EAST AFRICAN COMMUNITY

EDICT OF GOVERNMENT

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EAS 78 (2006) (English): Milk-based baby foods – Specification

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EAST AFRICAN STANDARD

Milk-based baby foods — Specification

EAST AFRICAN COMMUNITY

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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 East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to achieve this objective, the Partner States in the Community through their National Bureaux of Standards, have established an East African Standards Committee.

The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. 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 procedures of the Community.

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.

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Milk-based baby foods — Specification

1 Scope

This East African Standard prescribes the requirements for infant milk foods. These foods are intended for use as part of the weaning or follow up diet of the infant from the age of 4 months to 6 months, and of the child.

This standard does not include foods covered by the standards for infant formula, for processed cereal-based foods for infants and children and for canned baby foods.

2 Definition

For the purpose of this standard, he following definition shall apply.
infant food
shall mean the material prepared by spray drying of the cow milk, which is then modified by partial removal of fat and by addition of different carbohydrates such as sucrose, dextrose and dextrins, maltose and lactose; salts like phosphates and citrates; Vitamins A, B group, C and D; and minerals like calcium and iron.

2.2 These foods are not intended to serve as the sole source of nourishment. They are intended to supply, as part of the infant's increasingly diversified diet, at least the minimum requirements of those nutrients, which are most likely to be deficient in the diet of infants, and children who may not be receiving adequate amounts of breast milk.

2.3 The term 'infant' means a person of not more than 12 months.

2.4 The term 'child' means a person from the age of 12 months up to the age of three years.

2.5 The 'calorie' means 'kilocalorie or 'large calorie' (1 kilocalorie is equivalent to 0.339 kilocalories).

3 Requirements

3.1 Description

3.1.1 The milk based baby food shall be white to light cream in colour, free from lumps and of large coarse particles.

3.1.2 It shall be free from dirt and extraneous matter, preservatives and added colour and materials and bacteria are harmful to human health.

3.1.3 It shall be free from starch, and non-milk fat.

3.1.4 All ingredients shall be clean, of good quality, safe and suitable for ingestion by infants. They shall conform to their normal quality requirements such as colour, flavour and odour.

3.2 Flavour

The milk based baby food in the dry or reconstituted form shall have fresh, pleasant flavour and odour. It shall not have a rancid or a musty odour or flavour.

3.3 The milk based baby food shall be manufactured and packed under hygienic conditions in accordance with the requirements given in Table 1.

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Table 1 — Requirements for infant milk foods

Sl No.	Characteristic		Requirement	
i)	Moisture, per cent by mass (maximum)		3.0	
ii)	Total milk protein, per cent by mass (minimum)		20.00	
iii)	Milk fat, per cent by mass (minimum)		18.00	
iv)	Total carbohydrates, including sucrose, dextrose and dextrins, maltose (minimum)		45	
v)	Total ash, per cent by mass (maximum)		8.5	
vi)	Acid insoluble ash, per cent by mass (maximum)		0.1	
vii)	Solubility: a) Solubility index, ml (maximum) b) Solubility, per cent by mass, (minimum)		 1.5 98.5	
		Amounts per 100 available calories		
viii)	Vitamins	Minimum	Maximum	
	Vitamin A	250 I.U. or 75 µg expressed as rational	750 I.U. or 225 µg expressed as rational	
	Vitamin D	40 I.U.	100 I.U.	
	Vitamin E	Not less than 0.7 I.U./100 available calories	Not specified	
	Ascorbic acid (vitamin C)	8 mg	Not specified	
	Thiamine (vitamin B)	40 µg	Not specified	
	Riboflavin (vitamin B_2)	60 µg	Not specified	
	Nicotinamide	250 µg	Not specified	
	Vitamin B_6	45 µg	Not specified	
	Folic acid	4 µg	Not specified	
	Pantothenic acid	300 µg	Not specified	
	Vitamin B_{12}	0.15 µg	Not specified	
	Vitamin K_1	4 µg	Not specified	
	Biotin (Vitamin H)	1.5 mg	Not specified	
ix)	Choline	7 mg	Not specified	
x)	Mineral salts Sodium (Na) Potassium (K) Chloride (Cl)	 20 mg 80 mg 55 mg	 100 mg 200 mg 150 mg	
	Calcium (Ca)	90 mg	200 mg	
	Phosphorus (P)	60 mg	Not specified	
	Magnesium (Mg)	6 mg	Not specified	
	Iron (Fe)	1 mg	Not specified	
	Iodine (I)	5 µg	Not specified	
	Copper (Cu)	60 µg	Not specified	
	Zinc (Zn)	0.5 µg	Not specified	
xi)	Micro-organisms	Bacteria count per g (maximum)	5 000	
		Coliform count per g (maximum)	0	
		Pathogenic organisms per g (maximum)	0	

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4 Packaging

The infant milk shall be packed in hermetically sealed, clean and sound containers in such a manner as to protect it from deterioration. It shall be packed in nitrogen or a mixture of nitrogen and carbon dioxide. Any other proven non-toxic, harmless inert gases may be used for this purpose.

5 Marking

5.1 Individual containers in which infant milk foods are packed, and subsequent packing enclosures shall be labelled in accordance with the requirements of EAS 38*.(Labelling of prepackaged foods)*

5.2 In addition, the following specific provisions shall be clearly marked:

5.2.1 Name of food indicating its true nature 'based on milk' for products, which contain a minimum of 3 g of milk protein per 100 available calories.

5.2.2 The label shall state that the food is only suitable for infants over the age of 4 months and this instruction shall be included in all descriptive literature.

5.2.3 The label shall indicate that 'it is only intended to supplement breast milk'.

5.2.4 List of ingredients in descending order of proportion, except in the case of added vitamins arranged as separate groups as vitamins and minerals.

5.2.5 The specific names shall be declared for ingredients of animal or plant origin and for food additives.

5.2.6 Declaration of nutritive value shall include:

a) Amount of energy expressed as Calories (kCal) and/or kilojoules (kJ) and the grams of proteins, carbohydrates and fat per 100 food as sold.

b) Total quantity of each vitamin, mineral per 100 g of the food as sold.

5.2.7 The scoop size as well as quantity suggested for consumption shall be declared.

5.2.8 Net content of the product shall be declared by volume if it is in liquid form or by weight if it is in powder form.

5.2.9 The date of expiry of shelf life shall be declared on 'use before...'

5.2.10 The marking and marketing of infant milk foods shall he in accordance with relevant East African Standard.

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Annex A
(normative)

Determination of acid insoluble ash

A.1 Reagent

Hydrochloric acid

Approximately 5 M (originally 5 N) prepared from concentrated hydrochloric acid.

A.2 Procedure

To the ash (of known weight obtained in determination of total ash) contained in the porcelain dish, add 25 ml hydrochloric acid, cover with a watch-glass and heat on a water bath for 10 min. Allow to cool and filter the contents through Whatman filter paper No. 42 or its equivalent. Wash the filter paper No. 42 or its equivalent. Wash the filter paper with water until washings are free from the acid. Return the filter and the residue to the dish. Keep it in an electric air oven maintained at 105 °C for about 3 h.

Ignite in a muffle furnace at 600 ± 200 for 3 h. Cool the dish in a desiccator and weigh. Repeat the process of igniting in the muffle furnace, cooling and weighing at half hour intervals until the difference between two successive weighing is less than one milligram. Note the lowest weight.

A.3 Calculation

Acid insoluble ash (on dry basis), per cent by weight $= \frac{100\,(W_2 - W)}{W_1 - W}$

where;

W_2 = weight in g of the porcelain dish with the acid insoluble ash *(*see Clause A.2),

W = weight in g of the empty porcelain dish *(see* determination of total ash), and

W_1= Weight in g of the porcelain dish with the material taken for the determination of total ash.

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Annex B
(normative)

Determination of solubility

B.1 Determination of solubility index (Table 1, Item (vii) *a*))

B.1.1 Apparatus

B.1.1.1 *Balance*

Torsion or simple type approximately 500 g capacity and 0.1 g or better sensitivity.

B.1.1.2 *Centrifuge*

Of required speed (rev/min) with cups to accommodate conical centrifuge tubes.

The required speed varies with the diameter of the head as follows:

Diameter, cm	**Speed, rev/min**
25.4	1074
30.5	980
35.5	909
Diameter, cm	**Speed, rev/min**
40.6	848
45.7	800
50.8	750
55.9	724
61.0	695

NOTE The diameter of the head' is the distance between the inside bottoms of opposite cups measured through the centre of rotation of the centrifuge head while the cups are horizontally extended.

B.1.1.3 Centrifuge tubes

Conical, graduated as follows:

0 ml to 1.0 ml in 0.1 ml divisions

1.0 ml to 2.0 ml in 0.2 ml divisions

2.0 ml to 10.0 ml in 0.5 ml divisions

10.0 ml to 20.0 ml in 1.0 ml divisions

and a 5 0. 0 ml mark at least 1 cm to 3 cm from the top of the tube.

B.1.1.4 Mixing jars — 500 ml glass stirring jar.

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B.1.1.5 Mixer — Fitted with a motor capable of operating at 3 600 inv/min and a stirrer shaft. It may have control to shut off the motor at the end of 90-second stirring period with a timer calibrated in 5-second intervals, and adjusted to a maximum of 5 minutes. Appropriate dimensions of mixer may be height 45 cm, width 12 cm and depth 22 cm. The blades of the impeller may have a pitch of 300 and a spread of 8.7 mm between blades.

B.1.1.5.1 Any mixer, which gives the performance, specified in B.1.1.5 may be used.

B.1.1.6 Siphon tube

B.1.2 Procedure

B.1.2.1 Reconstitution — Add 14 g of the sample to 100 ml of distilled water at a temperature of 24 °C in the mixing jar. Place the jar in the mixer and stir for exactly 90 seconds. Allow the sample to stand until the foam has separated sufficiently to permit its complete removal by a spoon. The period of standing after mixing should not exceed 15 minutes. After removal of foam, mix the sample thoroughly with a spoon for I5 seconds.

B.1.2.2 Removal of cream and soluble fraction

Fill up the centrifuge tube immediately with the reconstituted milk to the 50 ml mark. Centrifuge the tube for 15 min at the required speed (*see* B.1.1.2). Immediately siphon off the transparent liquid to within 5 ml of the surface of the sediment, dislodging it, if necessary, with a wire. Fill the tube to the 50 mm mark with distilled voter at a temperature of 24 °C. Invert and shake to mix the content thoroughly. Again centrifuge at the required speed for 5 min.

B.1.2.3 Determination of solubility index

Hold the tube in a vertical position with the upper level of the sediment on a level with the eye and read the millilitres of sediment in the tube to the nearest graduated scale division. The sediment is easily distinguished when the tube is held between the eye and a strong source of light.

B.1.3 Calculation

B.1.3.1 Solubility index

Report the solubility index as the millilitres of sediment in the tube.

B.2 Determination of solubility per cent (Table 1, Item vii) *b*))

B.2.1 Reconstitution

Weigh accurately 4 g of the material into a 50 ml boiling tube. Add 32 ml of water at 50 °C ± 1 °C. Cork the tube and shake for 10 s. Place the tube in a Crater bath at 50 °C ± 1 °C for 5 min. Shake the tube for one minute, making about 4 to 6 double excursions of about 30 cm per second.

B.2.2 Removal of fat

Fill up to the brim a 25 ml centrifuge tube with the reconstituted milk (*see* B.2.1) and centrifuge for 10 minutes at an approximate precipitating force of 770 g. (This force is obtained by using a centrifuge where the radius to the bottom of the rotating tube is 17 cm and the number of revolutions per minute is 2000.) Cool in a refrigerator or in ice until the fat becomes solid and forms a cake, taking care that the milk does not freeze. Remove the fat layer with as little milk as possible by running a needle around the cake of the fat and then remove it with a spoon shaped spatula. Warm the milk to 27 °C ± 1 °C. Break up the deposit with a rod or wire. Cork the tube and shake well until the liquid appears to be homogeneous.

B.2.3 Determination of total solids

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Transfer about 2 ml of the homogeneous liquid (*see* B.2.2) to a previously weighed dry tared aluminium dish (No. 1) (6 cm in diameter and 2.5 cm in height) and provided with a tight fitting lid. Weigh the dish with the lid on and place it aside.

Centrifuge the tube again for 10 minutes (see B.2.2). Pipette about 2 ml of the upper layer of the supernatant liquid, without disturbing the sediment, into a second aluminium dish (No. 2) of the same type as No. 1. Cover the dish and weigh.

Uncover both the dishes and place them side by side on a steam bath until apparently dry. Place the dishes in an air-oven at 100 °C ± 2 °C for 90 min. Cover and transfer the dishes to a desiccator. Cool and weigh the dishes individually.

B.3 Calculation

Solubility, per cent by weight $= \frac{W_4 \times W_1 \times 100}{W_3 \times W_2}$

Where

W_4 = Weight in g of total solids in dish No. 2,

W_1 = Weight in g of the liquid taken immediately after the removal of fat in dish No. 1,

W_3 = Weight in g total solids in dish No. 1, and

W_2 = Weight in g of the supernatant liquid taken in dish No. 2.

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