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DRAFT EAST AFRICAN STANDARD

Food grade acesulfame potassium — Specification

EAST AFRICAN COMMUNITY

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Copyright notice

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 005, *Food additives.*

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

Introduction

Acesulfame Potassium (Potassium Salt of 6-Methyl-1,2,3-Oxathiazin-4(3h)-One-2,2-Dioxide; Potassium Salt of 3,4-Dihydro-6-Methyl-1,2,3-Oxathiazin-4-One-2,2-Dioxide) is a low calorie artificial sweetener, sugar substitute and flavour enhancer. It is used in the preparation of products such as beverages, desserts, sweets, dairy products, chewing gums, energy-reduced and weight control products, as a table-top sweetener and in the preparation of food for diabetics.

In the Codex Alimentarius Commission International Numbering System, Acesulfame potassium is assigned as INS 950 and the FAO/WHO Joint Experts Committee on Food Additives (JECFA) established the Acceptable Daily Intake (ADI) for Acesulfame Potassium at 0 mg/kg – 15 mg/kg body weight.

The food categories in which the food additive, Acesulfame Potassium, is permitted for use are as given in accordance with CXS 192-1995.

Food grade acesulfame potassium — Specification

1 Scope

This Draft East African Standard specifies requirements, sampling and test methods for food grade acesulfame potassium intended for use in food products .

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 999.11, Determination of Lead, Cadmium, Copper, Iron, and Zinc in Foods, Atomic Absorption Spectrophotometry after Dry Ashing

AOAC 952.13

CODEX STAN 107, General standard for the labelling of food additives when sold as such

CAC/GL 50, General guidelines on sampling

ISO 10523, Water quality — Determination of pH

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at http://www.iso.org/obp

food grade material
material, made of substances that 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 General requirements

Food grade acesulfame potassium shall be:

a) a white, odourless, crystalline powder; and

b) soluble in water, slightly soluble in ethanol.

4.2 Specific requirements

Food grade acesulfame potassium shall comply with the specific requirements given in Table 1 when tested in accordance with the test methods specified therein.

Table 1 — Specific requirements for food grade acesulfame potassium

S/N	Characteristic	Requirement	Test method
i	Organic Impurities	Passes test for 20 mg/kg of UV active components	Annex A
ii	Loss on drying, (105 °C , 2 h) % m/m, max.	1	Annex B
iv	pH, at 1% solution in water	5.5-7.5	ISO 10523

Spectrophotometric absorbance shall be determined for the product by dissolving 10 mg of the sample in 1 000 ml of water. The result shall be the maximum absorbance at 227±2 nm.

5 Contaminants

Food grade acesulfame potassium shall comply with the maximum levels of contaminants given in Table 2 when tested in accordance with the test methods specified therein.

Table 2 — Maximum Limits for contaminants in food grade acesulfame potassium

S/N	Contaminant	Maximum level	Test method
i)	Fluoride, mg/kg, max.	3	AOAC 999.11
ii)	Lead, mg/kg	1	AOAC 952.13

6 Packaging

The product shall be securely packaged in containers made of food grade materials. The packages shall preserve the quality and safety of the product and preclude contamination from the external environment.

7 Labelling

7.1 In addition to the requirements of CODEX STAN 107, the product packages shall be legibly and indelibly labelled with the name of the product as “Acesulfame potassium” or “Acesulfame K”,.

7.2 The labelling shall be in English or any other official language used in the importing East African Partner State.

9 Sampling

Representative samples of the product shall be drawn in accordance with CAC/GL 50.

Annex A
(normative)

Assay: organic impurities

A.1 Proceed as directed under the method for Chromatography (High Performance Liquid Chromatography, FNP 5) using the following conditions and using 4-hydroxybenzoic acid ethyl ester as the reference substance:

A.2 Column: 25 cm x 4.6 mm stainless steel Stationary phase: Reversed phase (C18 silica gel, 3 - 5 µm) Elution: Isocratic Mobile phase: Acetonitrile/0.01 mol/l tetrabutyl ammonium hydrogen sulfate (TBAHS) in water; 40/60 v/v Flow: About 1 ml/min Detector type: UV or Diode array, 227 nm Sample size: 20 µl of a 10 g/l solution of the sample in deionized water

A.3 The chromatographic system must be capable of separating acesulfame K and 4-hydroxybenzoic acid ethyl ester with a resolution of 2. If peaks other than that due to acesulfame K appear within three times the elution time of acesulfame K, carry out a second run using 20 µl of a 0.2 mg/l solution of the sample.

A.4 The sum of the areas of all peaks eluted in the first run within 3 times the elution time of acesulfame K elution time, except for the acesulfame K peak, does not exceed the peak area of acesulfame K in the second run.

Assay: Organic Impurities (Alternate method)

Dissolve about 0.15 g of the dried sample (dissolution may be slow), accurately weighed, in 50.0 ml glacial acetic acid and titrate potentiometrically with 0.1 N perchloric acid, or add two drops of crystal violet TS and titrate with 0.1 N perchloric acid, to a blue-green end-point which persists for at least 30 sec. Perform a blank determination and make any necessary correction. Each ml of 0.1 N perchloric acid is equivalent to 20.12 mg of $C_4H_4KNO_4S$.

Annex B
(normative)

Loss on drying

B.1 Requirements

B.1.1 Weighing bottle with a stopper

B.1.2 Air oven

B.1.3 Desiccator

B.1.4 Weighing scale

B.2 Sample preparation

Weigh 1 to 2 g of sample (M_1). Tare a glass-stoppered, shallow weighing bottle that has been dried for 30 minutes at 105 ºC. Transfer the sample into the bottle, replace the cover, and weigh the bottle and the sample (M_2). Distribute the sample as evenly as practicable to a depth of about 5 mm, and not over 10 mm.

B.3 Procedure

Place the bottle with its contents in the drying chamber, removing the stopper and leaving it also in the chamber, and dry the sample at the 105 ºC for 2 h. Upon opening the chamber, close the bottle promptly and allow it to come to room temperature in a desiccator. Weigh the cool bottle and its contents (M_3).

Calculate the loss on drying from the following equation:

$$\text{Loss on drying (\%w/w)} = \frac{M_2 - M_3}{M_1} \times 100$$

where

M_1 is the mass of sample in grams;

M_2 is the mass of sample and weighing bottle in grams before drying; and

M_3 is the mass of sample and weighing bottle in grams after drying and cooling in a desiccator.

If the sample melts at a temperature lower than 105 ºC, prepare the sample as described above, then place it in a vacuum desiccator containing sulfuric acid. Evacuate the desiccator to 130 Pa (1 mm of mercury), maintain this vacuum for 24h, and then weigh the dried sample. Calculate the loss on drying using the same equation above.

Bibliography