

# RWANDA STANDARD

**DRS**  
**362**

First edition

2017-mm-dd

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## Fish flour — Specification



Reference number

DRS 362: 2017

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# Contents

Page

Foreword .....	iv
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions .....	1
4 Requirements .....	2
4.1 General requirements .....	2
4.1.1 Raw materials .....	2
4.1.2 Dried silver cyprinid shall: .....	3
4.2 Specific requirements .....	3
5 Hygiene .....	4
6 Contaminants .....	4
6.1 Heavy metals .....	4
6.2 Aflatoxins .....	4
6.3 Veterinary drug residues .....	4
6.4 Pesticide residues .....	5
7 Packaging .....	5
8 Labelling .....	5
9 Sampling .....	5

## 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 362 was prepared by Technical Committee RSB/TC 017, *Pre-packaged foods*.

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

1) XYZ: Title

2) XYZ: Title

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

## Committee membership

The following organizations were represented on the Technical Committee on Fish flour (RSB/TC 017) in the preparation of this standard.

Institut d'enseignements supérieur de Ruhengeli (INES)

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

COOPPAVI

KIBUYE fishing cooperative

Association des Consommateurs au Rwanda (ADECOR)

CIAT/Harvestplus

SHEKINA Enterprise

SOSOMA Industries

MINIMEX

National Industrial Research and Development Agency (NIRDA)

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# Fish flour — specification

## 1 Scope

This Draft Rwanda Standards specifies the requirements and methods of test and sampling for fish flour, obtained from all types of fish intended for human consumption.

## 2 Normative references

The following referenced documents are indispensable for the application 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 ISO 21527-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 1: Colony count technique in products with water activity greater than 0,95*

RS ISO 4833-1, *Microbiology of the food chain — Horizontal method for the enumeration of microorganisms — Part 1: Colony count at 30 degrees C by the pour plate technique*

RS ISO 6579, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp*

RS ISO 6888, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species)*

RS ISO 7251, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive Escherichia coli — Most probable number technique*

RS ISO/TS 21872, *Microbiology of food and animal feeding stuffs — Horizontal method for the detection of potentially enteropathogenic Vibrio spp.*

RS EAS 12, *Potable water — Specification*

AOAC 937.09,

## 3 Terms and definitions

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

### 3.1

#### Fish flour

Flour obtained from drying and grinding of fish

### 3.2

#### **split fish with entire backbone**

fish split with the whole of the backbone intact

### 3.3

#### **split fish**

fish split and with approximately the anterior two-thirds of the backbone removed

### 3.4

#### **fillets**

fish split and divided longitudinally into two parts and with fins, fin bones, tail and the whole of the backbone removed

### 3.5

#### **food grade material**

packaging material, made of substances which are safe and suitable for their intended use and which will not impart any toxic substance or undesirable odour, colour or flavour to the product

### 3.6

#### **sound**

free from physiological deterioration or adulteration/contamination, that appreciably affects their appearance, edibility and the keeping quality of the fish flour

### 3.7

#### **foreign matter**

any material which is not of fish origin such as sand, stones, metallic chips and plant parts

## **4 Requirements**

### **4.1 General requirements**

#### **4.1.1 Raw materials**

**4.1.1.1** Dried silver cyprinid shall be prepared from fresh, sound *Rastrineobola argentea* which is of an acceptable quality and fit for human consumption.

**4.1.1.2** Water used during fish processing shall be potable complying with RS EAS 12.



**4.1.1.3** After washing, the fish shall be dried either in the sun or in artificial dryers until a satisfactory product is obtained.

**4.1.1.4** The fish, while drying, shall be protected against contamination such as dirt, sand, birds, vermin and insects.

**4.1.2 Dried silver cyprinid shall:**

- a) have the characteristic silvery skin colour and dried fish odour;
- b) be free from any indication of spoilage such as mouldiness, colour change; and
- c) be free from foreign matter.

**4.2 Specific requirements**

**4.2.1** Fish flour shall comply with the requirements specified in Table 1.

**Table 1 — Specific requirements for fish flour**

S/N	Parameter	Requirements	Test method
i)	Moisture, %, max.	14	Annex A
ii)	Sodium chloride, % by weight on moisture free basis, max.	5	AOAC 937.09
ii)	Total ash, % max	15	RS ISO 5985
iii)	Acid insoluble ash, %, max.	0.5	

**4.2.2** When tested in accordance with AOAC 977.13, the level of histamine in fish such as scromboids species shall not exceed 20 ppm.

**Table 2 — Chemical composition of fish flour**

S/N	Substance	Content, %
i.	Raw protein	60 - 62
ii.	Fat	7.0 – 9.0
iii.	Humidity	6.0 – 8.0
iv.	Ash	14.7
v.	Calcium	5.7
vi.	Phosphorous	2.85
vii.	Salt	1.6

## 5 Hygiene

Dried fish shall be produced and handled in a hygienic manner in accordance with EAS 39 and CAC/RCP 52 and shall comply with the microbiological limits given in Table 3.

**Table 3 — Microbiological limits for fish flour (*Rastrineobola argentea*)**

S/N	Type of microorganism	Maximum limit	Test method
i)	<i>Salmonella</i> in 25 g	Absent	ISO 6579
ii)	<i>Escherichia coli</i> , MPN/g	Absent	ISO 7251
iii)	<i>Staphylococcus aureus</i> , CFU/g	$2 \times 10^3$	ISO 6888
iv)	Total viable count, CFU/g	$10^5$	ISO 4833-1
v)	<i>Vibrio</i> spp.	Absent	ISO/TS 21872
vi)	Yeast and moulds, CFU/g	$10^3$	ISO 21527-1

## 6 Contaminants

### 6.1 Heavy metals

Fish flour shall comply with the heavy metal limits given in Table 3.

**Table 4 — Heavy metal limits for fish flour**

S/N	Heavy metal	Maximum limit, mg/kg	Test method
i)	Arsenic	0.1	AOAC 952.13
ii)	Lead	0.3	AOAC 972.23
iii)	Cadmium	0.3	AOAC 973.34
iv)	Methyl mercury	0.5	AOAC 983.20

### 6.2 Aflatoxins

When tested in accordance with ISO 16050, the level of total aflatoxin in fish flour shall not exceed 10 µg/kg.

### 6.3 Veterinary drug residues

Fish flour shall comply with those maximum veterinary drug residue limits established by the Codex Alimentarius Commission.

## 6.4 Pesticide residues

Fish flour shall comply with those maximum pesticides residue limits established by the Codex Alimentarius Commission.

## 7 Packaging

Fish flour shall be packaged in food grade containers which will safeguard the hygienic, nutritional, and organoleptic qualities of the product.

## 8 Labelling

In addition to the requirements in EAS 38, the following specific labelling requirements shall apply and shall be legibly and indelibly marked:

- a) name of the product shall be “fish flour”;
- b) name and physical address of processor/packer;
- c) net weight in grams or kilograms;
- d) date of packaging;
- e) batch number;
- f) expiry date;
- g) storage conditions;
- h) instruction for use; and
- i) country of origin.

## 9 Sampling

Sampling shall be done in accordance with CAC/GL 50.



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