



**CARICOM REGIONAL STANDARD**  
**PROCESSED FOODS - WHEAT FLOUR - SPECIFICATION**

**DCRS 64: 201X**

**CARICOM Regional Organisation for Standards and Quality (CROSQ)**

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**Committee representation**

This CARICOM Regional Standard was developed under the supervision of the Regional Technical Committee-Foods (RTC 3), Regional Project Team- Wheat flour, hosted by CARICOM Member State Guyana which at the time comprised of the following members:

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## Foreword

This CARICOM Regional Standard has been prepared by the Regional Project Team-Wheat flour through the CARICOM Regional Organisation for Standards and Quality (CROSQ) to provide a uniform level of acceptance quality for wheat flour manufactured and traded in the CARICOM Community. .

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

CODEX Alimentarius Commission Standard

- CODEX Stan 152:1985, *Standard for wheat flour*

CODEX Alimentarius Commission Standard

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

Guyana Standard

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

St. Lucia National Standard

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

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## 1 Scope

This CARICOM Regional Standard applies to wheat flour for human consumption prepared from common wheat, *Triticum aestivum* L. (common wheat) or, *Triticum compactum* (club wheat) host or mixtures thereof, and includes “brown flour” and “self-rising flour”, which is pre-packaged for sale or sold in bulk.

It does not apply to:

- (a) any product made from durum wheat (hard wheat, *T. durum* desf);
- (b) whole wheat flour or wheat flour to be used in brewing, for the production of starch or gluten, or for non-food use;
- (c) wheat flour in which the protein content has been reduced; and
- (d) wheat flour subjected to special treatments other than bleaching or drying.

## 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.

### AACC International

- AACC International Approved Methods 42-11/42-11.01, Aerobic Plate Count
- AACC International Approved Methods 42-15/42-15.01, Coliform- *Escherichia coli*
- AACC International Approved Methods 42-25B/42-25.03, Salmonella Bacteria
- AACC International Approved Methods 42-30B/42-30.03, Enumeration of *Staphylococcus aureus*
- AACC International Approved Methods 42-50/42-50.01, Mould and Yeast Counts

### Association of Analytical Communities

- AOAC Official Method 942.23, Thiamine (Vitamin B1) in Human and Pet Foods
- AOAC Official Method 944.02, Iron in Flour Spectrophotometric Method Final Action
- AOAC Official Method 944.03, Calcium in Flour titrimetric Method First Action
- AOAC Official Method 961.14, Niacin and Niacin amide in Drugs, Foods and Feed
- AOAC Official Method 970.65, Riboflavin (Vitamin B2) in Foods and Vitamin Pr.
- AOAC Official Method 986.15, Arsenic, Cadmium, lead, Selenium and Zinc
- AOAC Official Method 986.32/990.12, Aerobic Plate Count in Foods
- AOAC Official Method 990.11/991.14, Coliform and *Escherichia coli* counts in food
- AOAC Official Method 2000.06/998.09, Salmonella in foods
- AOAC Official Method 995.21/997.02, Yeast and Mould Counts in foods



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

#### Bacteriological Analytical Method

- *Bacteriological Analytical Manual Chapter 3, Aerobic Plate Count*
- *Bacteriological Analytical Manual Chapter 4, Enumeration of Escherichia Coli and the Coliform Bacteria*
- *Bacteriological Analytical Manual Chapter 5, Salmonella*
- *Bacteriological Analytical Manual Chapter 12, Staphylococcus aureus*
- *Bacteriological Analytical Manual Chapter 18, Yeast, Molds and Mycotoxins*

#### CODEX Alimentarius Commission

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

#### International Organisation for Standardisation

- ISO 712, *Cereals and cereal products- Determination of moisture content-Reference 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 6644, *Flowing cereals and milled cereal products-Automatic sampling by mechanical means*
- ISO 13690, *Cereals, pulses and milled products- Sampling of statistic batches*
- 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 24333, *Cereal and cereal products*

### **3 Terms and Definitions**

#### **3.1 brown flour**

Flour containing at least 0.6% crude fibre in the dry matter.

#### **3.2 enriched wheat flour**

Flour containing vitamins and iron, in the proportions specified in **Table 2**.

**Note:** In regions where there is a significant nutritional deficiency, calcium may be added within the limits specified in **Table 2**.

#### **3.3 food additive**

Any substance, the use of which results in it or its by-products becoming a part of, or affecting the

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characteristics of the flour.

### 3.4

#### **self-rising flour**

Flour containing more than 0.4% available carbon dioxide.

### 3.5

#### **type**

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

### 3.6

#### **wheat flour**

The product prepared from grains of common wheat, *Triticum aestivum* L. or club wheat, *Triticum compactum* host 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 6.1.

## 4 General requirements

### 4.1

The wheat from which the flour is milled shall be free from any objectionable matter; of sound and marketable quality; and comply with good agriculture practice

### 4.2

Any added ingredients shall be clean, safe and of grades of identity, and quality that are recognised as suitable for use in foods.

### 4.3

Food additives shall conform to the specifications of the, "CODEX STAN 192, General Standard for Food Additives.

### 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 nutritive 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 **Table 1**.

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

Characters	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

**5.2 Requirements for nutrients and minerals**

The vitamins and minerals mentioned in **Table 2** shall be present in wheat flour within the limits specified.

**Table 2 — 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 Official Method 942.23
Riboflavin	0.25	0.48	AOAC Official Method 970.65
Niacin, Niacinamide	3.5	6.5	AOAC Official Method 961.14
Iron	2.8	4.3	AOAC Official Method 944.02
Calcium (optional)	105	145	AOAC Official Method 944.03

**5.3 Self-rising flour shall conform to the requirements of Table 3 and shall contain more than 0.4% of available carbon dioxide.****Table 3 — Limits of vitamins and minerals in self-rising flour**

Substances	Requirements Min. (mg/100g)	Method of Test
Calcium	0.2%	AOAC Official Method 944.03
Iron	1.65	AOAC Official Method 944.02
Thiamine	0.24	AOAC Official Method 942.23
Nicotinic acid (Nicotinamide)	1.60	

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

- (a) Malted wheat flour
- (b) Malted wheat barley
- (c) Malted rye flour
- (d) Wheat gluten
- (e) The following enzymes:
  - i. Amylase
  - ii. Bromelain
  - iii. Glucoamylase
  - iv. Lactose
  - v. Lipxidase and
  - vi. Protease
- (f) L-cyteine, as hydrochloride not more than 90 ppm;
- (g) Calcium carbonate, calcium sulphate, 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;

- (h) Ascorbic acid, not more than 300 ppm; and
- (i) Monocalcium phosphate, not more than 2500 ppm.

## 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 persulphate, 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 sulphate, di-calcium or tri-calcium phosphate, magnesium carbonate, starch, potassium or sodium aluminum sulphate);
- (e) Chlorine;
- (f) Chlorine dioxide;
- (g) Lecithin, not more than 2000ppm;
- (h) ADA-asodicarbonite 45mg/kg

## 7 Heavy metals

7.1 Wheat flour shall not contain the heavy metals established by the CODEX Alimentarius Commission mentioned in **Table 4** in amounts exceeding the limits specified.

**Table 4 — Maximum limits of heavy metals in wheat flour**

Elements	Maximum limits ppm	Method of Test
Arsenic	1	AOAC Official Method 986.15
Copper	20	The Analysis of Nutrients in Foods
Lead	2	AOAC Official Method 986.15
Zinc	50	AOAC Official Method 986.15

## 7.2 Pesticide residues

7.2.1 Where wheat grain used in the production of wheat flour is fumigated to destroy or control infestations by insects, mites, moulds 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.

## 7.3 Mycotoxins

7.3.1 Wheat flour shall comply 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 10µg/kg (ppb) with B1 not exceeding 5µg/kg (ppb) when tested according to **ISO 16050**.

## 7.4 Microbiological

7.4.1 Wheat flour shall be free from any pathogenic microorganisms and shall comply with the microbiological limits in **Table 5** when tested with the methods approved by the relevant authority.

Table 5 — Microbiological limits and test methods

Microorganism	Maximum limits amt. /g	AOAC Official Method	AACC International Approved Method	BAM
Total Aerobic Plate Count	10 <sup>5</sup>	986.32/ 990.12	42-11/42-11.01	Chapter 3
Escherichia coli	Not detectable	990.11/ 991.14	42-15/42-15.01	Chapter 4
Salmonella	Not detectable	2000.06/ 998.09	42-25B/42-25.03	Chapter 5
Yeast and Moulds	10 <sup>4</sup>	995.21/ 997.02	42-50/42-50.01	Chapter 18
Staphylococcus aureus	Not detectable	975.55/ 987.09/ 2001.05 / 2003.07	42-30B/42-30.03	Chapter 12

## 8 Hygiene

- 8.1 Wheat flour shall be processed in accordance with good manufacturing practices; shall be free from any objectionable matter, micro-organisms and any substances originating from micro-organisms, dirt and filth, in amounts that may reasonably be considered to represent a hazard to health. The flour shall also be free from rodent contamination and foreign matter.

## 9 Packaging requirements

- 9.1 Wheat flour shall be packaged in containers which will safeguard the hygienic, nutritional, and technological characteristics of the flour, and protect it against contamination or absorption of moisture.
- 9.2 Containers shall be food grade and made of materials which are safe and suitable for the purpose, such as bags or sacks of new cotton cloth, multi-wall paper, strong paper, polypropylene film/fibre or new plastic film.
- 9.3 Containers shall not contaminate the product by migration of any toxic substance or give the flour any undesirable odour or flavour.

## 10 Labelling requirements

- 10.1 Labelling shall be done in accordance with CRS 5 Specification of labelling of pre-packaged foods. In the case of bulk flour, this will be accompanied with standard of identity mutually agreed on by the parties involved and meeting applicable legal requirements of traceability.
- 10.2 The labelling on retail packages of flour 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.
- 10.3 The information carried on the label shall include:
- (a) the name of the food, "flour", "wheat flour" or "white flour";
  - (b) any brand name or trade name;
  - (c) storage instructions, prominently displayed.
- 10.4 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 6**.

**Table 6 — Specific requirements of protein and ash content for types of flour**

Type of flour	Protein content (calculated on a 14% moisture basis)	Ash content (calculated on a 14% moisture basis)
General All purpose	10.5-12.5%	Up to 0.65%
Biscuit / cookies/ crackers	8.0 to 10.0 %	Up to 0.60%
Bread	12.0 to 14.0 %	Up to 0.65%
Cake, pastry	7.0 to 10.5 %	Up to 0.55 %

10.4 Instructions for use may also be included on the label.

## 11 Methods of sampling

11.1 Sampling shall be done in accordance with the latest version of the ISO 24333 Cereals and cereal products- Sampling or the CAC/GL 50, Codex Standard - General Guidelines on Sampling.

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