

codex alimentarius commission



FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS

WORLD
HEALTH
ORGANIZATION



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Agenda Item 6

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JOINT FAO/WHO FOOD STANDARDS PROGRAMME CODEX COMMITTEE ON NUTRITION AND FOODS FOR SPECIAL DIETARY USES

**Thirty first Session
Robert Shuman Hall, Museum Kunst Palast, Düsseldorf, Germany
2 – 6 November 2009**

PROPOSAL FOR NEW WORK TO ESTABLISH A STANDARD FOR PROCESSED CEREAL BASED FOODS FOR UNDERWEIGHT INFANTS AND YOUNG CHILDREN

Proposal now being put forward by India is as follows:

STANDARDS FOR ‘PROCESSED CEREAL BASED FOODS FOR INFANTS AND YOUNG CHILDREN IN DEVELOPING COUNTRIES’ TO BE INCORPORATED AS ‘PART B’ IN THE REVISED CODEX STANDARD FOR PROCESSED CEREAL BASED FOODS FOR INFANTS AND YOUNG CHILDREN (CODEX STAN 074-1981 Rev. 1-2006)

(Discussion Paper prepared by India)

1. The purposes and the scope of the standard:

The Revised Standard for Processed Cereal Based Foods for Infants and Young Children has far reaching implications on the health and nutritional status of children worldwide. The revised Standards CODEX STAN 074-1981 Rev. 1-2006 is a dilution of the earlier pre revised Codex Standards No CODEX STAN 074-1981 and CAC/GL08-1991 as the minimum standards for protein content are not defined and the energy content prescribed is low. It is imperative that growing infants and young children consume good quality protein along with adequate energy for sustaining the growth achieved in the first 6 months of life. The age of under 2 years is one of critical growth period and therefore a window of opportunity for optimizing the growth and development potential of the children. Nutritional adequacy in infancy and early childhood is fundamental for realizing the child’s full growth potential. Developing world, especially India and other South Asian countries, require special interventions for optimizing health and nutrition of infants and young children. Keeping in view that these countries face a serious problem of undernutrition rather than obesity, it is proposed that ‘Part B’ may be added to the recently revised Standard for Processed Cereal Based Foods for Infants and Young Children for meeting the challenge of improving nutrition. The purpose of this ‘India document’ is to establish standards for all infants and young children in developing countries.

The proposed Part B is intended for infants and young children from the age of 6 months onwards and cover standards for processed cereal-based foods. It is expected that only products as per specification under Part B will be commercially available, and hence there will be no confusion among potential consumers.

2. Its relevance and timeliness:

The need for ‘Part B’ has arisen because of high prevalence of underweight children in Developing Countries which begins to rise significantly from the age of 6 months onwards and peaks between 18-24

months². This paper proposes a new energy and protein composition which will help reduce undernutrition among infants and young children in the developing world.

According to State of World's Children, 2009 by UNICEF, 148 million children under the age of five were underweight for their age and two thirds of these children live in Asia alone. Together Asia and Africa account for 93% of all underweight children under the age of five in the developing countries.

Bangladesh, India and Pakistan together contribute to one-half of the world's malnourished children, even though they are home to just 29 % of the developing world's under-five population. When complementary feeding is done as per IYCF guidelines, there is no scope of children becoming underweight. However, in the developing countries, complementary feeding is sub optimal, in terms of quantity, quality of complementary food and frequency of feeding, contributing to very high prevalence of underweight. Prevalence of malnutrition in some of the countries is as below

Undernutrition in the Developing Countries

	% of infants with low birth weight, 2000–2007	% of under-fives (2000–2007) suffering from: underweight† (WHO ref. pop.):	% of under-fives (2000–2007) suffering from: wasting (NCHS/WHO):	% of under-fives (2000–2007) suffering from: stunting (NCHS/WHO):
Bangladesh	22	41	16	36
India	28	43	19	38
Indonesia	9	23	-	-
Malaysia	9	-	-	-
Maldives	22	-	13	25
Pakistan	19	31	13	37
Sri Lanka	22	23	14	14
Thailand	9	7	4	12
Developing countries	15	24	11	30
South Asia	27	41	18	38
World	14	23	11	28

Source:
State of
World's
Children
2009

Considering the magnitude of the problem of undernutrition and its serious consequences on not only the individual health, but on human resource development, productivity of the people, economic growth and ultimately the National development, it is necessary that all efforts are focused towards reducing malnutrition which also include setting up of suitable standards. In a nutshell, nutrition is critical for the survival and well being of current and succeeding generations and needs to be regarded as the most important single indicator of development.

Early adiposity rebound and childhood obesity linked with high protein intake in early infancy and childhood is not an issue for the developing world. As undernutrition is the major challenge, the adverse effects of high energy density / protein content which are seen in developed countries may not be of much significance in the context of developing nations.

A WHO Expert Consultation on Complementary Feeding stated that “active participation of developing countries in the development of the Codex Standards, relevant to infant and young child nutrition, is critical to ensure that the best interest of young children (the vast majority from developing countries) are served ¹”

In the light of the above, it is necessary that any relevant prescribed standards should adequately address the needs and the realities of the developing world and thus emerges the need for a separate Standard. It is therefore considered essential that the recently revised Codex Standard for Processed Cereal Based Foods has a separate Standard for children of developing countries as ‘Part B’ of the revised Standard, CODEX STAN 074-1981 Rev. 1-2006. The Part B proposed by India is intended for all the ‘Infants and young children’ in general in the developing countries and not specifically for ‘underweight infants and young children’ or for management of moderate malnutrition.

3. The main aspects to be covered:

3.1 Cereal content in Cereal Based Foods should be at least 50%: The processed foods for infants and young children are based primarily on cereals since they are not only an important source of carbohydrates but also provide a good amount of protein and other nutrients like minerals and vitamins.

3.2 Minimum protein content should be at least 12%: The minimum content of protein in the processed cereal based foods for infants and young children should not be less than 12% on dry weight basis and the quality of the protein should not be less than 70% of that of casein.

3.3 Energy Density: The energy density of processed cereal based foods for infants and young children should not be less than 4.2 kJ/g (1.0 kcal/g) of the reconstituted food ready to consume or 16.8 kJ/g (4 kcal/g) on dry weight basis. Fats and oils may be added to increase the energy density to 4 kcal/g on a dry weight basis.

4. An assessment against the Criteria for the establishment of work priorities:

The proposed addition as ‘Part B’ will help in combating malnutrition by providing minimum standards for processed cereal based foods and thereby improving the quality of nutrition provided to infants and young children. It would also support progress towards achieving Goal 1 and 4 of the Millennium Development Goals that sets out to reduce hunger as well as to reduce the mortality rate by two third among children under five, by the year 2015.

5. Relevance to the Codex strategic objectives:

The proposed Standard, as ‘Part B’, is in line with the Codex Alimentarius Commission Strategic Plan 2008–2013 - point No 11 of Goal 2 which is ‘Promoting widest and consistent application of scientific principles and risk analysis’.

“The CAC has the goal of elaborating standards that cover the needs of its entire membership to ensure these standards are applicable globally. A constraint to this goal is the persistent lack of relevant data from all major parts of the world.”

“ The CAC will continue to encourage countries from both the developed and developing world to submit relevant data to the CAC and the parent organizations”.

¹ Macro Level Approaches to Improve the Availability of Complementary Foods, paper published by Chessa K. Lutter in the special issue of Food and Nutrition Bulletin, Vol. 24, No. 1, 2003

The food consumption patterns differ between developed and developing countries. The problems feared in developed countries due to a relatively high protein and energy content coupled with high intake of infant foods does not exist among children of developing nations.

6. Information on the relation between the proposal and other existing Codex documents:

CODEX STANDARD FOR PROCESSED CEREAL-BASED FOODS FOR INFANTS AND YOUNG CHILDREN CODEX STAN 074-1981, REV. 1-2006

7. Identification of any requirement for and availability of expert scientific advice;

None foreseen

8. Identification of any need for technical input to the standard from external bodies so that this can be planned for;

None foreseen

9. The proposed time-line for completion of the new work, including the start date. The proposed date for adoption at Step 5, and the proposed date for adoption by the Commission; the time frame for developing a Standard should not normally exceed five years:

As decided during the 30th Session of the CCNFSDU, an Electronic Working Group titled "Standard for Processed Cereal- Based Foods for Underweight Children" was set up by India to review and finalize the proposal for new work on Standards for Processed Cereal based Foods for Infants and Young Children in Developing Countries. The invitation to the member countries and observers were sent through the Codex Secretariat on 15th January 2009.

The earlier proposal for developing separate standards for processed cereal based foods has been reviewed by India and it is now proposed as Part-'B' of the revised CODEX STAN 074-1981 REV1-2006 as suggested during the previous session of CCNFSDU in 2008. The proposed 'Part B' of the Standard for Processed Cereal Based Foods for Infants and Young Children for Developing Countries was circulated to the member countries and observers through the Electronic Working Group. On the basis of comments and suggestions from the member countries and observers the proposal is finalized for submission to Codex Secretariat for consideration by the 31st Session of the CCNFSDU (2009).

A Technical Support Paper is attached as PART B- Annexure-A.

PART B - ANNEXURE-A**TECHNICAL SUPPORT PAPER FOR INCORPORATING AS 'PART B' 'PROCESSED CEREAL BASED FOODS FOR INFANTS AND YOUNG CHILDREN IN DEVELOPING COUNTRIES'****1. CONTEXT**

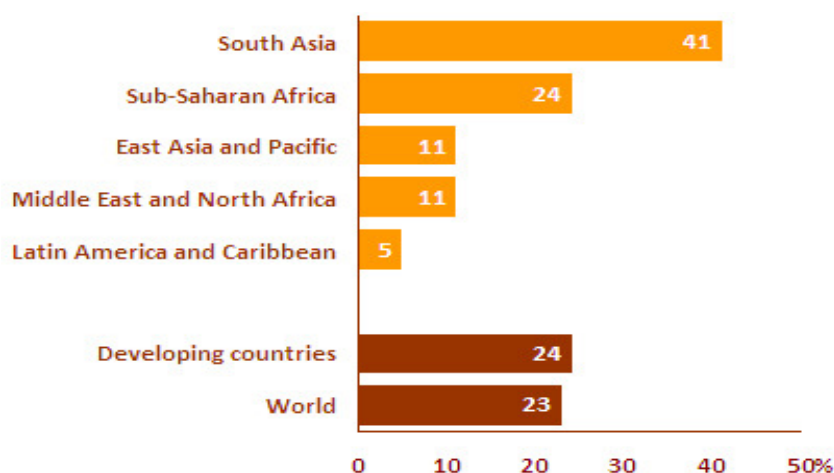
During the 29th session of the Codex Committee on Nutrition and Foods for Special Dietary Uses (CCNFSDU) held in November 2007, the Delegation of India proposed for a separate standard for Processed Cereal-Based Foods for Underweight Infants and Young Children so that nutritionally and energy dense composition in the proposed standard will help to reduce the burden of malnutrition in the developing countries. The issue was taken as one of the agenda items and after discussion the CCNFSDU agreed that the Delegation of India with support of other interested parties² will develop a structured document for the purpose.

2. BACKGROUND

The consequences of child hunger and under-nutrition are extreme for the individuals and families affected but also for communities and nations concerned. More than 50 percent of young children's deaths from infectious diseases such as malaria, pneumonia, diarrhea and measles have under-nutrition as an underlying cause.

Underweight prevalence in children under five, by region (2000–2007)

By WHO Child Growth Standards, ref: http://www.childinfo.org/undernutrition_status.html

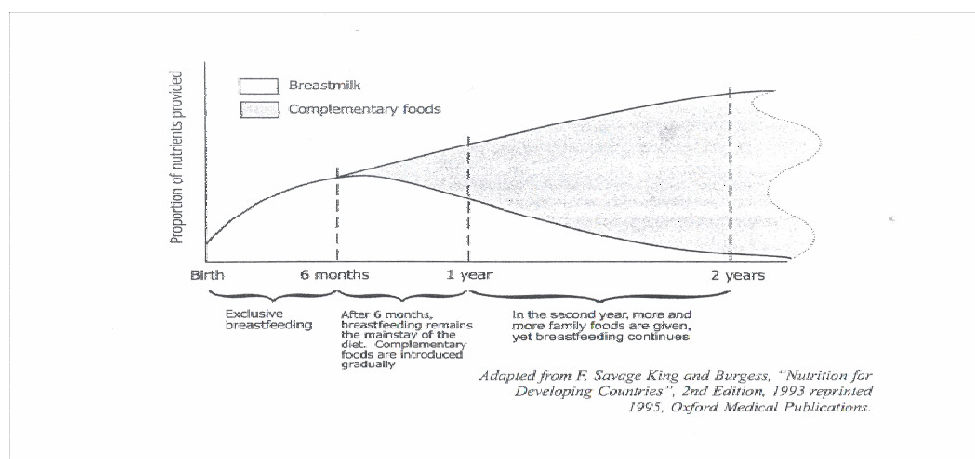


Undernutrition continues to be a worldwide problem, particularly in developing countries. According to the most recent estimate (2006) of the United Nations Food and Agriculture Organization (FAO), around 854 million people worldwide are undernourished. This is 12.6 percent of the estimated world population of 6.6 billion. Most of the undernourished – 820 million - are in developing countries.³ Geographically, South Asia has the highest (41%) level of under-nutrition.

Exclusive breastfeeding provides all essential nutrients required for the growth of the infant upto 6 months. With the growth of a child the nutritional needs too are increased, and adequate energy, protein and other nutrients are necessary. The graph below indicates the widening gap in nutrition that needs to be fulfilled through complementary food which should be with energy dense food.

² Australia, Brazil, Ghana, Guatemala, Indonesia, Republic of Korea, Malaysia, Mexico, South Africa, Thailand, CI, IBFAN, ISDI and NHF

³ World Hunger Facts 2008, World Hunger Education Service, available at <http://www.worldhunger.org/articles/Learn/world%2520hunger%2520facts%25202002.htm>



The National Family Health Survey, in India, provides periodical data about various indicators including those for nutrition and reveals that under-nutrition peaks by 18-24 months. This survey conducted in 2005-06 (NFHS 3) came up with the findings that 79% children of under 3 years of age group are anemic. The condition in other developing countries is almost similar. Moreover, WHO multi-centric studies revealed that normal child growth takes place from birth to 5 years under optimal environmental conditions and can be applied to all children everywhere, regardless of ethnicity, socioeconomic status and type of feeding.

Millions of children in this part of world are at border line of normal and underweight and may slip into the category of underweight at any time due to one or another cause of malnutrition unless timely and appropriate interventions are made.

The processed / commercial infant foods form only a small part of the regular feeding in children under 2 years. The energy density, protein quantity and quality therefore are important. Processed Cereal foods providing energy density of 4kcal/g and 12% protein would usually take care of above mentioned components. Some studies done in developed countries have linked early adiposity rebound and childhood obesity to be associated with high protein intake in early infancy and childhood. In most of these populations the total energy intakes are also higher apart from protein intake which is around 20-22% energy from protein. As undernutrition is the major challenge in this case, the adverse effects of high energy density / protein content which are seen in developed countries may not be of much significance in the context of developing nations.

It is essential that 'Part B' be added to the Revised Codex Standard for Processed Cereal Based foods for Infants and young Children to take care of the health and nutrition of the children of developing countries.

"Among the indisputable right of Children is the right of health. Without respecting this right and providing the necessary resources to secure it, we cannot hope to achieve any of the major development goals the world has united around in the United Nations Millennium Declaration. Human Capital is essential to all development. Without basic health and nutrition, the potential of our children goes to waste" - **Kofi A. Annan, Secretary General (Former) of the United Nation**

3. RATIONALE AND ASPECTS TO BE COVERED

The Revised Standard for Processed Cereal Based Foods for Infants and Young Children has far reaching implications on the nutrition of infants and young children in the world. It is a dilution of the pre revised Codex Standard CODEX STAN 074-1981 and CAC/GL08-1991. The proposal of addition of 'Part B' to the recently revised Standard is imperative for meeting the challenge of improving nutrition of infants and young children in the developing world

The key issues are as follows:

3.1 Cereal content in Cereal Based Foods to be at least 50%

The processed cereal based foods for infants and young children are based primarily on cereals since they are not only an important source of carbohydrates but also provide a good amount of protein and other nutrients like minerals and vitamins. By reducing the cereal content to 25%, as was done in the Revised Standard for Processed Cereal Based Foods for Infants and Young Children, the pulse content, if any, would also get reduced and the oil seed content would be negligible. If the cereals, pulses and oil seeds together add up to only 40%, then 60% gap could be filled in by adding starchy roots and tubers such as yam, tapioca etc. which not only have very low nutritive value but also have certain toxic compounds like linamarine, cyanogenic glycosides etc. This may worsen the nutritional status of children in the developing world. The cereal based foods must provide most of the essential amino acids, required for growth and development. If these starchy roots like tapioca and yam form a major part of complementary foods, the protein required, both quantitatively and qualitatively, will have to be supplied from protein concentrates or synthetic amino acids, as the rest of the food items may not be able to meet the requirements. It is, therefore, important to ensure that the processed cereal based foods do not contain these roots and tubers.

In view of the above, laying down the minimum value of cereals in cereal based foods as 50%, will improve the nutritional density of the infant foods and will leave less scope for replacing the precious cereals with the cheap starchy roots.

3.2 Energy Density of the Cereal Based Foods for Infants and Young Children to be 4 kcal/g on dry weight basis:

The Revised Standard states “the energy density of cereal based foods should not be less than 3.3 kJ/g (0.8 kcal/g).

WHO recommends⁴ that complementary foods with low energy density can limit energy intake and the average energy density should not usually be less than 4.2 kJ /g (1 kcal)/g of reconstituted food. It also concludes that the breastfed infants older than eight months should receive at least three meals of complementary foods per day and that if the energy density of the diet is less than 1kcal/g, more than three meals would be needed.

A WHO Expert Consultation on Complementary Feeding stated that “active participation of developing countries in the development of the Codex Standards, relevant to infant and young child nutrition, is critical to ensure that the best interest of young children (the vast majority from developing countries) are served⁵”

Keeping in view the widespread prevalence of under-nutrition among infants and young children in the developing world, one of the factors of which may be low energy density of foods after the age of six months, it is important to ensure that the Codex Standard for processed cereal based foods for infants and young children prescribe an optimum energy density as the products with Codex Standards have a global reach.

Under Section 6.2, the Guidelines on Supplementary Foods for Older Infants and Young Children (CAC/GL08-1991) reflect the importance of increasing energy density of these foods and recommend that 100 grams of the food should provide at least 400 kcal.

In view of above, it is necessary to retain 1.0 kcal/g energy density for reconstituted ready to eat food and 4 kcal/g on dry weight basis.

3.3 Minimum protein content to be at least 12%:

According to para 3.3.2 of the Revised Standard for Processed Cereal Based Foods For Infants and Young Children, the protein content shall not exceed 1.3g/100 kJ (5.5g/100 kcal) for products mentioned in point 2.1.2 which include cereals with an added high protein food which are or have to be prepared for consumption with water or other appropriate protein free liquid. It may be noted that for the item 2.1.1, there is no lower limit for protein content prescribed in the standard which is not appropriate for a Codex Standard for foods meant for infants and young children specially in the context of developing world. This

⁴ Feeding and Nutrition of Infants and Young Children, Guidelines for the WHO European Region, with emphasis on the former Soviet countries, WHO Regional Publication European Series No. 87

⁵ Macro Level Approaches to Improve the Availability of Complementary Foods, paper published by Chessa K. Lutter in the special issue of Food and Nutrition Bulletin, Vol. 24, No. 1, 2003

leaves enough room for lowering the protein content even to an undesirable level. If these products have a prescribed lower limit for protein, it will ensure adequate protein density of these foods.

Section 3.1.2 of the pre-revised Codex Standard for Processed Cereal Based Foods for Infants and Young Children (CODEX STAN 74-1981) states “where the product is intended to be mixed with water before consumption, the minimum content of protein shall not be less than 15% on a dry weight basis and the quality of the protein shall not be less than 70% of that of casein”.

Section 6.3.5 of the Guidelines on Formulated Supplementary Foods for Older Infants and Young Children (CAC/GL08-1991) states “taking into account the preceding considerations, the protein content should be in the order of 15g/100g of the food on a dry matter basis”. Two issues emerge from the existing Codex Standard and the Guidelines on Formulated Supplementary Foods: (i) The protein content should be of the order of 15g/100g of the food on a dry weight basis specifying the minimum requirement of protein in such products; and (ii) The measurement standard for expressing protein content of the food has not been kept uniform.

Both the above-mentioned guidelines and the pre-revised standards lay down the minimum requirement of protein in gram/100g of the product. Therefore the protein content has been specified in ‘Part B’ as g/100 g of the product to maintain uniformity. The minimum protein content of cereal based foods in the context of developing countries is required, since: (i) Protein Energy Malnutrition (PEM) is high; (ii) Milk intake is low; (iii) Protein intakes are low; and (iv) Infection rates are high in these age groups which increase both energy and protein requirements. Instead of 15% protein as in the pre revised Standard, in context of Developing countries the minimum protein content is recommended as 12 %.

In the context of the developing countries, it is strongly recommended that section 3.3 relating to protein should have the minimum protein content as 12% in these products, or 3g/100 kcal.

Since PEM or undernutrition is a global problem now and the developing world is facing the challenge of reducing the number of underweight children to achieve the MDGs, it is important that the needs of the developing countries in terms of appropriate standards for these foods is appreciated by the Codex Committee on Nutrition and Foods for Special Dietary Uses and efforts should be made to improve the standards so as to benefit the consumers in the developing world.

4. CONCLUSION

India opines that the respective National governments are doing their best to prevent undernutrition among children of developing countries. When Codex alimentarius commission is defining standards for complementary foods, it is essential that they are made in the global perspective, where many are developing countries contributing significantly to the burden of undernutrition

It is recommended that a Codex Standard for Processed Cereal Based Foods for Infants and Young Children for Developing Countries form ‘Part B’ of the recently revised Standard to take care of the nutritional needs of children of developing countries.

PART B

REVISED STANDARD FOR PROCESSED CEREAL-BASED FOODS FOR INFANTS AND YOUNG CHILDREN OF DEVELOPING COUNTRIES

1. SCOPE

This Part covers processed cereal-based complementary foods intended to meet the dietary requirements of infants from the age of six months and young children in developing countries.

2. DESCRIPTION

Processed cereal-based foods should contain minimum 50% cereals on a dry weight basis.

2.1. Product Definitions

Two categories are distinguished:

- 2.1.1 Products consisting of cereals which are or have to be prepared for consumption with milk or other appropriate nutritious liquids;
- 2.1.2 Cereals with an added high protein food which are or have to be prepared for consumption with water or other appropriate protein-free liquid;

2.2 Other Definitions

- 2.2.1 The term infant means a person not more than 12 months of age.
- 2.2.2 The term young children means persons from the age of more than 12 months up to the age of three years (36 months).

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Essential Composition

- 3.1.1 The products under **category** 2.1.1 are prepared from one or more milled cereal products, such as wheat, rice, barley, oats, rye, maize, millet, sorghum and buckwheat. The products under category 2.1.2 shall also contain legumes (pulses), or oil seeds in smaller proportions.
- 3.1.2 The requirements concerning energy and nutrients refer to the product ready for use as marketed or prepared according to the instructions of the manufacturer, unless otherwise specified.

3.2 Energy Density

The energy density of cereal-based foods from 2.1.1 and 2.1.2 should be minimum 4.12 kJ/g (1.0 kcal/g) of the reconstituted food.

3.3 Protein

- 3.3.1 The chemical index of the added protein shall be equal to at least 80% of that of the reference protein casein or the Protein Efficiency Ratio (PER) of the protein in the mixture shall be equal to at least 70% of that of the reference protein casein. In all cases, the addition of amino acids is permitted solely for the purpose of improving the nutritional value of the protein mixture, and only in the proportions necessary for that purpose. Only natural forms of L-amino acids should be used.
- 3.3.2 For products mentioned at 2.1.1 and 2.1.2, the minimum protein content should be 3g/100 kcal.
- 3.3.3 For products mentioned in point 2.1.2 the added protein content shall not be less than 0.48 g/100 kJ (2 g/100 kcal).

3.4 CARBOHYDRATES

3.4.1 If sucrose, fructose, glucose, glucose syrup or honey are added to products mentioned in points 2.1.1 and 2.1.4:

- the amount of added carbohydrates from these sources shall not exceed 1.8 g/100 kJ (7.5 g/100 kcal);

- the amount of added fructose shall not exceed 0.9 g/100 kJ (3.75g /100 kcal).

3.4.2 If sucrose, fructose, glucose, glucose syrup or honey are added to products mentioned in point 2.1.2:

- the amount of added carbohydrates from these sources shall not exceed 1.2 g/100 kJ (5 g/100 kcal);
- the amount of added fructose shall not exceed 0.6 g/100 kJ (2.5 g/100 kcal).

3.5 LIPIDS

3.5.1 For products mentioned in point 2.1.2 the lipid content shall not exceed 1.1g/100 kJ (4.5 g/100 kcal). If the lipid content exceeds 0.8g/100kJ (3.3g/100kcal):

- the amount of linoleic acid (in the form of triglycerides=linoleates) shall not be less than 70 mg/100 kJ (300 mg/100 kcal) and shall not exceed 285 mg/100 kJ (1200 mg/100 kcal);
- the amount of lauric acid shall not exceed 15% of the total lipid content;
- the amount of myristic acid shall not exceed 15% of the total lipid content.

3.5.2 Product categories 2.1.1 and 2.1.4 shall not exceed a maximum lipid content of 0.8 g /100 kJ (3.3 g/100 kcal).

3.6 MINERALS

3.6.1 The sodium content of the products described in Sections 2.1.1 to 2.1.4 of this Standard shall not exceed 24 mg/100 kJ (100 mg/100 kcal) of the ready-to-eat product.

3.6.2 The calcium content shall not be less than 20 mg/100 kJ (80 mg/100 kcal) for products mentioned in points 2.1.2.

3.6.3 The calcium content shall not be less than 12 mg/100 kJ (50 mg/100 kcal) for products mentioned in point 2.1.4 manufactured with the addition of milk and presented as such.

3.7 VITAMINS

3.7.1 The amount of vitamin B1 (thiamin) shall not be less than 12.5µg/100 kJ (50µg/100 kcal).

3.7.2 For products mentioned in 2.1.2, the amount of vitamin A and vitamin D shall be within the following limits:

	µg/100kJ	µg/100kcal
vitamin A (µg retinol equivalents)	14-43	60 – 180
vitamin D	0.25-0.75	1 – 3

These limits are also applicable to other processed cereal-based foods when vitamin A or D are added.

3.7.3 Reductions of the maximum amounts for vitamin A and Vitamin D referred to in 3.7.2 and the addition of vitamins and minerals for which specifications are not set above shall be in conformity with the legislation of the country in which the product is sold.

3.7.4 Vitamins and/or minerals added should be selected from the Advisory Lists of Mineral Salts and Vitamin Compounds for Use in Foods for Infants and Children (CAC/GL 10-1979).

3.8 OPTIONAL INGREDIENTS

3.8.1 In addition to the ingredients listed under 3.1, other ingredients suitable for infants who are more than six months of age and for young children can be used.

3.8.2 Products containing honey or maple syrup should be processed in such a way as to destroy spores of *Clostridium botulinum*, if present.

3.8.3 Only L(+) lactic acid producing cultures may be used.

3.9 FLAVOURS

The following flavours may be used:

- Natural fruit extracts and vanilla extract: GMP
- Ethyl vanillin and vanillin: 7 mg/100 g RTU

3.10 QUALITY FACTORS

3.10.1 All ingredients, including optional ingredients, shall be clean, safe, suitable and of good quality.

3.10.2 All processing and drying should be carried out in a manner that minimizes loss of nutritive value, particularly protein quality.

3.10.3 The moisture content of the products shall be governed by good manufacturing practice for the individual product categories and shall be at such a level that there is a minimum loss of nutritive value and at which micro organisms cannot multiply.

3.11 CONSISTENCY AND PARTICLE SIZE

3.11.1 When prepared according to the label directions for use, processed cereal-based foods should have a texture appropriate for the spoon feeding of infants or young children of the age for which the product is intended.

3.11.2 Rusks and biscuits may be used in the dry form so as to permit and encourage chewing or they may be used in a liquid form, by mixing with water or other suitable liquid, that would be similar in consistency to dry cereals.

3.12 SPECIFIC PROHIBITION

The product and its components shall not have been treated by ionizing radiation. The use of partially hydrogenated fats for these products is prohibited.

4. FOOD ADDITIVES

Only the food additives listed in this Section or in the Codex Advisory List of Vitamin

Compounds for Use in Foods for Infants and Children (CAC/GL 10-1979) may be present in the foods described in Section 2.1 of this Standard, as a result of carry-over from a raw material or other ingredient (including food additive) used to produce the food, subject to the following conditions:

- a) The amount of the food additive in the raw materials or other ingredients (including food additives) does not exceed the maximum level specified; and
- b) The food into which the food additive is carried over does not contain the food additive in greater quantity than would be introduced by the use of the raw materials or ingredients under good manufacturing practice, consistent with the provisions on carry-over in the Preamble of the General Standard for Food Additives (CODEX/STAN 192-1995)

The following additives are permitted in the preparation of processed cereal-based foods for infants and young children, as described in Section 2.1 of this Standard (in 100 g of product, ready for consumption prepared following manufacturer's instructions unless otherwise indicated).

INS No.		Maximum Level
Emulsifiers		
322	Lecithins	1500 mg
471	Mono- and diglycerides	500 mg Singly or

472a	Acetic and fatty acid esters of glycerol	in combination
472b	Lactic and fatty acid esters of glycerol	
472c	Citric and fatty acid esters of glycerol	
Acidity Regulators		
500 ii	Sodium hydrogen carbonate	GMP
501 ii	Potassium hydrogen carbonate	GMP
170 i	Calcium carbonate	GMP
270 L(+)	Lactic acid	GMP
330	Citric acid	GMP
260	Acetic acid	GMP
261	Potassium acetates	GMP
262 i	Sodium acetate	GMP
263	Calcium acetate	GMP
296	Malic acid (DL) – L(+)-form only	GMP
325	Sodium lactate (solution) – L(+)-form only	GMP
326	Potassium lactate (solution) – L(+)-form only	GMP
327	Calcium lactate – L(+)-form only	GMP
331 i	Monosodium citrate	GMP
331 ii	Trisodium citrate	GMP
332 i	Monopotassium citrate	GMP
332 ii	Tripotassium citrate	GMP
333	Calcium citrate	GMP
507	Hydrochloric acid	GMP
524	Sodium hydroxide	GMP
525	Potassium hydroxide	GMP
526	Calcium hydroxide	GMP
575	Glucono delta-lactone	GMP
334	L(+)-Tartaric acid – L(+)-form only	500 mg

335 i	Monosodiumtartrate	Singly or in combination Tartrates as residue in <u>biscuits and rusks</u>
335 ii	Disodium tartrate	
336 i	Monopotassium tartrate –L(+) <u>formonly</u>	
336 ii	Dipotassium tartrate – L(+) <u>form only</u>	
337	Potassium sodium L(+) <u>tartrate L(+)<u>form only</u></u>	

INS No.		Maximum Level
338	Orthophosphoric acid	Only for pH adjustment 440 mg Singly or in combination as phosphorous
339 i	Monosodium orthophosphate	
339 ii	Disodium orthophosphate	
339 iii	Trisodium orthophosphate	
340 i	Monopotassium orthophosphate	
340 ii	Dipotassium orthophosphate	
340 iii	Tripotassium orthophosphate	
341 i	Monocalcium orthophosphate	
341 ii	Dicalcium orthophosphate	
<u>341 iii</u>	<u>Tricalcium orthophosphate</u>	
Antioxidants		
306	Mixed tocopherols concentrate	300 mg/kg fat or oil basis, Singly or in combination
307	Alpha-tocopherol	
304	L-Ascorbyl palmitate	200 mg/kg fat
300	L-Ascorbic acid	50 mg, expressed as ascorbic acid
301	Sodium ascorbate	
303	Potassium ascorbate	
302	Calcium ascorbate	20 mg, expressed as ascorbic acid
Raising Agents		
503 i	Ammonium carbonate	Limited by GMP
503 ii	Ammonium hydrogen carbonate	

500 i	Sodium carbonate	
500 ii	Sodium hydrogen carbonate	
Thickeners		
410	Carob bean gum	1000 mg singly or in combination 2000 mg in gluten-free cereal-based foods
412	Guar gum	
414	Gum arabic	
415	Xanthan gum	
440	Pectins (Amidated and Non-Amidated)	
1404	Oxidized starch	5000 mg Singly or in combination
1410	Monostarch phosphate	
1412	Distarch phosphate	
1413	Phosphated distarch phosphate	
1414	Acetylated distarch phosphate	
1422	Acetylated distarch adipate	
1420	Starch acetate esterified with acetic anhydride	
1450	Starch sodium octenyl succinate	
1451	Acetylated oxidized starch	

INS No.		Maximum Level
Anticaking Agents		
551	Silicon dioxide (amorphous)	200 mg for dry cereals only
Packaging Gases		
290	Carbon dioxide	GMP
941	Nitrogen	GMP

5. CONTAMINANTS

5.1 PESTICIDE RESIDUES

The product shall be prepared with special care under good manufacturing practices, so that residues of those pesticides which may be required in the production, storage or processing of the raw materials or the finished food ingredient do not remain, or, if technically unavoidable, are reduced to the maximum extent possible.

These measures shall take into account the specific nature of the products concerned and the specific population group for which they are intended.

5.2 OTHER CONTAMINANTS

The product shall be free from residues of hormones, antibiotics as determined by means of agreed methods of analysis and practically free from other contaminants, especially pharmacologically active substances.

6. HYGIENE

It is recommended that the products covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice – General Principle of Hygiene (CAC/RCP 1 1969), Recommended International Codex of Hygienic Practice for Foods for Infants and Children (CAC/RCP 21-1979) and other relevant Codex texts such as Codes of Hygienic Practice and Codes of Practice.

The product should comply with any microbiological criteria established in accordance with the Principles for the Establishment and application of microbiological Criteria for Foods (CAC/GL 21-1997).

7. PACKAGING

7.1 The product shall be packed in containers which will safeguard the hygienic and other qualities of the food.

7.2 The containers, including packaging material, shall be made only of substances which are safe and suitable for their intended use. Where the Codex Alimentarius Commission has established a standard for any such substance used as packaging material, that standard shall apply.

8. LABELLING

8.1.1 The requirements of the Codex General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1-1985), the Codex Guidelines on Nutrition Labelling (CAC/GL 2-1985) and the Guidelines for Use of Nutrition and Health Claims (CAC/GL 23-1997) apply to this standard. With specific reference to section 7 of the Codex General Standard for the Labelling of Prepackaged Foods national jurisdictions may further restrict the use of pictorial devices.

8.1.2 Taking into account paragraph 1.4 of the Guidelines for Use of Nutrition and Health

Claims, nutrition claims may be permitted under national legislation for the foods that are the subject of the standard provided that they have been demonstrated in rigorous studies with adequate scientific standards.

8.1.3 Any indication required in the labelling should be made in the appropriate language(s) of the country in which the product is sold.

8.2 THE NAME OF THE FOOD

The name of the food shall be "Dry Cereal for Infants (and/or Young Children)", "Rusks for Infants (and/or Young Children)" or "Biscuits (or "Milk Biscuits") for Infants (and/or Young Children)" or "Pasta for Infants (and/or Young Children)", or any appropriate designation indicating the true nature of the food, in accordance with national legislation.

8.3 LIST OF INGREDIENTS

8.3.1 A complete list of ingredients shall be declared on the label in descending order of proportion except that in the case of added vitamins and minerals, these may be arranged as separate groups for vitamins and minerals, respectively, and within these groups the vitamins and minerals need not be listed in descending order of proportion.

8.3.2 The specific name shall be declared for ingredients and food additives. In addition, appropriate class names for these ingredients and additives may be included on the label.

8.4 DECLARATION OF NUTRITIVE VALUE

8.4.1 The declaration of nutrition information shall contain the following information which should be in the following order:

(a) The energy value, expressed in kilocalories (kcal) and kilojoules (kJ), and the amount of protein, carbohydrate and fat expressed in grammes (g) per 100 g or 100 ml of the food as sold, and where appropriate, as per specified quantity of the food as suggested for

consumption;

(b) The average amount of each vitamin and mineral for which specific levels are defined in section 3.6 and 3.7 expressed in numerical form per 100g or 100 ml of the food as sold

and, where appropriate, as per specified quantity of the food as suggested for consumption;

(c) Any other nutritional information required by national legislation.

8.4.2 The labelling may bear the average amount of the vitamins and minerals when their

declaration is not covered by the provisions of section 8.4.1 (b) expressed in numerical form per 100g or 100 ml of the product as sold and, where appropriate, per specified quantity of the food as suggested for consumption.

8.5 DATE MARKING AND STORAGE INSTRUCTIONS

8.5.1 The date of minimum durability (preceded by the words "best before") shall be declared by the day, month and year in uncoded numerical sequence except that for products with a shelf-life of more than three months, the month and year will suffice. The month may be indicated by letters in those countries where such use will not confuse the consumer. In the case of products requiring a declaration of month and year only, and the shelf-life of the product is valid to the end of a given year, the expression "end (stated year)" may be used as an alternative.

8.5.2 In addition to the date, any special conditions for the storage of the food shall be indicated if the validity of the date depends thereon.

8.5.3 Where practicable, storage instructions shall be in close proximity to the date marking.

8.6 INFORMATION FOR UTILIZATION

8.6.1 Directions as to the preparation and use of the food, and its storage and keeping before and after the container has been opened, shall appear on the label and may also appear on the accompanying leaflet.

8.6.2 For products covered by 2.1.1, directions on the label shall state "Milk or formula but no water shall be used for dilution or mixing" or an equivalent statement.

8.6.3 When the product is composed of gluten-free ingredients and food additives, the label may show the statement "gluten-free"¹.

8.6.4 The label shall indicate clearly from which age the product is recommended for use. This age shall not be less than six months for any product. In addition, the label shall include a statement indicating that the decision when precisely to begin complementary feeding, including any exception to six months of age, should be made in consultation with a health worker, based on the individual infant's specific growth and development needs. Additional requirements in this respect may be made in accordance with the legislation of the country in which the product is sold.

8.7 ADDITIONAL REQUIREMENTS

The products covered by this standard are not breast-milk substitutes and shall not be presented as such.

METHODS OF ANALYSIS AND SAMPLING

See Section on methods in the Standard for Infant Formula.

In addition:

Detection of Irradiated Foods

Codex General Methods.

¹ Codex Standard for Gluten-Free Foods (118-1981).