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STANDARD**

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**Edible insect products— Specification  
Part 1: Whole insect and edible insect flour**

ICS 65.120

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Reference number

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**Contents**

Page

Foreword .....	iv
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions .....	2
4 Requirements .....	3
4.1 General requirements .....	3
4.2 Specific requirements .....	3
4.3 Optional ingredients .....	3
5 Food additives .....	4
6 Hygiene .....	4
7 Contaminants .....	4
8 Packaging .....	5
9 Labelling .....	5
<b>Annex A (normative) Potential species for production of edible insect products ...</b> Error! Bookmark not defined.	
<b>A.1 General</b> .....	Error! Bookmark not defined.

## 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 487-1 was prepared by Technical Committee RSB/TC 005, *Meat and Meat products*.

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

- 1) KS 2922-1:2020 Edible insects — Specification Part 1: Edible insects' products

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

DRS 487 nnn consists of the following parts, under the general title *Edible insect products — Specification*

- *Part 1: Whole insect and edible insect flour*
- *Part [n+1]: Part title*
- *Part [n+2]: Part title*

## Committee membership

The following organizations were represented on the Technical Committee on *Title of TC* (RSB/TC 005) in the preparation of this standard.

Paragraph of participants

Rwanda Standards Board (RSB) – Secretariat

# Edible insects' products — Specification —Part 1: Whole edible insect and edible insect flour

## 1 Scope

This Draft Rwanda Standard specifies the requirements, sampling and test methods for edible whole insects and edible insect flour intended for human consumption.

## 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 CODEX STAN 192, *General standard for food additives*

RS EAS 38, *Labelling of prepackaged foods — General requirements*

RS EAS 804, *Claims on food — General requirements*

RS EAS 805, *Use of nutrition and health claims — Requirements*

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

ISO 5983-1, *Animal feeding stuffs — Determination of nitrogen content and calculation of crude protein content — Part 1: Kjeldahl method*

RS ISO 5985, *Animal feeding stuffs — Determination of ash insoluble in hydrochloric acid*

ISO 6633, *Fruits, vegetables and derived products— Determination of lead content — Flameless atomic absorption spectrometric method*

ISO 6496, *Animal feeding stuffs — Determination of moisture and other volatile matter content*

RS ISO 6579-1, *Microbiology of the food chain— Horizontal method for the detection, enumeration and serotyping of Salmonella — Part 1: Detection of Salmonella spp*

RS ISO 6888-1, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (staphylococcus Aureus and other species) Part 1: Technique using bairdpac*

ISO 10272-1, *Microbiology of the food Chain-Horizontal method for detection and enumeration of Campylobacter spp. — Part 1: Detection method*

ISO 11290-2, *Microbiology of the food chain — Horizontal method for the detection and enumeration of Listeria monocytogenes and of Listeria spp. — Part 2: Enumeration method*

ISO 16649-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of Bglucuronidase-positive Escherichia coli —Part 1: Colony-count technique at 44 using membranes and 5-bromo-4*

ISO 13547-2, *Copper, lead, zinc and nickel sulphide concentrates —Determination of arsenic Part 2: Acid digestion and inductively coupled plasma atomic emission spectrometric method*

ISO 21527-2, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 2: Colony count technique in products with water activity less than or equal to 0,95*

ISO 22964, *Microbiology of the food chain — Horizontal method for the detection of Cronobacter spp.*

KS 2921, *Primary production of insects for food and feed — Code of practice*

ISO 27085, *Animal feeding stuffs —Determination of calcium, sodium, phosphorus, magnesium, potassium, iron, zinc, copper, manganese, cobalt, molybdenum, arsenic, lead and cadmium by ICP-AES*

### **3 Terms and definitions**

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

#### **3.1**

##### **edible insect product**

product that has been processed from edible insects collected either from domesticated farms or from the wild

#### **3.2**

##### **whole edible insect**

edible insect intended for human consumption in their natural form after primary processing to minimize contamination and improve palatability

#### **3.3**

##### **edible insect flour**

particulate product obtained by processing edible insect into flour

## 4 Requirements

### 4.1 General requirements

Edible whole insects and edible insect flour shall be:

- a) produced from edible insect species;
- b) free from adulterants, extraneous material and objectionable odour and taste;
- c) free from infestation and contamination from pests.
- d) produced from any suitable life stage
- e) Free from inedible parts including legs, antenna, wings

### 4.2 Specific requirements

whole insects and insect flour shall comply with the specific requirements given in Table 1, when tested in accordance with the test methods given therein.

**Table 1 — Requirements for edible insects' products**

S/N	Parameter	Whole insects	Insect flour		Test method
			Whole Insect flour	Defatted Insect flour	
i.	Moisture content, % m/m, max.	10	10	10	ISO 6496
ii.	Protein content % m/m, min.	-	30	40	ISO 5983-1
iii.	Crude fat % m/m, max.	-	15	5	ISO 11085
iv.	Crude fiber, % m/m, max	-	8	10	ISO 5498
v.	Total ash, % m/m, max	-	20	20	
vi.	Fatty acidity, mg KOH/100g		80	80	ISO 7305
vii.	Acid insoluble ash, % m/m, max.		1	1	ISO 5985

The deviation from the declared protein content shall not be more than 5% of the actual protein content

### 4.3 Optional ingredients

Edible insect products may contain other approved food ingredients to enhance flavour and palatability such as edible salt, seasonings and herbs complying with relevant standards.

## 5 Food additives

Only permitted food additives in accordance with RS CODEX STAN 192 for similar products may be used.

## 6 Hygiene

6.1 The edible insects' products shall be prepared and packaged in premises built and maintained under hygienic conditions in accordance with RS CAC/RCP 1.

6.2 Edible insects' products shall not exceed microbiological limits indicated in Table 2, when tested in accordance with the test methods specified therein.

**Table 2 — Microbiological limits for edible insect' products**

S/N	Type of micro-organism	Maximum limit	Test method
i.	Total Plate Count , CFU/g	10 <sup>5</sup>	RS ISO 4833-1
ii.	<i>Salmonella spp</i> per 25 g	absent	RS ISO 6579-1
iii.	<i>E.Coli</i> , CFU/g	Absent	RS ISO 16649-2
iv.	<i>Staphylococcus aureus</i> CFU/g	<10	RS ISO 6888-1
v.	<i>Cronobacter spp.(Enterobacter sakazakii)</i> CFU/g	Absent	ISO 22964
vi.	<i>Campylobacter</i> , per 25 g	Absent	RS ISO 10272-1
vii.	<i>Yeast and moulds</i> , CFU/g	10 <sup>3</sup>	RS ISO 21527-2

## 7 Contaminants

7.1 Edible insect' products shall comply with those maximum limits for pesticides that are provided by Codex Alimentarius Commission.

7.2 Edible insect' products shall not contain heavy metal exceeding the limits indicated in Table 3, when tested in accordance with the test methods specified therein.

**Table 3 — Limits for heavy metal contaminants for edible insects' products**

S/N	Contaminant	Maximum limit, mg/kg	Test method
i.	Lead (Pb)	0.5	RS ISO 6633
ii.	Arsenic (Ar)	0.1	RS ISO 13547-2
iii.	Cadmium	0.4	RS ISO 27085
iv.	Mercury	0.03	

7.4 Edible insects' products shall not exceed those maximum levels of mycotoxins specified in Table 4 when tested in accordance with test methods specified therein.



Table 4 — Mycotoxins limits for flaked cereals

S/N	Mycotoxin	Maximum levels $\mu\text{g/kg}$ , max	Test method
i.	Total aflatoxins	10	RS ISO 16050
ii.	Aflatoxin B1	5	

## 8 Packaging

The edible insects' products shall be packaged in food grade packaging materials that shall ensure the safety and integrity of the product throughout the shelf life.

## 9 Labelling

**9.1** In addition to the labelling requirements of RS EAS 38, the label shall include the following information:

- a) name of the product shall be either 'whole edible insect' or 'edible insect flour' defatted edible insect flour;
- b) declare the insect by scientific name and common name in bracket
- c) the life stage of edible insect used
- d) direction for use of the product; and
- e) storage instructions.
- f) Protein content
- g) fat content
- h) declare the flavour agent if used
- i) batch number/lot number
- j) expiry date

**9.2** Any health and/or nutrition claim on products from edible insects shall comply with the provisions of RS EAS 804 and RS EAS 805.



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