RWANDA STANDARD

DRS 149

Third edition

yyy-mm-dd

Cooked packaged beans— Specification

ICS 67.230

Reference number

DRS 149: 2022

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.

RS 149 was prepared by Technical Committee RSB/TC 003, *Cereals, pulses, legumes and cereal products*

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

1) CODEX STAN 16:1981, Recommended international Standard for Canned Green Beans and Canned Wax Beans

2) IS 9790: 1981, Specification for canned fresh beans

3) MS 998: 1986, Canned Beans — Specification

4) MS 997: 2009, Canned baked beans in tomato sauce — specification

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

This thirdedition cancels and replaces the secondedition (RS 149: 2018), which has been technically revised.

Committee membership

The following organizations were represented on the Technical Committee on *Cereals, pulses, legumes and cereal products* (RSB/TC 003) in the preparation of this standard.

Enterprise URWIBUTSO/SINA GERARD

MANOSALIWA Food Industries Ltd

MINIMEX Ltd

National Agricultural Export Development Board (NAEB)

National Industrial Research and Development Agency (NIRDA)

Nyarutarama Business Incubation Center

One Acre Fund-Tubura

Rwanda Food and Drugs Authority

Zamura Feeds Ltd

Rwanda Standards Board (RSB) – Secretariat

Cooked packaged beans — Specification

1 Scope

This Draft Rwanda Standard specifies the requirements, sampling and test methods for cooked packaged beans (*Phaseolus vulgaris*L.) 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.

ISO 11289, *Heat-processed foods in hermetically sealed containers — Determination of pH*

RS 288*, Mixed beans — Specification*

RS 350*Iron bio-fortified beans — Specification*

RS 362, *Fish flour — Specification*

RS CAC/RCP 1*, General principles of food hygiene*

RS CODEX STAN 192, *Codex general standard for food additives*

RS CODEX STAN 193, *Codex general Standard for Contaminants and Toxins in Food and Feed*

RS EAS 12*, Potable water — Specification*

RS EAS 35, *Fortified edible salt — Specification*

RS EAS 38, *Labelling of pre- packaged foods — General requirements*

RS EAS 46, *Dry beans — Specification*

RS ISO 16050, *Foodstuffs — Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2in cereals, nuts and derived products — High-performance liquid chromatographic method*

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 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*

RS ISO 24333, *Cereals and cereal products — Sampling*

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

dry beans

dry threshed field and garden beans of the species of *Phaseolus vulgaris* L.

3.2

mixed dry beans

dry beans that consist of a mixture of same size groups, different colour and shape groups irrespective of varieties.

3.3

iron bio-fortified dry beans

dry beans produced from varieties that have higher level of iron

3.4

Cooked packaged beans

beans which have been subjected to boiling or steaming and packed in food grade packaging materials

3.5

drained weight

weight of the contents of the container after draining

3.6

food gradepackaging 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 or flavour to the product.

4 Requirements

4.1 Ingredients

4.1.1 Essential ingredients

The following essential ingredients shall be used in the preparation of cooked packaged beansand shall comply with relevant standards:

a) dry beans, mixed dry beans and iron bio-fortified beans, conforming to RS EAS 46, RS 288 and RS 350, respectively; and

b) potable water conforming to RS EAS 12.

4.1.2 Optional ingredients

The following optional ingredients including but not limited to the following may be used in cooked packaged beans and shall comply with relevant standards:

a) sweetening ingredients such as sucrose, invert sugar, dextrose, glucose syrup;

b) tomato paste/puree RS EAS 66-3;

c) herbs and spices;

d) cheese;

e) edible oil complying with RS EAS 321;

f) fish flour complying with RS 362;

g) vegetables; and

h) edible salt complying to RS EAS 35.

4.2 General requirements

Cooked packaged beans shall:

a) be practically free from extraneous matter;

b) be free from off flavours and odours;

c) be practically free from any insects;

d) be safe and suitable for human consumption;and

e) be well cooked, slightly soft or slightly firm; and their skins shall be tender.

4.3 Specific requirements

4.4.1 Cooked packaged beans shall comply with the requirements specified in Table 1 when tested in accordance with test methods specified therein.

Table 1 — Specific requirements for cooked packaged beans

S/N	Parameter	Requirements	Test method
i.	Drained weight, % of net weight, min.	80	Annex A
ii.	Salt content (as sodium chloride), %, w/w, max.	1.2	Annex B
iii.	Total soluble solids in sauce, Brix % max.	6	Annex C
iv.	pH	5 - 6	ISO 11289

4.4.2 For cooked iron bio-fortified beans, the levels of iron shall not exceed the limits in Table 2 when tested in accordance with test methods specified therein.

Table 2 — Iron content in cooked iron bio-fortified beans

S/N	Parameter	Iron levels,(mg/kg)	Test method
i.	Class 1 (C1)	≥ 90	AOAC 999.10
ii.	Class 2 (C2)	≥ 80 to < 90	
iii.	Class 3 (C3)	≥ 60 to < 80	

4.4 Microbiological limits

Cooked packaged beans shall comply with the microbiological limits specified in Table 3 when tested in accordance with test methods specified therein.

Table 3 — Microbiological limits for cooked packaged beans

S/N	Micro-organism	Maximum limits	Test method
i.	Total viable count, CFU/g	10^3	RS ISO 4833-1
ii.	*E. coli*, CFU/g	Absent	RS ISO 16649-2
iii.	*Salmonella ssp*,in 25 g	Absent	RS ISO 6579-1
iv.	Yeasts and moulds, CFU/g	10^2	RS ISO 21527-2
v.	*Clostridium botulinum*, CFU/g	Absent	RS ISO 7937

5 Food additives

Food additives which may be used in the preparation of cooked packaged beans shall comply with RS CODEX STAN 192.

6 Contaminants

6.1 Pesticide residues

Cooked packaged beans shall conform to maximum residue limits for pesticide residues established by the Codex Alimentarius Commission for this commodity.

6.2 Heavy metals

Cooked packaged beans shall comply with the maximum heavy metal limits indicated in Table 4 when tested in accordance with test method specified therein.

Table 4 — Maximum limits for heavy metal inCooked packaged beans

S/N	Heavy metal	Maximum limits(mg/kg)	Test method
i.	Cadmium	0.1	AOAC 999.11
ii.	Lead	0.1	
iii.	Tin[a]	250	
[a] For canned cooked beans			

7 Hygiene

Cooked packaged beans shall be prepared and handled in accordance with RS CAC/RCP 1.

8 Packaging

Cooked packaged beans shall be packaged in food grade packaging material that ensures the integrity and safety of the product

9 Labelling

9.1 In addition to the requirements of RS EAS 38, the following requirements shall apply and shall be legibly and indelibly marked:

a) name of the product as “Cooked packaged beans”or “Cooked packaged mixed beans”or “Cooked packaged iron-biofortified beans”;

b) declaration of iron content, if iron bio fortified beans have been used;

c) nameand address of the manufacturer/packer/distributor/ importer/exporter/vendor of the food shall be declared.

d) date of manufacture;

e) batch number;

f) list of ingredients in descending order;

g) expiry date;

h) country of origin;

i) the net content shall be declared in the metric system;

j) instructions for use;

k) storage instructions;

l) the statement ‘Human Food’ shall appear on the package;and

m) instructions on disposal of used package.

9.2 When labelling non-retail packages, information for non-retail packages shall either be given on the packages or in accompanying documents, except that the name of the product, lot identification and the name and address of the manufacturer or packer shall appear on the packages.

10 Sampling

Sampling of Cooked packaged beans shall be done in accordance with RS ISO 24333.

Annex A
(normative)

Determination of drained weight

A.1 Definition

Drained weight expresses percentage of solid content as determined by the procedure described below.

A.2 Apparatus

A sieve 20 cm (check) in diameter. The meshes of such sieves are made by so weaving wire as to form square openings of 2.8 mm by 2.8 mm.

A.3 Procedure

Carefully weigh the clean and dry sieve. Weigh the container plus the contents. Empty the contents of the container into the sieve taking care to distribute the maize evenly. Without shifting the product, incline the sieve at an angle of approximately 17 % to 20° to facilitate drainage. Drain the product for two minutes and then weigh the sieve plus the product. Weigh the dry empty container.

A.4 Calculation

Drained weight, as per cent of net weight =

$$= \frac{100(M_1 - M)}{M_3 - M_2}$$

Where,

M=is the weight, in grams, of the sieve;

M_1=is the weight, in grams, of the sieve with the product;

M_2=is the weight, in grams, of the empty container; and

M_3=is the weight, in grams, of the container with the contents

Annex B
(normative)

Determination of Sodium chloride content

B.1 Scope

This method determines the content of chlorides.

B.2 Definition

The chloride content corresponds to the sum of all anions (halides) calculated as sodium chloride precipitable with silver ions in a nitric acid solution.

B.3 Principle

Quantitative precipitation of the halides extracted from the ash in a nitric acid solution with AgNO3 in excess. Back titration of the surplus AgNO3 with ammonium thiocyanate, using ferric alum (ferric ammonium sulphate) as the indicator.

B.4 Reagents

B.4.1 Distilled or demineralized water

B.4.2 AgNO3 solution, 0.1 N (16.9888 g AgNO3)

B.4.3 NH4SCN solution, 0.1 N (7.6113 g NH4SCN). In practice a slightly higher weight is taken and the solution is adjusted by dilution against a 0.1 N AgNO3 solution

B.4.4 Cold saturated NH4Fe (SO4) 2.12H2O solution (approximately 40 %). The ensuing brown colouring is eliminated by adding pure nitric acid drop wise

B.4.5 HNO3 (approximately 30 %)

B.4.6 Diethyl ether of nitrobenzene

B.5 Apparatus

B.5.1 Measuring flask, 100 ml

B.5.2 Burette, 50 ml

B.5.3 Erlenmeyer flask, 200 ml

B.5.4 Pipettes

B.5.5 Funnel, filtering paper

B.6 Procedure

The ash (residue after carbonization and incineration of the potato crisp at a maximum temperature of 550 °C in a muffle furnace) obtained from 1 g – 2 g dry matter is extracted by means of 80 ml – 90 ml hot distilled water acidified with a few drops of nitric acid. The washings are filtered off into a 100-ml measuring flask; after cooling distilled water is added until the mark is reached (stock solution). In proportion to the expected chloride content aliquot part of this solution, which should preferably contain 50 mg – 100 mg NaCl, taken off, distilled water being added to obtain a quantity of approximately 100 ml Subsequently 5 ml ferric alum solution (see C.4.4), 20 ml 0.1 N AgNO3 solution (see C.4.2) and 5 ml – 10 ml ether or 1 ml nitrobenzene are added; titration is carried out by means of an ammonium thiocyanate solution0.1 N (see C.4.3), until the red coloring remains after stirring.

B.7 Expression of results

Report in percentage by weight to one decimal place.

Chloride content =

$$\frac{5.56(V_2 - V_3) * V * 100}{V_1 * P}$$

where,

P = is the test portion, in mg, incinerated;

V = is the ml of the stock solution derived from the ash;

V_1 = is the volume, in ml, stock solution used from titration;

V_2 = is the volume, in ml, AgNO3 added; and

V_3 = is the volume, in ml, NH4SCN necessary for back titration.

Annex C
(normative)

Determination of soluble solids (Brix)

C.1 Definition

Determination of Total Soluble Solids (Brix).

C.2 Scope

All range of products with aqueous solution.

C.3 Apparatus

C.3.1 Sieve No. 8 (model: BS410) 2.36 m minimum diameter

C.3.2 Analytical balance, capable of weighing to the nearest 0.001 g.

C.3.3 Tin opener

C.3.4 Stainless steel tray

C.3.5 Spoon

C.4 Procedure

C.4.1 Adjust the temperature of the sample to room temperature

C.4.2 Open the cover (day light plate) at the refracting prism of the refractometer

C.4.3 Stir the samples thoroughly and wet the surface of the prism

C.4.4 Cover the prism with the day light plate

C.4.5 Look through the eyepiece at the opposite end of the refracting prism directly under the light source

C.4.6 Focus the eyepiece by turning the adjustment knob until a clear reading and a boundary line is seen

C.4.7 Record the reading

C.4.8 Flush the prism surface with distilled water

C.4.9 Dry the surface with soft tissue.

C.5 Reference

At ago Hand Refractometer N Types Series Instruction Manual

Bibliography

[1] RS 149: 2018, *Cooked packaged beans— Specification (Second edition)*

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