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**Dried insect products for compounded
animal feeds — Specification**

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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 486 was prepared by Technical Committee RSB/TC 008, *Animal feeds and Animal Feeding Stuffs*.

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

KS 2711:2017, Dried insect products for compounding animal feeds Specification

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

Committee membership

The following organizations were represented on the Technical Committee on *Title of TC* (RSB/TC 008) in the preparation of this standard.

Rwanda Standards Board (RSB) – Secretariat

Dried insect products for compounded animal feeds—Specification

1 Scope

This Draft Rwanda Standards specifies the requirements, sampling and test methods for dried insect products as sources of protein for compounded animal feeds.

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 ISO 4832, *Microbiology of food and animal feeding stuffs Horizontal method for the enumeration of coliforms Colony-count technique.*

RS ISO 16649-2, *Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli Part 2: Colony-count technique at 44 degrees C using 5-bromo-4-chloro-3-indolyl beta-D-glucuronide.*

RS 98, *The animal feed industry Code of practice*

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*

3 Terms and definitions

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

3.1

insect products for compounded animal feeds

adult, nymphal, larval or pupal stages of edible insects in the form of dried whole insect, ground or pellet for use as an animal feed ingredient

3.2

whole edible insects

edible insect product presented in their natural form after primary processing to minimize microbiological contamination and moisture

3.3

Ground edible insect product

edible insect product presented as meal, pellets or crumbs after primary processing to minimize microbiological contamination and moisture

3.4

defatted edible insect product

edible insect product presented as whole insect or ground insect product that has undergone additional processing to remove a portion of the fat content.

4 Ingredients

4.1. Dried edible insect products for compounded animal feeds shall be produced from edible species

4.2. The product may contain optional ingredients to improve the palatability and when used they shall be suitable for animal feeding and comply with relevant standards

5 Presentation of dried insect product for compounded animal feed

Dried Edible insect product for compounded animal feeds may be presented in the form of:

- a) Whole edible insects
- b) Ground edible insect product
- c) Defatted edible insect products
- d) Extruded edible insect product

6 General requirements

Dried Insect products for compounded animal feeds shall:

- a) be free from adulterants, extraneous material and objectionable odour.
- b) be free from infestation and contamination from pests
- c) be free from mould and not rotten

7 Specific requirements

Dried insect products for compounded animal feeds shall comply with specific requirements prescribed in Table 1, when tested in accordance with the test methods provided therein.

Table 1 —Specific requirements for dried insect products

S/N	Parameter (%DM)	Whole ground or extruded	Defatted insect product	Test method
i.	Moisture content %, max	10	10	ISO 6496
ii.	Crude protein %, min	30	30	ISO 5983-1
iii.	Fat %, max	30	12	ISO 11085
iv.	Fibre %, max	12	15	ISO 5498
v.	Total ash %, max	15	20	ISO 5984
vi.	Acid insoluble ash %, max	4	4	ISO 5985
vii.	Calcium %, min	3	3	ISO 6490-1
viii.	Phosphorous, %, min	3	3	ISO 27085
ix.	Sodium Chloride, %, max	2	2	ISO 6495
The deviation from the declared protein content shall not be more than 5% of the actual protein content				

8 Hygiene

Dried Insect products for compounded animal feeds shall be prepared in accordance with provisions specified in RS CAC/RCP 1 and RS 98

9 Microbiological limits

Dried insect products shall not exceed microbiological limits as shown in Table 2 when tested in accordance with test methods specified therein.

Table 2 —Microbiological limits for dried insect products

S/N	Microorganism	Maximum. limit	Test method
i.	Total Viable Count, cfu/g	10 ⁵	RS ISO 4833-1
ii.	Total coliform count , cfu/g	500	RS ISO 4832
iii.	Escherichia coli cfu/g	10	RS ISO 16649-2
iv.	<i>Salmonella spp</i> in 25 g	Absent	RS ISO 6579-1

10 Contaminants

10.1 Heavy metals

Dried edible insect products for compounded animal feeds shall comply with the maximum limits as specified in Table 3 when tested in accordance with the test methods specified therein.

Table 3 — Limits for heavy metals in dried edible insect products

S/No	Heavy metal	Maximum limit, mg/kg	Test method
1	Arsenic	2.0 (0.01)	ISO 16654
2	Lead	5.0 (0.01)	ISO 6579-1
3	Cadmium	1.0 (0.2)	ISO 11133

10.2 Aflatoxins

Aflatoxin contamination shall not be more than 20 ppb for aflatoxin B₁ and 50 ppb for total aflatoxin when tested in accordance with ISO 16050 and ISO 17375.

10.3 Pesticides and antibiotics

Pesticide and antibiotic residues in dried edible insect products for compounded animal feeds shall comply with the maximum pesticide and antibiotic residue limits established by the Codex Alimentarius Commission.

11 Packaging

11.1 Dried insect products shall be packaged in containers which are strong and sufficiently sealed so as to withstand reasonable handling without tearing, bursting or falling open during normal handling and transportation.

11.2 The containers shall be free from parasites and any disease causing agents.

11.3 Containers for insect products shall be clean and free from visible indications of contamination

12 Labelling

The packages shall be securely closed and marked with the following information:

- a) Name of product "Dried edible insect products for compounded animal feeds"
- b) presentation form of insect product;
- c) net weight of the product;

- d) the species and life stage of insect used;
- e) batch number;
- f) name and address including physical addresses of the manufacturer;
- g) country of origin
- h) date of manufacture and expiry date;
- i) declaration of crude protein (%), crude fat (%), Calcium and Phosphorus (%)
- j) instructions for storage and handling.

13 Sampling

Sampling shall be done in accordance with ISO 6497.

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