



**RWANDA
STANDARD**

**DRS
449**

First edition

2020-mm-dd

Fruit ketchup — Specification

ICS 67.080.10

Reference number

DRS 449: 2020

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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 449 was prepared by Technical Committee RSB/TC 038, *Processed fruits and vegetables*.

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

- 1) RS EAS 66-2: 2017, *Tomato products — Specification —Part 2: Tomato sauce and ketchup*
- 2) PNS/FDA 40: 2015, *Standard for Banana Ketchup*

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

Committee membership

The following organizations were represented on the Technical Committee on *Processed fruits and vegetables*. (RSB/TC 038) in the preparation of this standard.

Rwanda Standards Board (RSB) – Secretariat

Fruit ketchup — Specification

1 Scope

This Draft Rwanda Standard specifies the requirements, sampling and test methods for fruit ketchup intended for human consumption as condiment and ingredient for food.

This standard does not apply to tomato ketchup which is covered in RS EAS 66-2. This standard does not apply to ketchup for special dietary uses

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.

AOAC 920.151, *Solids (total) in fruits and fruit products*

AOAC 971.27, *Sodium chloride in canned vegetables. Method III (potentiometric method)*

RS 303-1, *Ginger — Specification Part 1: Fresh ginger*

RS 304-1, *Chillies — Specification Part 1: Fresh chilli*

RS 304-2, *Chillies — Specification Part 2: Dried and ground*

RS 371, *Fresh garlic — Specification*

RS 372, *Dehydrated garlic — Specification*

RS CAC/RCP 1, *General principles for food hygiene— Code of practice*

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

RS CODEX STAN 212, *General standard for sugars*

RS EAS 12, *Potable water—Specification*

RS EAS 146, *Rum — Specification*

RS EAS 147-1, *Vinegar — Specification —Part 1: Vinegar from natural sources*

RS EAS 147-2, *Vinegar — Specification —Part 1: Vinegar from artificial sources*

RS EAS 321, *Edible fats and oils—Specification*

RS EAS 35, *Fortified food grade salt — Specification*

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

RS EAS 83, *Fresh tomato — Specification*

RS EAS 894, *Fresh onions— Specification*

RS EAS 916, *Ginger — Specification*

RS EAS 917, *Turmeric — Specification*

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 1842, *Fruit and vegetable products — Determination of pH*

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 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*

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

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 Baird-Parker agar medium*

RS ISO 874, *Fresh fruits and vegetables — Sampling*

3 Terms and definitions

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

3.1

fruit ketchup

product derived from sound, ripe fruit and highly seasoned with characterising ingredients in quantities that materially alter the flavour, aroma and taste of the fruit component preserved using sugar and vinegar

3.2

sound

not overripe, not soft and free from diseases or insect damage, or bruising or physical injuries affecting keeping quality of the fruit

3.3

food packaging materials

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 Requirements

4.1.1 Ingredients

4.1.1.1 Essential ingredients

- a) Single or mixture of Fruits complying with relevant standards and their composition shall not be less than 50% of the entire mixture
- b) Vinegar complying with RS EAS 147-1 or RS EAS 147-2;
- c) Sugar complying with RS CODEX STAN 212 and other sweetening agents such as sucrose, invert sugar, dextrose, dried glucose syrup, glucose syrup;

4.1.1.2 Optional ingredients

The following ingredients may be used in the manufacture of fruit ketchup and shall comply with relevant standards. They include but not limited to.

- a) Tomatoes complying with RS EAS 83;
- b) Onions complying with RS EAS 894;
- c) Ginger complying with RS 303-1 or RS EAS 916;
- d) Edible oil complying with RS EAS 321;
- e) Chilli complying with RS 304-1 or RS 304-2;

- f) Garlic complying with RS 371 or RS 372
- g) Turmeric complying with RS EAS 917;
- h) Salt complying with RS EAS 35;
- i) Potable water complying with RS EAS 12; and
- j) Rum complying with RS EAS 146.

4.1.2 General requirements

Fruit ketchup shall:

- a) be free from foreign matter affecting the quality and safety of the product;
- b) be free from foreign smell and taste
- c) show no sign of spoilage
- d) be of good consistency, and uniform colour; and
- e) be practically free from defects including the following:
 - 1) fruit peel;
 - 2) any extraneous plant material; and
 - 3) dark specks or scale-like particles.

4.1.3 Specific requirements

Fruit ketchup shall comply with the specific requirements in Table 1 when tested in accordance with test methods specified therein.

Table 1 — Compositional requirements for fruit ketchup

S/N	Characteristics	Requirement	Test method
i.	Total Soluble Solids content, percent by mass, min.	15	AOAC 920.151
ii.	Sodium chloride, percent by mass, max.; when used	2	AOAC 971.27
iii.	pH, max	2.5-4.5	RS ISO 1842
iv.	Specific gravity at 20 °C	1.110 27	Annex A
v.	Fruit content, % min	50	GMP

5 Food additives

Food additives which may be used in fruit ketchup shall comply with RS CODEX STAN 192.

6 Hygiene

6.1 Fruit ketchup shall be produced, prepared and handled under hygienic conditions in accordance with RS CAC/RCP 1

6.2 Fruit ketchup shall not exceed microbiological limits given in Table 2 when tested in accordance with the test methods specified therein.

Table 2 – Microbiological limits for Fruit ketchup

S/N	Microorganism	Maximum limit	Test method
i.	Total Plate Count, cfu/g max.	10	RS ISO 4833-1
ii.	<i>Escherichia coli</i> , cfu/g	Absent	RS ISO 16649-2
iii.	<i>Salmonella spp</i> in 25 g	Absent	RS ISO 6579-1
iv.	<i>Staphylococcus aureus</i> , cfu/ g	Absent	RS ISO 6888-1
v.	Yeasts and moulds, cfu/g	< 10	RS ISO 21527-2

7 Contaminants

7.1 Pesticide residues

Fruit ketchup shall comply with those maximum residue limits established by the Codex Alimentarius.

7.2 Heavy metal limits

When tested in accordance with ISO 6633, Lead in fruit ketchup shall not exceed 0.1 mg/kg.

8 Minimum fill

Fruit ketchup shall occupy a minimum fill of not less than 90 % of the water holding capacity of the container which shall be determined in accordance with Annex B.

9 Packaging

Fruit ketchup shall be packed in suitable food grade packaging materials. The packaging materials shall be free from other products that may lead to contamination and alter the quality, composition, flavour, odour and taste of the fruit ketchup. Containers shall be air tight and shall be provided with tamper- proof seals and closures. Containers shall preclude contamination with or proliferation of microorganisms in the products during storage and transport.

10 Labelling

10.1 In addition to the requirements of RS EAS 38, the following specific labelling requirements shall apply and shall be legibly and indelibly labelled on each container:

- a) name of product including the type of fruit shall be “**Fruit ketchup**” or for example “**Banana ketchup**”. If an added ingredient, as defined in 4.1.1.2 alters the flavour characteristic of the product, the name of the food shall be accompanied by the term “**flavoured with X**” or “**X flavoured**” as appropriate.
- b) list of ingredients in descending order;
- c) name and physical address of manufacturer/importer;
- d) country of origin;
- e) date of manufacture;
- f) expiry date;
- g) food additives if used;
- h) net content declared in SI units (metric system);
- i) storage instructions;
- j) instructions for use; and
- k) batch and/or lot number.

10.2 Information for non-retail containers shall be given either on the container or in accompanying documents, except that the name of the product, lot identification, and the name and address of the manufacturer, packer, distributor or importer, as well as storage instructions, shall appear on the container. However, lot identification, and the name and address of the manufacturer, packer, distributor or importer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

11 Sampling

Sampling of fruit ketchup shall be done in accordance with RS ISO 874.

Annex A (normative)

Determination of specific gravity

A.1 Principle

The method involves use of specific gravity bottle which enables a liquid's density to be measured accurately by reference to an appropriate working fluid which is water. The specific gravity bottle is weighed empty, full of water, and full of a liquid whose specific gravity is desired. The ratio of the mass of a unit volume of a substance to the mass of a unit volume of water is then calculated as the specific gravity.

A.2 Apparatus

Specific gravity bottle/ pycnometer

A.3 Procedure

Clean and thoroughly dry the specific gravity bottle and weigh it. Fill it up to the mark with freshly boiled and cooled water, which has been maintained at a temperature of $20^{\circ}\text{C} \pm 1^{\circ}\text{C}$ and weigh. Remove the water, dry the bottle again and fill it with the material maintained at the same temperature. Weight the bottle again.

A.4 Calculation

Specify the temperature of testing

Calculate as follows:

$$\text{Specific gravity at } 20^{\circ}\text{C}/20^{\circ}\text{C} = \frac{CA}{BA}$$

where

C is the mass, in grams, of the specific gravity bottle with the material,

A is the mass, in grams, of the empty specific gravity bottle, and

B is the mass, in grams, of the specific gravity bottle with water

Annex B (normative)

Determination of the fill of the container

B.1 Scope

This method applies to glass containers.

B.2 Definition

The water capacity of a container is the volume of distilled water at 20 °C which the sealed container will hold when completely filled.

B.3 Procedure

B.3.1 Select a container which is undamaged in all respects.

B.3.2 Weigh the filled container, (W1).

B.3.3 Empty, Wash, dry and weigh the empty container (W2).

B.3.4 Fill the container with distilled water at 20 °C to the level of the top thereof, and weigh the container thus filled (W3).

B.3.5 Calculate the water capacity of a container

$$\text{WCC (Water Capacity of the Container)} = W_3 - W_2$$

B.4 Calculation and expression of results

Subtract the weight (W2) found in B.3.3 from the weight (W1) found in B.3.2 and divide the result by WCC found in B.3.5 and multiply by 100. Results are expressed as percentage.

$$\begin{aligned} \text{Fill of the container} &= \frac{W_1 - W_2}{\text{WCC}} 100 \\ &= \frac{W_1 - W_2}{W_3 - W_2} 100 \end{aligned}$$

Bibliography

- [1] *United States Standards for Grades of Tomato Catsup, Effective date February 26, 1992*
- [2] *Codex Alimentarius website: http://www.codexalimentarius.net/mrls/pestdes/jsp/pest_q-e.jsp*
- [3] *USDA Foreign Agricultural Service website: <http://www.mrlatabase.com>*
- [4] *USDA Agricultural Marketing Service website: <http://www.ams.usda.gov/AMSV1.0/Standards>*
- [5] *USDA Plant Inspectorate Service website: http://www.aphis.usda.gov/import_export/plants*
- [6] *European Union: http://ec.europa.eu/sanco_pesticides/public*

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