.01	BAM Chapter 18	CCFRA Method 2.1.1:2007
Staphylococcus aureus	AACC International Approved Method 42-30B/42-30.03	BAM Chapter 12	CCFRA Method 3.5.1:2007

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Cereals and Grains Association, AACC Approved Methods of Analysis 42-25B/42-25.03, Salmonella Bacteria

Cereals and Grains Association, AACC Approved Methods of Analysis 42-30B/42-30.03, Enumeration of Staphylococcus aureus

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Campden & Chorleywood Food Research Association, United Kingdom, Manual of Microbiological Methods for the Food and Drink Industry (Guideline 43)

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Food and Drugs Administration, Bacteriological Analytical Manual

Food and Drugs Administration, Bacteriological Analytical Manual Chapter 3, Aerobic Plate Count Food and Drugs Administration, Bacteriological Analytical Manual Chapter 4, Enumeration of *Escherichia Coli* and the Coliform Bacteria

Food and Drugs Administration, Bacteriological Analytical Manual Chapter 5, Salmonella

Food and Drugs Administration, Bacteriological Analytical Manual Chapter 12, *Staphylococcus aureus* Food and Drugs Administration, Bacteriological Analytical Manual Chapter 18, Yeast, Molds and Mycotoxins

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CARICOM REGIONAL ORGANISATION FOR STANDARDS AND QUALITY

The CARICOM Regional Organisation for Standards and Quality (CROSQ) was created as an Inter-Governmental Organisation by the signing of an agreement among fourteen Member States of the Caribbean Community (CARICOM). CROSQ is the regional centre for promoting efficiency and competitive production in goods and services, through the process of standardization and the verification of quality. It is the successor to the Caribbean Common Market Standards Council (CCMSC), and supports the CARICOM mandate in the expansion of intra-regional and extra-regional trade in goods and services.

CROSQ is mandated to represent the interest of the region in international and hemispheric standards work, to promote the harmonization of metrology systems and standards, and to increase the pace of development of regional standards for the sustainable production of goods and services in the CARICOM Single Market and Economy (CSME), and the enhancement of social and economic development.

CROSQ VISION:

The leader for the development, implementation and promotion of the Regional Quality Infrastructure (RQI)

CROSQ MISSION:

To facilitate trade and competitiveness of CARICOM products and services for sustainable development through implementation of the RQI.



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