



DRAFT EAST AFRICAN STANDARD

Supplementary foods for the management of moderate acute malnutrition (MAM) for persons above 5 years — Specification

EAST AFRICAN COMMUNITY

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East African Community
P.O. Box 1096,
Arusha
Tanzania
Tel: + 255 27 2162100
Fax: + 255 27 2162190
E-mail: eac@eachq.org
Web: www.eac-quality.net

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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 018, *Nutrition and Foods for Special Dietary Uses*.

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.

Supplementary foods for the management of moderate acute malnutrition (MAM) for persons above 5 years — Specification

1 Scope

1.1 This Draft East African Standard specifies requirements, sampling and test methods for supplementary foods intended for the management of moderate acute malnutrition (MAM) for persons above 5 years

1.2 Products covered under this standard are used under the guidance of health professional

1.3 This standard does not apply to supplementary foods intended for the management of Moderate Acute Malnutrition (MAM) in persons from the age of 6 months up to 59 months, processed cereal based foods, fortified processed cereal based foods, fortified milled maize (corn) products, vitamin, mineral food supplements and RUTF 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 2001.04, *Fumonisin B1 and B2 in corn and corn flakes. Liquid chromatography with immunoaffinity column cleanup*

AOAC 965.33, *Peroxide Value of Oils and Fats*

AOAC 984.27, *Calcium, Copper, Iron, Magnesium, Manganese, Phosphorus, Potassium, Sodium, and Zinc in infant formula. Inductively coupled plasma emission spectroscopic method*

AOAC 986.18, *Deoxynivalenol in wheat. Gas chromatographic method*

AOAC 999.11, *Lead, Cadmium, Copper, Iron, and Zinc in Foods. Atomic absorption spectrophotometry after dry ashing*

CXG 10, *Advisory list of mineral salts and vitamin compounds for use in foods for infants and children*

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

EAS 39, *Hygiene in the food and drink manufacturing industry — Code of practice*

EAS 744, *Cassava and cassava products — Determination of total cyanogens — Enzymatic assay method*

EAS 803, *Nutritional labelling — Requirements*

EAS 900, *Cereals, pulses and their products — Sampling*

ISO 11085, *Cereals, cereals-based products and animal feeding stuffs — Determination of crude fat and total fat content by the Randall extraction method*

ISO 14902, *Animal feeding stuffs — Determination of trypsin inhibitor activity of soya products*

ISO 15141, *Cereals and cereal products — Determination of ochratoxin A — Part 1: High performance liquid chromatographic method with immunoaffinity column cleanup and fluorescence detection*

ISO 16050, *Foodstuffs — Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products — High-performance liquid chromatographic method*

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*

ISO 20483, *Cereals and pulses — Determination of the nitrogen content and calculation of the crude protein content — Kjeldahl method*

ISO 20633, *Infant formula and adult nutritionals — Determination of vitamin E and vitamin A by normal phase high performance liquid chromatography*

ISO 20634, *Infant formula and adult nutritionals — Determination of vitamin B12 by reversed phase high performance liquid chromatography (RP-HPLC)*

ISO 20635, *Infant formula and adult nutritionals — Determination of vitamin C by (ultra) high performance liquid chromatography with ultraviolet detection ((U) HPLC-UV)*

ISO 20639, *Infant formula and adult nutritionals — Determination of pantothenic acid by ultra-high performance liquid chromatography and tandem mass spectrometry method (UHPLC-MS/MS)*

ISO 21446, *Infant formula and adult nutritionals — Determination of trans and total (cis + trans) vitamin K1 content — Normal phase HPLC*

ISO 21470, *Infant formula and adult nutritionals — Simultaneous determination of total vitamins B1, B2, B3 and B6 — Enzymatic digestion and LC-MS/MS*

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 23305, *Fortified milk powders, infant formula and adult nutritionals — Determination of total biotin by liquid chromatography coupled with immunoaffinity column clean-up extraction*

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

ISO 5506, *Soya bean products — Determination of urease activity*

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

ISO 6888-1, *Microbiology of the food chain — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 1: Method using Baird-Parker agar medium*

ISO 7932, *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of presumptive Bacillus cereus — Colony-count technique at 30 degrees C*

ISO 9648, *Sorghum — Determination of tannin content*

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>

— IEC Electropedia: available at <http://www.electropedia.org/>

3.1

supplementary foods

specially formulated foods, in ready-to-eat, pre-cooked or uncooked form, which are modified in their energy density, protein, fat or micronutrient composition to help meet the nutritional requirements of specific population.

3.2

fortification

practice of deliberately adding micronutrient(s) that is vitamins and minerals (including trace elements) in a food, so as to improve the nutritional quality of the food supply and provide a public health benefit with minimal risk to health

3.3

micronutrient

natural or synthesized vitamin, mineral or a trace element that is essential for normal growth, development and maintenance of life and of which a deficiency will be detrimental to health

3.4

extraneous matter

organic matter originating from food plants or animals and/or their products other than the designated product

3.5

foreign matter

organic and inorganic materials (such as sand, soil, glass) other than extraneous matter in the designated product

3.6

free sugar

added mono and disaccharide with the exception of lactose present in dairy products

3.7

moderate acute malnutrition (MAM)

form of undernutrition characterized by wasting, which means a low weight-for-height ratio.

Note to entry: For individuals above 5 years of age, the diagnosis of MAM is typically based on specific anthropometric indicators as established by global standards. These standards are primarily defined by organizations like the World Health Organization (WHO) and UNICEF.

4 Requirements

4.1 Raw materials

4.1.1 Supplementary foods for the management of moderate acute malnutrition for persons above 5 years shall be prepared primarily from one or more milled cereal/pulses/legumes products complying with the relevant East African Standards.

4.1.2 Vitamins and minerals shall be used in accordance with CXG 10.

4.2 Optional ingredients

The optional ingredients used shall comply with relevant East African standards. They include but are not limited to the following:

- a) starchy roots;
- b) oilseed flours and oilseed protein products;
- c) fats and oils excluding partially hydrogenated fats and oils;
- d) milk and other dairy products; and
- e) carbohydrates
- f) animal nutrient dense foods

4.3 General requirements

Supplementary foods for the management of moderate acute malnutrition for persons above 5 years shall be:

- a) free from live or dead insects;
- b) free from extraneous and foreign matter;
- c) free from rancid and objectionable flavour; and
- d) free from objectionable odour.

4.4 Specific requirements

4.4.1 Supplementary foods for the management of moderate acute malnutrition for persons above 5 years shall comply with specific requirements given in Table 1 when tested in accordance with test methods specified therein.

Table 1 — Specific requirements for Supplementary foods for the management of moderate acute malnutrition for persons above 5 years

S/N	Parameter	Requirement	Test method
i.	Energy density (on dry weight basis), kcal/100 g, min.	380	EAS 803
ii.	Moisture content ^a , %, by mass, max.	10	ISO 712
iii.	Protein, % m/m min.	14	ISO 20483
iv.	Fat content, % m/m, min	6	ISO 11085

^a The moisture content applies to dried form of products.

4.4.2 Supplementary foods for the management of moderate acute malnutrition for persons above 5 years shall comply with specific requirements for micro- nutrients given in Table 2 when tested in accordance with test methods specified therein.

Table 2 — Specific requirements for micro- nutrients in Supplementary foods for the management of moderate acute malnutrition for persons above 5 years

S/N	Nutrient	Requirement		Test method
		Minimum	Maximum	
1.	Vitamin A, µg RE/100g	800	1250	ISO 20633
2.	Vitamin D, µg/100 g	8	24	
3.	Vitamin K, µg/100 g	20	-	ISO 21446
4.	Vitamin B ₁ , mg/100 g	0.4	-	ISO 21470
5.	Vitamin B ₂ , mg/100 g	1.6	-	
6.	Vitamin B ₃ (Niacin) , mg/100 g	10	-	ISO 20639
7.	Vitamin B ₅ (Panthotenic acid), mg/100 g	2	-	
8.	Vitamin B ₆ , mg/100 g	0.8	-	ISO 21470
9.	Vitamin B ₇ (Biotin), µg/100 g	8	-	ISO 23305
10.	Vitamin B ₉ (Folic acid), µg/100 g	160	-	ISO 20634
11.	Vitamin B ₁₂ , µg/100 g	2	-	ISO 7305
12.	Vitamin C, mg/100 g	60	-	ISO 20635
13.	Iodine, µg/100 g	40	140	AOAC 984.27
14.	Iron, mg/100 g	9	15.7	
15.	Zinc, mg/100 g	8	14	
16.	Calcium, mg/100 g	340	550	
17.	Phosphorous mg/100 g	400	560	
18.	Potassium mg/100 g	580	970	
19.	Sodium mg/100 g	-	270	

5 Food additives

Only the food additives approved for use as specified in CXS 192 may be used.

6 Hygiene

6.1 Supplementary foods for the management of moderate acute malnutrition for persons above 5 years shall be produced, prepared and handled in accordance with EAS 39.

6.2 The product shall comply with microbiological limits given in Table 3 when tested in accordance with test methods specified therein.

Table 3 — Microbiological limits for supplementary foods for the management of moderate acute malnutrition for persons above 5 years

S/N	Microorganism	Limit	Test method
i.	Coliforms, CFU/g	<10	ISO 4832
ii.	<i>Salmonella spp</i> in 25 g	Absent	ISO 6579-1
iii.	<i>Escherichia coli</i> , CFU/g	<10	ISO 16649-2

iv.	<i>Staphylococcus aureus</i> , CFU/g	<10	ISO 6888-1
v.	<i>Bacillus cereus</i> , CFU/g, max.	50	ISO 7932
vi.	Yeasts and moulds, CFU/g, max.	10 ²	ISO 21527-2

7 Contaminants

7.1 Heavy metals

The product shall comply with the maximum limits for heavy metals given in Table 4 when tested in accordance with the test methods specified therein.

Table 4— Heavy metal limits for supplementary foods for the management of moderate acute malnutrition for persons above 5 years

S/N	Heavy metal	Maximum limit mg/kg	Test method
i.	Lead	0.2	AOAC 999.11
ii.	Cadmium	0.1	

7.2 Anti-nutritional factors

7.2.1 If soya flour is used as a component of the product,

- a) urease activity shall not exceed 0.3 mg N/g/min when tested in accordance with ISO 5506; and
- b) trypsin inhibitor activity shall not exceed 5 mg/g when tested in accordance with ISO 14902

7.2.2 If sorghum flour is used as a component of the product, the tannin content shall not exceed 0.3 % by mass on a dry matter basis when tested in accordance with ISO 9648.

7.2.3 If cassava is used as a component of the product, the total hydrocyanic acid content shall not exceed 2 mg/kg, when tested in accordance with EAS 744.

7.3 Mycotoxins

The product shall not exceed mycotoxins limits given in Table 5 when tested in accordance with test methods specified therein

Table 5 — Mycotoxin limits for supplementary foods for the management of moderate acute malnutrition

S/N	Parameter	Limit	Test method
1.	Total aflatoxins, µg/kg	[5]	ISO 16050
2.	Aflatoxin B ₁ , µg/kg	[3]	
3.	Fumonisin, mg/kg	2	AOAC 2001.04
4.	Ochratoxin A, µg/kg	5	ISO 15141-1
5.	Deoxynivalenol (DON), mg/kg	0.2	AOAC 986.18

8 Packaging

8.1 The product shall be packaged in food grade packaging material which will safeguard the hygienic and product quality attributes.

8.2 Each package shall be securely closed and easily re-closable during use where applicable.

9 Labelling

9.1 General

In addition to the requirements given in EAS 38 and EAS 803, each package shall be legibly and indelibly labelled with the following:

- a) name of the product as “Supplementary food for MAM”,
- b) statement “suitable for person with moderate acute malnutrition for the age of above 5 years”; and
- c) dosage.

9.2 Nutrition and health claims

The product may have claims on nutrition and health. Such claims when declared shall comply with EAS 804 and EAS 805.

10 Sampling

Sampling shall be done in accordance with the EAS 900.

Bibliography

- [1] RS 348: 2017, Amd01: 2018 Fortified Processed Cereal Based Foods (FPCBF) for old children and adults-Specification
- [2] ECSA, *Manual of methods for determining micronutrients in fortified foods*; www.a2zproject.org/-2zorg/pdf/Manual_Foods.pdf
- [3] FAO/WHO (2004) *Reference nutrient intake or INL 98 from FAO/WHO Vitamins and Mineral requirements in Human Nutrition*. 2nd Edition. (for all micronutrients except copper, manganese and phosphorus)
- [4] WHO. Technical note: *Supplementary foods for the management of moderate acute malnutrition in infants and children 6–59 months of age*. Geneva, World Health Organization, 2012.
- [5] CXS 74-2010, *Guidelines on Performance Criteria and Validation of Methods for Detection, Identification and Quantification of Specific DNA Sequences and Specific Proteins in Foods*
- [6] WFP technical specifications of March, 2024 on the super cereal corn soy blend with sugar

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