CODEX ALIMENTARIUS COMMISSION

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PROPOSED DRAFT GUIDELINES FOR READY TO USE THERAPEUTIC FOODS

Proposal of the EWG Chairs taking into account comments submitted

– Amended Appendix 1 for RUTF Guidelines –

Appendix 1

PROPOSED DRAFT GUIDELINES FOR READY TO USE THERAPEUTIC FOODS (RUTF)

(STEP 3)

1. PREAMBLE

[The major objectives of the work of the Codex Alimentarius Commission are to protect the health of the consumer and ensure fair practices in the trade in food through the elaboration and harmonization of definitions and requirements for food. In order to realize this objective CAC developed a *Code of Ethics for International Trade in Food including Concessional and Food Aid Transactions* (CAC/RCP 20-1979) embodying the principles of sound consumer protection. The objective of this code is to establish standards of ethical conduct for all those engaged in international trade in food or for those responsible for regulating food and thereby protecting the health of the consumers and promoting fair trade practices. It is within this context that all those engaging in the international trade in food with specific reference to Ready-to-Use Therapeutic Foods (RUTF) commit themselves to the provisions of the code].

Children affected by severe acute malnutrition (SAM) need safe, palatable foods with a high energy content and adequate amounts of vitamins, minerals and other ~~critical~~ nutrients. Children with SAM need timely treatment and RUTF is [~~a critical~~] part of the [care] ~~treatment~~. [~~RUTF are high energy, fortified, ready-to-eat foods for special medical purposes suitable for the dietary management of children with SAM].~~ RUTF are primarily intended for children with uncomplicated SAM from 6-59 months. Although RUTF may be ~~are~~ given to other age groups with various forms of malnutrition at the implementation level, the primary focus for these guidelines is children with SAM from 6-59 months. [~~Since RUTF are prescribed according to weight, National Authorities may decide to include the provision of RUTF in their national protocols for use by other age groups~~].

Investing in prevention of SAM through sustainable measures and interventions is crucial. Such interventions could include the improvement of access to high quality food and safe water through improving water and sanitation systems, improved access to health care, and the effective promotion of exclusive breastfeeding for the first six months of a child´s life, [followed by age-appropriate complementary feeding], combined with continued breastfeeding up to 24 months and beyond. Thus, preventive programmes have an immense job to do in the context of poverty, and in the meantime children who already are suffering from SAM need to receive appropriate treatment.

These guidelines should therefore be used in accordance with the [last update of the] 2007 Joint statement of the UN agencies on Community-based management of severe acute malnutrition[1], relevant WHO Child Growth Standards[2], WHO guidelines in the management of Severe Acute Malnutrition in infants and children[3], the Global Strategy for Infant and Young Child Feeding[4], the International Code of Marketing of Breastmilk Substitutes[5] and subsequent relevant WHA Resolutions on infant and young child feeding. These guidelines have been prepared for the purpose of providing an agreed upon approach to the requirements which underpin the production of, and the labelling and claims for, RUTF. The guidelines are intended to facilitate the harmonization of requirements for RUTF at the international level and may provide assistance to governments wishing to establish national regulations in this area. The guidelines are also intended for use as an instrument designed to avoid or remove ~~reduce~~ difficulties which may be created by diverging legal, administrative and technical approaches to RUTF and by varying definitions and nutrient compositions of RUTF. [~~These guidelines can also be used, if applicable, by governments in case of international trade disputes~~]. Governments and other users should ensure adequate provisions are made for competent technical experts for the appropriate use of these guidelines.

[1]Joint Statement on Community-Based Management of Severe Acute Malnutrition by the World Health Organization, the World Food Programme, the United Nations System Standing Committee on Nutrition and the United Nations Children's Fund, 2007
[2]WHO. Child growth standards and the identification of severe acute malnutrition in infants and children, 2006
A Joint Statement by the World Health Organization and the United Nations Children's Fund; Geneva: World Health Organization; 2009
[3]WHO. Guideline: *Updates on the management of severe acute malnutrition in infants and children*. Geneva: World Health Organization; 2013.
[4]WHO. Global Strategy for Infant and Young Child Feeding. Geneva: World Health Organization; 2003.
[5]WHO. *International code of marketing of breast-milk substitutes.* Geneva: World Health Organization; 1981.

2. PURPOSE OF THE GUIDELINES

To provide guidance on technical and nutritional aspects of the production of Ready-to-Use Therapeutic Foods for children from the age of 6 to 59 months with severe acute malnutrition, including

i. Nutritional Composition
ii. Raw Materials and Ingredients
iii. Good Manufacturing Practices
iv. Microbiological and Chemical Contaminant Criteria
v. Methods of Analysis and Sampling
vi. Provisions for Packaging and Labelling

3. SCOPE

The provisions of these guidelines apply to Ready-to-Use Therapeutic Foods for children from age 6 to 59 months with severe acute malnutrition. Ready-to-Use Supplementary Foods (RUSF), micronutrient supplements[6], processed cereal based foods[7], formulated complementary foods for older infants and young children[8], canned baby foods[9] are not covered by these guidelines.

4. DESCRIPTION

4.1 Ready-to-Use Therapeutic Foods (RUTF) are high-energy, fortified, ready-to-eat foods for special medical purposes for the dietary management of children from 6 to 59 months with severe acute malnutrition without medical complications [and with appetite]. These foods should be soft or crushable and should be easy for children to eat without any prior preparation.

4.2 Severe Acute Malnutrition is defined by weight for height (or length) less than –3 Z-score of the median WHO growth standards, or by mid upper arm circumference (MUAC)<11.5 cm, or by the presence of bilateral oedema[10].

5. [SUITABLE] RAW MATERIALS AND INGREDIENTS

RUTF are made of powdered or ground ingredients embedded in a lipid-rich matrix [e.g. paste or ~~and~~ biscuit], resulting in an energy and nutrient-dense food. The following raw materials, many of which can be sourced locally, are suitable ingredients for the production of RUTF under the specified conditions given below. The formulation of RUTF shall comply with Section 3 of the *Standard for the Labelling of and Claims for Foods for Special Medical Purposes* (CODEX STAN 180-1991).

5.1 Basic Raw Materials and Ingredients

5.1.1 Milk and other Dairy Products

Milk and other dairy products used in the manufacturing of RUTF must comply with the *Standard for Milk Powders and Cream Powder* (Codex STAN 207-1999) and the *Standard for Whey Powders* (Codex STAN 289-1995), and other guidelines and Codes of Practice recommended by Codex Alimentarius Commission which are relevant to these products. Relevant codes of practice include the *Code of Hygienic Practice for Milk and Milk Products* (CAC/RCP 57-2004) and the *Code of Hygienic Practices for Low-Moisture Foods* (CAC/RCP 75-2015).

5.1.2 Legumes and [~~Pulses~~] Seeds

Legumes and pulses, such as lentils, chickpeas, cowpeas, beans, peanut, sesame and other types of legumes and pulses must comply with the *Standard for Peanuts* (CODEX STAN 200-1995), *Code of Hygienic Practice for Groundnuts (Peanuts)* (CAC/RCP 22- 1979) and the *Code of Hygienic Practices for Low-Moisture Foods* (CAC/RCP 75-2015), and other relevant Codex Alimentarius text when used in the manufacturing of RUTF.

[6]Guidelines for Vitamin and Mineral Food Supplements (CAC/GL55-2005)
[7]Standard for Processed Cereal-Based Foods for Infants and Young Children (CODEX STAN 74-1981)
[8]Guidelines on Formulated Complementary Foods for Older Infants and Young Children (CAC/GL 8-1991)
[9]Standard for Canned Baby Foods (CODEX STAN 73-1981)
[10] WHO child growth standards and the identification of severe acute malnutrition in infants and children. A joint statement by the World Health Organization and the United Nations Children's Fund. Geneva: World Health Organization; 2009]

5.1.3 Fats and Oils

Fats and oils used in the manufacturing of RUTF must comply with the relevant Codex Alimentarius texts. Fats and oils are incorporated as technologically feasible for the purpose of achieving the energy density and providing essential fatty acids. [~~Care must be taken to avoid oxidized fat which will adversely affect nutrition, flavour and shelf life~~]. [The composition of fats and oils should allow for a product that flows during processing to have desirable consistency and ensures physical and chemical stability throughout the supply chain].

Partially Hydrogenated fats and oils [, the major dietary source of industrially-produced trans fat in processed food,] should not be used in RUTF.

5.1.4 Cereals

All milled cereals suitable for human consumption may be used provided that [their processing reduces] ~~they are processed in such a way that the fibre content is reduced~~, when necessary. ~~, and that~~ The effects of anti-nutritional factors such as phytates, tannins or other phenolic materials, lectins, trypsin, and chymotrypsin inhibitors which can lower the protein quality and digestibility, amino acid bioavailability and mineral absorption should be ~~are~~ removed or reduced, whilst retaining maximum nutrient value.

5.1.5 Vitamins and Minerals

All added vitamins and minerals must be in accordance with the [principles of] *Advisory Lists of Nutrient Compounds for use in Foods for Special Dietary Uses Intended for Infants and Young Children* (CAC/GL 10-1979).

5.2 Other Ingredients

5.2.1 [Available] Carbohydrates[1]

The palatability of the RUTF can be increased by the addition of [~~appropriate~~] available carbohydrates.

[Available] carbohydrates must adhere to the relevant Codex Alimentarius texts.

Honey should not be used in RUTF due to the risk of infant botulism from *Clostridium botulinum.*

[1][Sucrose, plant ~~vegetable~~ starch, [maltodextrin], glucose, glucose syrup] should be the preferred carbohydrates in RUTF. Fructose and corn syrup as ingredients should be avoided in RUTF, because of potential adverse effects in SAM children. Only precooked and/or gelatinised starches [gluten-free] by nature may be added].

5.2.2 Food Additives and Flavours

[This section will make reference to the *General Standard for Food Additives* (CODEX STAN 192-1995)].

5.3 The Use of other Matrices in RUTF formulation

RUTF may be manufactured with formulations different from the one laid down in these guidelines provided that these formulations comply with Section 3 of the *Standard for Labelling of and Claims for Foods for Special Medical Purposes* (CODEX STAN 180-1991).

6. NUTRITIONAL COMPOSITION AND QUALITY FACTORS

6.1 Energy

The energy density of the formulated RUTF should be between ~~at least~~ 5.2 - to 5.5 kcal per gram. The energy density of ~~the~~ RUTF can be achieved during manufacturing by the addition of energy containing ingredients (i.e. fats and oils and/or digestible carbohydrates) and/or processing the basic raw materials and ingredients as indicated in ~~the~~ Section ~~on "Technologies for and effects of processing~~ 8.

6.2 Proteins

Protein should provide 10% - 12% of the total energy. ["at least 50% of protein is provided by milk products"]

6.3 [~~Fat~~] Lipids

~~[Incorporation of fats and/or oils in RUTF serves to increase the energy density and the amount of essential fatty acids. At least~~ Lipids should provide 45% to 60% of the total energy. ~~derived from fat is desirable.~~

[The level of linoleic acid should not be less than 333 ~~576.9~~ mg per 100 kcal. The level of alpha-linolenic acid should not be less than 33 mg/100kcal. ~~when used in the production of RUTF~~. The level of linoleic acid ~~and~~ should ensure a ratio between linoleic acid and alpha-linolenic acid of between 5:1 and 15:1.]

[6.4 Please see Annex "Nutrition Composition for RUTF".]

7. CONTAMINANTS

[It is recommended that the products covered by the provisions of these guidelines and the ingredients used in such products comply with the *General Standard for Contaminants and Toxins in Food and Feed* (CODEX STAN 193-1995), *Maximum Residue Limits (MRLs) and Risk Management Recommendations (RMRs) for Residues of Veterinary Drugs in Foods* (CAC/MRL 2-2015) and Codex Maximum Residue Limits for Pesticides].

Other Contaminants

The product should not contain contaminants or other undesirable substances (e.g. biologically active substances, metal fragments) in amounts which may represent a risk to the health of children. The products' [starting materials] covered by the provisions of these Guidelines shall comply with those maximum residue limits and maximum levels established by the Codex Alimentarius Commission. [~~A maximum of 10 ppb (µg/kg) for aflatoxin is allowed in the RUTF products.~~]

8. PROCESSING TECHNOLOGIES ~~FOR AND EFFECT FOR PROCESSING~~

[In addition to the practices described below, Good Hygiene Practices (General principles of food hygiene CAC/RCP 1-1969) should be implemented to avoid cross contamination during the packing and storage of raw materials.]

8.1 Preliminary Treatment of Raw Materials

Cereals, legumes, pulses and oilseeds should first be treated to obtain wholesome and clean raw materials of good quality. Such treatments include, but are not limited to:

- **Cleaning or washing**: to eliminate dirt, damaged grains, foreign grains and noxious seeds, insects and insect excreta and any adhering material.
- **Dehulling**: when necessary, pulses, legumes, oilseeds and certain cereals such as oats, barley, sorghum, millet and teff may be dehulled as completely as is feasible to reduce the fibre content to acceptable levels and to decrease, or if possible, to eliminate phytates, tannins and other phenolic materials, trypsin and chymotrypsin inhibitors which can lower the protein digestibility and amino acid bioavailability and mineral absorption**.**
- **Degermination:** where necessary and appropriate, degermination of wheat, corn, soy and other crops should be considered in order to reduce the phytate content.

8.2 Milling

- Milling or grinding of suitable raw materials should be carried out in such a way as to minimize the loss of nutritional value and to avoid undesirable changes in the technological properties of the ingredients.

- Dry raw materials may be milled together, if technologically feasible, or mixed after milling or grinding.
- Formulations containing milled cereals, legumes, pulses and/or oilseeds that have not been otherwise processed require adequate boiling to gelatinize the starch portions and/or eliminate anti-nutritional factors present in cereals, legumes and pulses. Boiling improves the digestibility and absorption of nutrients.
- The bulkiness of foods from food formulations containing dry ingredients obtained by milling of the raw materials can be reduced by adding, during the formulation, adequate amounts of enzymes such as alpha-amylase which, during the slow heating to boiling, predigest partially the starch and reduce the amount of water needed for the preparation of the food.

8.3 Toasting

- Toasting (dry heating) enhances the flavour and the taste of the food through dextrinization of starch. It also improves digestibility and contributes to reducing the bulkiness of the formulated food. Moreover, it reduces microorganisms and enzyme activity and destroys insects, thus improving keeping qualities.
- Protein damage due to the Maillard reaction may occur in the presence of reducing carbohydrates. The toasting process should therefore be carefully controlled.
- Pulses as well as oilseeds such as soya beans, groundnuts and sesame seeds can be toasted as whole grains directly or after soaking.
- Toasted raw materials can be milled or ground for use as ingredients.
- [The use of appropriate enzymes may be considered to decrease anti-nutrients in ingredients.]

8.4 Sprouting, Malting and Fermentation

- Cereals and pulses can be induced to germinate by soaking or humidifying. It is necessary, however, to ensure that growth of mycotoxin producing microorganisms does not occur. The action of natural amylases contained in the grains results in the pre-digestion of the starchy portion of the grain (dextrinization) thus reducing the bulk of the food when prepared for feeding and, ultimately, increasing the nutrient density of the food. Sprouting**,** malting and fermentation can induce hydrolysis of phytates and decrease its inhibitory effect on mineral absorption, and may improve B vitamin content.
- During the germination process, the seed coat of the grain splits and can be removed by washing. The malted raw material is milled or ground after drying.

8.5 Other Processing Technologies

Whenever feasible, RUTF or their raw materials should be treated with a validated microbial reduction treatment in order to inactivate pathogens such as *Salmonella*, noting that some pathogens have increased heat resistance characteristics at reduced water activities in food matrices.

Commonly used microbial reduction treatments that could be applied to RUTF or their raw materials include both thermal (e.g. roasting, steam treatment followed by a drying step) and non-thermal (e.g. ~~irradiation~~, antimicrobial fumigation) control measures. [*Guidelines for the Validation of Food Safety Control Measures* (CAC/GL 69-2008) and *Principles and Guidelines for the Conduct of Microbiological Risk Management (MRM)* (CAC/GL 63-2007) should be adhered to].

9. MANUFACTURING PRACTICES AND GOOD HYGIENE PRACTICES

It is recommended that the products covered by the provisions of this guideline be prepared and handled in accordance with the appropriate sections of the *General Principles of Food Hygiene* (CAC/RCP 1-1969), and *Code of Hygienic Practice for Low-Moisture Foods* (CAC/RCP 75-2015).

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

The ingredients and final product should be prepared, packed and held under sanitary conditions and should comply with relevant Codex texts.

10. METHODS OF ANALYSIS AND SAMPLING

It is recommended that methods of analysis and sampling of RUTF be in accordance with the *Recommended Methods of Analysis and Sampling* (CODEX STAN 234-1999), *General Standard for Contaminants and Toxins in Food and Feed* (CODEX STAN 193-1995), The *Principles and Guidelines for the Establishment and Application of Microbiological Criteria Related to Foods* (CAC/GL 21-1997), *Code of Hygienic Practice for Low Moisture Foods* (CAC/RCP 75-2015), and other relevant Codex Alimentarius texts. When needed, specific methods of analysis should be developed in accordance with appropriate *Guidelines on Measurement Uncertainty* (CAC/GL 54-2004), *Protocol for the Design, Conduct and Interpretation of Method Performance Studies* (CAC/GL 64-1995), and Harmonized IUPAC.

11. PACKAGING

It is recommended that RUTF be packaged in such a way to safeguard the hygienic and other qualities including nutritional properties of the food for the duration of its defined shelf-life.

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

12. LABELLING

It is recommended that the labelling of RUTF for children from 6 to 59 months be in accordance with the *Standard for the Labelling of and Claims for Foods for Special Medical Purposes* (CODEX STAN 180-991), ~~*Codex General Standard for the Labelling of Pre-packaged Foods* (CODEX STAN 1-1985)~~, the *General Standard for the Labelling of and Claims for Pre-packaged Foods for Special Dietary Uses* (CODEX STAN 146-1985), ~~*Guidelines for Use of Nutrition and Health Claims* (CAC/GL 23-1997)~~ and *Guidelines on Nutrition Labelling* (CAC/GL 2- 1985).

The Name of the Food

The name of the food to be declared on the label shall indicate that the food is a Ready-to-Use Therapeutic Food for Children from 6 to 59 months. The appropriate designation indicating the true nature of the food should be in accordance with national legislation. The age from which the product is recommended for use shall appear in close proximity to the name of the food.

List of Ingredients

The list of ingredients shall be declared in accordance with Section 4.2 of the *General Standard for the Labelling of Prepackaged Foods (CODEX STAN 1 -1985).*

~~**Declaration of Nutritive Value**~~

~~The declaration of energy and nutrients on the label or in labelling shall contain the following information expressed per 100 grams of the Ready to Use Therapeutic Foods as sold or otherwise distributed as well as per feeding of the food ready for consumption:~~

~~(a) energy value, expressed in kilocalories.~~

~~(b) the amounts of protein, carbohydrates and fat, expressed in grams;~~

~~(c) the amounts of essential fatty acids, expressed in grams.~~

~~(d) the amounts of vitamins and essential minerals, expressed in metric units.~~

- ~~Information on osmolality or osmolarity and on acid-base balance shall be given.~~
- ~~In addition, information on the nature of the animal or plant proteins or protein hydrolysates shall be provided.~~

Additional Mandatory Labelling Requirements

The following statements shall appear on the label of RUTF:

- "USE UNDER MEDICAL SUPERVISION" shall appear on the label in bold letters in an area separated from the written, printed, or graphic information.
- "For the dietary management of severe acute malnutrition" shall appear on the label.
- A prominent warning statement consisting of an explanatory statement in bold letters indicating that RUTF are for special medical purposes and may pose a health hazard when consumed by individuals who do not have the disease(s), disorder(s) or medical condition(s) for which the food is intended.
- The product is not to be used for parenteral, rectal or Nasogastric Tube (NG tube) administration.

- A statement indicating whether the product is or is not intended as the sole source of nutrition.
- A statement indicating that RUTF are not breastmilk substitutes and shall not be presented as such.
- [Exclusive breastfeeding is recommended for the first 6 months of life, and continued breastfeeding is recommended for at least 24 months.]

Instructions for use

- The label should indicate clearly from which age the product is recommended for use. This age shall not be less than six months for any product.
- Feeding instructions shall be given; preferably accompanied by graphical presentations.
- The time in which the product should be consumed ~~within 24 hours~~ after opening should be clearly indicated.

ANNEX

Table: Nutritional Composition for RUTF

Energy

Unit	Minimum	Maximum	GUL
kcal/100g	520	550	-

Protein

Unit	Minimum	Maximum	GUL
g/100g	13~~2.8~~	16.5~~2~~	-
g/100kcal	2.4~~3~~	3.2~~1~~	-

Lipids

Unit	Minimum	Maximum	GUL
g/100g	26	37	-
g/100kcal	5	6.7	-

n-6 Fatty acids

Unit	Minimum	Maximum	GUL
g/100g	3	10	-
mg/100kcal	576.9	1818.2	-

n-3 Fatty acids

Unit	Minimum	Maximum	GUL
g/100g	0.3	2.5	-
mg/100kcal	57.69	454.5	-

Vitamin A

Unit	Minimum	Maximum	GUL
mg RE/100g	0.8	[1.1] OR [1.2]	-
mg/ RE/100kcal	0.15	[0.2] OR [0.22]	-
[2]µg RE/100kcal	150	[200] OR [220]	-

[2] 1µg RE = 3.33 IU Vitamin A = 1 µg trans retinol. Retinol contents shall be provided by preformed retinol, while any contents of carotenoids should not be included in the calculation and declaration of vitamin A activity.

Vitamin D

Unit	Minimum	Maximum	GUL
[3] µg/100 g	15	[20] OR [22]	[30]
[3] µg100 kcal	2.7	[3.6] OR [4]	-

[3] 1 µg cholecalciferol = 40 IU vitamin D

Vitamin E

Unit	Minimum	Maximum	GUL
[4] mg/100 g	20	-	-
[4] mg α-TE /100 kcal	4	-	-

[4] 1 mg α-tocopherol = 1 mg RRR-α-tocopherol (d-α-tocopherol)

[4]1 mg RRR-α-tocopherol =2.00 mg *all-rac*-α-tocopherol (dl- α-tocopherol)

Vitamin K

Unit	Minimum	Maximum	GUL

µg/100 g	15	30	-
µg/100 kcal	2.9	5.5	-

Vitamin B1

Unit	Minimum	Maximum	GUL
mg/100 g	0.5	-	-
mg/100 kcal	0.1	-	-

Vitamin B2

Unit	Minimum	Maximum	GUL
mg/100 g	1.6	-	-
mg/100 kcal	0.3	-	-

Vitamin C

Unit	Minimum	Maximum	GUL
mg/100 g	50	-	-
mg/100 kcal	9.6	-	-

Vitamin B6

Unit	Minimum	Maximum	GUL
mg/100 g	0.6	-	-
mg/100 kcal	0.12	-	-

Vitamin B12

Unit	Minimum	Maximum	GUL
µg/100 g	1.6	-	-
µg/100 kcal	0.3	-	-

Folic Acid

Unit	Minimum	Maximum	GUL
[5] µg/100 g	200	-	-
[5] µg/100 kcal	38.5	-	-

[5] 1 µg of folic acid = 1.7 µg of Dietary Folate Equivalents (DFE)

Niacin

Unit	Minimum	Maximum	GUL
mg/100 g	5	-	-
mg/100 kcal	0.96	-	-

Pantothenic Acid

Unit	Minimum	Maximum	GUL
mg/100 g	3	-	-
mg/100 kcal	0.6	-	-

Biotin

Unit	Minimum	Maximum	GUL
µg/100 g	60	-	-
µg/100 kcal	11.5	-	-

Sodium

Unit	Minimum	Maximum	GUL

mg/100 g	-	290	-
mg/100 kcal	-	53	-

Potassium

Unit	Minimum	Maximum	GUL
mg/100 g	1,100	1,400	-
mg/100 kcal	212	255	-

Calcium

Unit	Minimum	Maximum	GUL
mg/100 g	300	[600] or [785]	-
mg/100 kcal	58	[109] or [143]	-

Phosphorus

Unit	Minimum	Maximum	GUL
mg/100 g	300	[600] or [785]	-
mg/100 kcal	58	[109] or [143]	-

Magnesium

Unit	Minimum	Maximum	GUL
mg/100 g	80	[140] or [235]	-
mg/100 kcal	15.4	[26] or [43]	-

Iron

Unit	Minimum	Maximum	GUL
mg/100 g	10	14	-
mg/100 kcal	1.9	2.6	-

Zinc

Unit	Minimum	Maximum	GUL
mg/100 g	11	14	-
mg/100 kcal	2	2.6	-

Copper

Unit	Minimum	Maximum	GUL
mg/100 g	1.4	1.8	-
mg/100 kcal	0.27	0.33	-

Selenium

Unit	Minimum	Maximum	GUL
µg /100 g	20	40	-
µg /100 kcal	4	7	-

Iodine

Unit	Minimum	Maximum	GUL
µg /100 g	70	140	-
µg /100 kcal	13.46	25.5	-

Moisture Content

Unit	Minimum	Maximum	GUL
Percentage(%)	-	2.5	-