

RWANDA STANDARD

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Spirulina products — Specification

Part 1:

Ground spirulina



Reference number

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In order to match with technological development and to keep continuous progress in industries, standards are subject to periodic review. Users shall ascertain that they are in possession of the latest edition

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Foreword

Rwanda Standards are prepared by Technical Committees and approved by Rwanda Standards Board (RSB) Board of Directors in accordance with the procedures of RSB, in compliance with Annex 3 of the WTO/TBT agreement on the preparation, adoption and application of standards.

The main task of technical committees is to prepare national standards. Final Draft Rwanda Standards adopted by Technical committees are ratified by members of RSB Board of Directors for publication and gazettment as Rwanda Standards.

DRS 359-1 was prepared by Technical Committee RSB/TC 019, *TC Food additives*.

In the preparation of this standard, reference was made to the following standard:

CODEX STAN 192, Codex General Standard for food additives

The assistance derived from the above source is hereby acknowledged with thanks.

RS 359 consists of the following parts, under the general title *Spirulina products — Specification*:

— *Part 1: Ground spirulina*

Committee membership

The following organizations were represented on the Technical Committee on Food additives (RSB/TC 019) in the preparation of this standard.

Spirulina cooperative

MINIMEX

SHEKINA ENTERPRIS

University of Rwanda – College of Agriculture and veterinary Medicine (UR-CAVM)

Rwanda Standards Board (RSB) – Secretariat

Introduction

Spirulina is a blue green alga used as human and animal food or nutritional supplement made primarily from two species of cyanobacteria: *Arthrospira platensis* and *Arthrospira maxima*.

The cell walls of Spirulina are similar to that of Gram-positive bacteria, since they consist of glucosamines and muramic acid associated with peptides. Although not digestible, these walls are fragile and make the cell content readily accessible to digestive enzymes. This is a major advantage in comparison to organisms with cellulosic cell walls like yeast and chlorella. A number of features from the nutritional standpoint have been demonstrated: a balanced protein composition, and the presence of rare essential lipids, numerous minerals and even vitamin B12.

It grows naturally in the alkaline waters of lakes in warm regions. It exists in the form of tiny green filaments coiled in spirals of varying tightness and number, depending on the strain.

Sprulina product — Specification — Part 1: Ground spirulina

1 Scope

This Draft Rwanda Standards specifies the requirements, methods of test and sampling of ground spirulina.

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.

RS EAS 82, *Determination of Acid insoluble ash*

RS ISO 5498, *Agricultural food products — Determination of crude fibre content — General method*

ISO 16634-2, *Food products — Determination of the total nitrogen content by combustion according to the Dumas principle and calculation of the crude protein content — Part 2: Cereals, pulses and milled cereal products*

RS ISO 7305, *Milled cereal products — Determination of fat acidity.*

3 Terms and definitions

For the purposes of this standard, the following terms and definitions apply.

3.1

spirulina

blue-green algae (cyanobacterium) of the genus *Spirulina*: processed as a valuable source of proteins and other nutrients spirulina dried and prepared as a food or food additive, which is a rich source of many vitamins and minerals

3.2

foreign matter

organic and inorganic materials (such as sand, soil, glass) other than extraneous matter in the designated product

3.3

filth

impurities of animal origin, including dead insects.

4 Requirements

4.1 General requirements

Ground Spirulina shall be:

- a) free from filth;
- b) free from abnormal flavours and odours;
- c) practically free of any visible foreign and extraneous matter;
- d) safe and suitable for human consumption; and
- e) have color of blue-green algae.

4.2 Specific requirements

Spirulina shall:

- a) have a blue-green colour and with a range of pH of 7-9;
- b) have a smell of seaweed;
- c) comply with the requirements in Table 1.

Table 1 — Compositional requirements

S/N	Characteristics	Requirement	Method of test
i.	protein content % m/m min	50	ISO 16634-2
ii.	Moisture content, % by mass, max.	10	RS ISO 712
iii.	Lipids % m/m max	7	ISO 7305
iv.	Fiber content % m/m	3-7	RS ISO 5498
v.	Total ash, % m/m	8-13	RS EAS 82

4.3 Particle size

Not less than 90 % shall pass through a 0.60-mm sieve.

5 Contaminants

5.1 Heavy metals

The product shall be free from heavy metals in amounts set in Table 2.

Table 2 — Limits for metal contaminants

S/N	Heavy metals	Maximum Limits mg/kg	Method of Test
i.	Copper	2.0	RS ISO 3094
ii.	Lead	3	RS ISO 6633
iii.	Arsenic	1	RS ISO 6634
iv.	Mercury	0.1	RS ISO 6637
v.	cadmium	2.0	RS ISO 3094

5.2 Pesticide and veterinary drugs residues

Spirulina shall conform to those maximum residue limits established by the Codex Alimentarius Commission for the ingredients used in the preparation of this product.

6 Hygiene

6.1 Spirulina shall be manufactured in premises complying with the hygienic requirements stipulated in RS CAC/RCP 1.

6.2 Spirulina shall conform to microbiological limits in Table 3.

Table 3 — Microbiological limits

Microorganisms	Maximum limit	Method of test
<i>Total viable count, CFU/g, max.</i>	10 ⁴	RS ISO 4833-1
<i>Escherichia. coli, CFU/g, max</i>	absent	RS ISO 16649-1
<i>Salmonella cfu/25 g</i>	absent	RS ISO 6579
<i>Staphylococcus aureus cfu/g max.</i>	absent	RS ISO 6888-1
<i>Yeast and moulds cfu/g max.</i>	100	RS ISO 21527-1

7 Packaging

7.1 Spirulina shall be packaged in containers, which will safeguard the hygienic, nutritional, technological, and organoleptic qualities of the product.

7.2 The containers, including packaging material, shall be made of substances, which are safe and suitable for their intended use. They shall not impart any toxic substance or undesirable odour or flavour to the product.

8 Labelling

In addition to the requirements of RS EAS 38, the labelling shall include the following:

- a) the name of the product as “ground spirulina”,
- b) list of ingredients,
- c) net contents,
- d) name, location and address of the manufacturer shall be declared,
- e) country of origin shall be declared,
- f) lot or batch number,
- g) manufacture date,
- h) best before,
- i) storage instructions, and
- j) instruction for use.

9 Method of sampling

Sampling shall be done in accordance with RS ISO 24333.

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