

# SPECIFIC SCHEME RULES FOR THE CERTIFICATION OF WHEAT FLOUR

## 1. GENERAL

### 1.1 Application and Use

Pursuant to Clause 3 of R3400, General Scheme Rules for the Certification of Food Products (hereinafter 'General Rules'), the present Specific Scheme Rules for the Certification of Flour (hereinafter "Specific Rules") describe the specific certification scheme for Flour intended for human consumption.

The General Rules always prevail over the present Specific Rules in case of any inconsistency.

### 1.2 Scope

Technical Cluster	Product Category	Products
Food	Wheat Flour	<ol style="list-style-type: none"> <li>1. White Bread Flour</li> <li>2. Cake Flour</li> <li>3. Brown Bread Flour</li> <li>4. Whole Wheat Flour</li> <li>5. Self-raising Flour</li> <li>6. Enriched Flour</li> </ol>

### 1.3 Scheme Type

This Wheat flour Scheme is operated in accordance with ISO 17067:2013 Scheme Type 5. This scheme comprises of the following elements:

	PROCESS STEP	ACTIVITIES
1	Pre-certification	<ul style="list-style-type: none"> <li>— Application</li> <li>— Application review, including applicable standard, test requirements, test facility options</li> <li>— Contract/certification Agreement</li> <li>— Audit programme (scheme of inspections and testing, frequency of audits, etc.)</li> <li>— Determining the Audit Time</li> <li>— Considerations for multi-site organizations applicant requirements</li> <li>— Consideration of multiple product standards applicant requirements</li> </ul>

## SPECIFIC SCHEME RULES FOR THE CERTIFICATION OF WHEAT FLOUR

2	Planning Audits	<ul style="list-style-type: none"> <li>— Audit scheduling</li> <li>— Audit team appointment</li> <li>— Audit plan</li> </ul>
3	Initial Certification	<ul style="list-style-type: none"> <li>— Initial Factory Audit</li> <li>— Product Evaluation</li> <li>— Submission of corrective-action plan, if applicable</li> <li>— Follow-up and Close out of major non-conformities, if applicable</li> </ul>
4	Review	<ul style="list-style-type: none"> <li>— Review of application documents, factory audit report, product evaluation results</li> </ul>
5	Decision	Decisions for <ul style="list-style-type: none"> <li>— granting or refusing certification;</li> <li>— expanding or reducing the scope of certification;</li> <li>— suspending or restoring certification; and</li> <li>— withdrawing certification or renewing certification.</li> </ul>
6	Maintaining Certification	<ul style="list-style-type: none"> <li>— Surveillance activities</li> <li>— Recertification</li> <li>— Special audits</li> <li>— Suspension, Withdrawing or Reducing the scope of certification</li> <li>— Management of Certificates and Marks of Conformity</li> </ul>

### 2. DEFINITIONS

The definitions in section 2 of R3400 General Scheme Rules for the Certification of Food and those in ZS 435:2017 shall apply.

### 3. REFERENCE STANDARDS/NORMATIVE REFERENCES

The documents listed below form the basis for certification of flour derived from wheat:

#### 3.1 Rules Documents

R3400 General Scheme Rules for the Certification of Food Products  
R3400-9 Specific Scheme Rules for the Certification of Wheat Flour

#### 3.2 Standards

ZS 435:2017 Wheat Flour Specification  
ZS 1224:2021 Prerequisite Programmes (PRP) on Food Safety- Requirements  
ZS 034:2017 General Principles of Food Hygiene – Code of Practice

#### 3.3 Statutory and Regulatory Requirements

Food Safety Act No. 7, 2019  
Metrology Act No. 6, 2017  
Factories' Act No. Cap 441

#### 3.4 Additional Standards/Specifications

## SPECIFIC SCHEME RULES FOR THE CERTIFICATION OF WHEAT FLOUR

ZS 033: Part 1 2015 Labelling of pre-packaged foods-code of practice. Part 1: General guidelines  
ZS 033: Part 2 2015 Labelling of pre-packaged foods - code of practice Part 2: Guidelines for date marking  
ZS 033: Part 3 2016 Labelling of pre-packaged foods - code of practice Part 3: Guidelines for nutrition labelling  
ZS 033: Part 4 2015 Labelling of pre-packaged foods-code of practice. Part 4: Guidelines on claims  
ZS 033: Part 5 2016 Labelling of pre-packaged foods - code of practice. Part 05: guidelines for labelling of non-retail containers of food  
ZS 190:2010 Drinking Water Quality- Specification

### 4.0 THE MANUFACTURER'S FACTORY PRODUCTION CONTROL

These requirements are supplemental to those set forth in Section 4 of R3400 General Scheme Rules for the Certification of Food.

#### 4.1 Technical Documentation

The following technical documentation shall be available at the manufacturer's facility for inspection:

- a) Water resource characteristics: Type of water, Name of source, Typical Composition
- b) Ingredients and additives: Type, Country of Origin, Typical Composition
- c) Process description (process steps with key operational parameters): cleaning, conditioning, milling, sifting, packaging and labelling.
- c) Finished product characteristics that should be defined as often as possible with target, acceptable limits and Rejection limits:
  - Microbiological standards
  - Physical-chemical standards (e.g., moisture, ash, protein, fat and fibre contents)
  - Packaging parameters (e.g., filling levels)
  - Sensorial characteristics (e.g., colour)
- d) Packaging description (primary, secondary, tertiary packaging)
- e) Shelf-life definition (e.g., Best before Date definition)
- f) Batch definition and coding rules
- g) Specific handling, storage and transportation requirements
- h) Control plans (or at least reference to the applicable Control Plan)

#### 4.2 Wheat and Ingredients Testing

## SPECIFIC SCHEME RULES FOR THE CERTIFICATION OF WHEAT FLOUR

The organisation shall establish acceptance criteria for wheat and ingredients. Wheat samples should be tested for moisture content, ash, protein and fibre contents at reception or alternatively, Certificate of Analysis (COA) for wheat and ingredients used for flour production shall be obtained from suppliers. Inhouse test reports and COAs shall be retained.

### 4.3 Wheat Milling

The organisation shall provide hygienic, safe and sound storage facilities for ingredients and wheat as per requirement in ZS 1224:2021. The unit operations used for flour production shall sufficiently produce a final product that meets requirements outlined in table 1 and the Establishment's Final Product specifications. The wheat cleaning process, methods and equipment used shall facilitate removal of all physical foreign matter from the wheat. Water used for conditioning shall be tested at a minimum of twice per year for physical, chemical and biological parameters in conformance with potable water standard, ZS 190:2010 Drinking Water Quality- Specification. Milling and grading process shall not pose likelihood of contamination to the final product or production of low-quality flour.

#### 4.3.1 Packaging and Labelling

Food grade packaging materials shall be used. Packaging integrity checks shall be conducted on the package. Labelling of the product shall be in accordance with ZS 033 series part 1 to part 5. Allergens shall be distinctly stated on the ingredients list to communicate and alert consumers on presence of allergens in the product.

#### 4.3.2 Maintenance of Milling Plant Facilities and Equipment

Methods and procedures for maintaining the Milling plant facilities and equipment should be hygienic. The Milling Plant, facilities and equipment should not be a potential hazard or source of contamination for the ingredient, packaging and final product. The Establishment shall maintain and retain routine preventive maintenance programs and records for all instruments, equipment and facilities, where necessary, corrective maintenance logs and records shall be retained. Laboratory equipment and instruments calibration and verification plans shall be established and records of calibration and verification retained.

### 4.4 Control Plans

Product monitoring shall be operated through monitoring plans. These analyses can be either operated in-house or externally. Control plans shall include, at a minimum:

- a) Product and process specifications to be monitored,
- b) Frequency of monitoring,
- c) Target, minimum and maximum limits, (tolerances),
- d) Person/s responsible for product monitoring,
- e) Person/s responsible for reviewing monitoring results,
- f) Corrective actions when specification limits are breached.

### 4.5 Finished Product Testing

Tests on final products shall be conducted on every batch produced. The tests shall be conducted as per requirements in Tables 1, 2, 3 and 4. Should the manufacturer not have capacity to internally test some parameters for every batch produced, the manufacturer shall state the exclusions. An external laboratory shall then be subcontracted to test the parameters at a defined frequency.

## SPECIFIC SCHEME RULES FOR THE CERTIFICATION OF WHEAT FLOUR

**Table 1 Compositional Requirements for Wheat Flour**

Parameter	White Bread (Baker's Flour)	Cake Flour	Brown Bread Flour	Whole Wheat Flour	Self-raising Flour	Enriched Flour
Moisture Content max, % (m/m)	14.5	14.5	14.5	14.5	14.5	14.5
Ash max max, % (m/m)	0.8	0.5	1.0	1.5	3.0	
Fat max, % (m/m)	2.0	2.0	2.0	2.0	2.0	
Fibre max, % (m/m)	0.3	0.3	2.5	2.5	0.3	
Protein min % (m/m)	10 min	10 min	10 min	10 min	10 min	10 min
Aflatoxin	10ppb	10ppb	10ppb	10ppb	10ppb	10ppb

**Table 2 Microbiological Limits**

Micro-organism (s)	Requirements
Total Plate Count cfu/g	10 <sup>3</sup>
Staphylococcus aureus cfu/g max	Absent
Escherichia coli, cfu/g max	Absent
Salmonella per 25g max	Absent
Coliforms g (per 100g)	Absent
Yeast and moulds cfu/g max	10 <sup>3</sup>

**Table 3 Levels of Enriching Agents for Enriched Flour**

Type of enrichment	Weight contained in 1 kg of Flour
Thiamine (Vitamin B <sub>1</sub> )	4.5-5.5 mg
Riboflavin (vitamin B <sub>2</sub> )	2.7-3.3 mg
Nicotinic acid (Vitamin B <sub>6</sub> )	35.5-44.4 mg
Calcium (from Calcium Carbonate)	1.1-1.4 g

**Table 4 Maximum Levels of Heavy Metals in Wheat Flour**

Name of Heavy metal	Maximum levels (ppm)	
	Self-raising flour	Other Types of Flour
Arsenic, As	2.0	1.0
Copper, Cu	30	20
Fluorine, F <sub>I</sub>	30	10
Lead, Pb	5.0	2.0
Mercury, Hg	-	0.1
Tin, Sn	-	250
Zinc, Zn	-	50

## SPECIFIC SCHEME RULES FOR THE CERTIFICATION OF WHEAT FLOUR

### 5.0 THE CERTIFICATION PROCESS

These requirements are supplemental to those set forth in Section 5 of R3400 General Scheme Rules for the Certification of Food Products.

#### 5.1 Sampling and Testing for Granting Certification

##### 5.1.1 Sampling

If the sample passes in factory testing, samples of packaged flour shall be drawn during Factory Audit and sent for complete testing for all requirements of the Zambian Standards ZS 435:2017. The following details should be indicated on the sample details form:

- Sample Description:
- Sample Identification:
- Sample source:
- Date sampled:
- Sampled By:
- Audit/test location:
- Date of Audit/test:
- Name of testing Facility

The sample size for flour to be sent to the third-party laboratory for testing is as Table 3 below:

Table 3 Sample Sizes to be Collecting for Granting Certification

Capacity of the container (SKU)	Number of Samples	Description
1kg	3	1- Micro, 1 – Chemical and physical 1 - Retention
2kg	3	1- Micro, 1 – Chemical and physical 1 - Retention
5kg	3	1- Micro, 1 – Chemical and physical 1 - Retention
10kg	3	1- Micro, 1 – Chemical and physical 1 - Retention
20kg	3	1- Micro, 1 – Chemical and physical 1 - Retention
25kg	3	1- Micro, 1 – Chemical and physical 1 - Retention
50kg	3	1- Micro, 1 – Chemical and physical 1 - Retention

NOTE: samples must be drawn from the same batch.

##### 5.1.2 Testing

The following tests shall be carried out by a Laboratory that meets the relevant requirements of ISO/IEC 17025. Flour shall conform to the requirements in Table 4 below:

Table 1 Compositional Requirements for Wheat Flour

Parameter	White Bread (Baker's Flour)	Cake Flour	Brown Bread Flour	Whole Wheat Flour	Self-raising Flour	Enriched Flour
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Fat max, % (m/m)	2.0	2.0	2.0	2.0	2.0	
Fibre max, % (m/m)	0.3	0.3	2.5	2.5	0.3	
Protein min % (m/m)	10 min	10 min	10 min	10 min	10 min	10 min
Aflatoxin	10ppb	10ppb	10ppb	10ppb	10ppb	10ppb

**Table 2 Microbiological Limits**

Micro-organism (s)	Requirements
Total Plate Count cfu/g	10 <sup>3</sup>
Staphylococcus aureus cfu/g max	Absent
Escherichia coli, cfu/g max	Absent
Salmonella per 25g max	Absent
Coliforms g (per 100g)	Absent
Yeast and moulds cfu/g max	10 <sup>3</sup>

### 6.0 CHANGES TO CERTIFICATION AND COMMUNICATION OF CHANGES

These requirements set forth in Section 6 of R3400 General Scheme Rules for the Certification of Food Products.

### 7.0 TRANSFERS OF ACCREDITED CERTIFICATES

These requirements set forth in Section 14 of R3400 General Scheme Rules for the Certification of Food Products.