PRODUCT SPECIFICATION SHEET

Emergency food ration, 500g/CAR-24

Version no: 1.1
Material No: S0000230
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Revised by: AF, MCR
Date: 13.03.2024

1. General Description

Emergency Food Ration, 500g per pack, 24 units per carton.

2. Technical Specifications

Ready-to-eat fortified dry compressed food, cereal and vegetable protein based, 9 bars per pack of 500g, 24 packs per carton. Emergency food ration is eaten directly or as a porridge prepared by adding a small amount of boiling water or boiling milk. Each bar weighs minimum 55g.

2.1 Nutrition Content per 100 g

Energy value: min 440 kcal

Protein: 12-16% of weight

Carbohydrates: 57-61% of weight

Fat: min 15g of weight

Trans fatty acids: < 2% of total fat

Vitamins (minimum)

Vitamin A: 0.47mg

Vitamin B1: 0.52mg

Vitamin B2: 0.8mg

Vitamin B6: 0.87mg

Vitamin B12: 1.3mcg

Vitamin C: 40mg

Niacin: 8mg

Vitamin D: 4.3mcg

Vitamin E: 7.0mg

Folic acid: 130mcg

Ca-D-pantothenate: 3.0mg

Biotin: 62.5mcg

Minerals

Calcium: 400-600mg

Potassium: 300-400mg

Magnesium: 100-140mg

Sodium: 290mg max

Iron: 9mg min

Phosphorous: 400-600mg

Zinc:9mg min

Copper: 0.8-1.2mg

Selenium: 20-30mcg

Iodine: 80-120mcg

2.2 Standards and recommendations

Emergency Food rations must comply with the following guidelines or standards.

1. Recommended International Code of Practice: General Principles of Food Hygiene CAC/RCP 1-1969 Rev 4 - 2003 including Annex "Hazard Analysis and Critical Control Point (HACCP) System and Guidelines for its application".
2. General principles for addition of essential nutrients to foods: CAC/GL 09-1987 (amended 1989, 1991), of the Codex Alimentarius.
3. General principles for addition of essential nutrients to foods: CAC/GL 09-1987 (amended 1991), of the Codex Alimentarius.
4. General standard for the labelling of pre-packed foods: CODEX STAN 1-1985
5. Commission regulation (EU) 2019/649 Trans-fat, other than trans-fat naturally occurring in fat of animal origin (europa.eu)

3. Raw materials

Cereals, vegetable fat, sugar, vegetable protein, vitamins and minerals and additives

Applicable raw material specifications

1. Cereals must comply with relevant Codex standard, e.g., Wheat flour must conform to Codex STAN 152-1985
2. Sugar must conform to Codex STAN 212-1999
3. Shortening must be prepared from oil that conforms to Codex STAN 210-1999, must be free from trans fatty acids and must contain only antioxidants that comply with Codex and relevant regulations.
4. Skimmed milk powder must conform to Codex STAN 207-1999.
   - It must also be accompanied by a 'melamine-free' certificate.
   -Maximum level aflatoxin M1: < 0.5 mcg/kg in milk (recommended methods ISO 14501/IDF 171:20071 or ISO 14674/IDF 190:20052).
5. Vegetable protein must conform with relevant Codex standard.
6. The mineral and vitamin premix(es) cannot be produced by the manufacturer itself and must be supplied only from suitably qualified premix facilities.
7. A list of suppliers of sources of premix is available at: https://gpf.gainhealth.org/suppliers/current-suppliers
   However, not all these suppliers are approved by UNICEF. Emergency food ration suppliers must validate their premix supplier to ensure the quality of the premix facility on its own merit.

Other raw materials and additives (if used) must comply with Codex or relevant regulations.

4. Safety and Quality control

The product produced in hygienic environment and have followed GMP and GHP practices during processing and production. The product shall have periodic testing (nutrients, additives, contaminants, and pathogens) as per Codex/national requirements and must be supplemented with food safety certificates such as a manufacturing license, inspection from the pertaining local authority, food safety certificate (FSCC 22000), or similar.

Listeria monocytogenes: neg/25g

Salmonella: neg/25g

Pathogenic *Staphylococci*: neg/g

Standard plate count: < 10000cfu/g

Enterobacteriaceae: < 10cfu/1g

Escherichia coli: < 10cfu/g

Yeast and mould: < 100cfu/g

Aflatoxin M1: < 0.5 ppb (Reference method: AACC 45-16) or LC-MS/MS

Organoleptic (smell, taste, colour): Pleasant smell and palatable taste, typical colour.

Broken bars: Max 5.0 % broken (Reference method by weight: visual inspection)

GMO (only if required): Negative (< 0.9% of GMO material)

Pesticide residues: < 10ppb

Acceptable levels of heavy metals

Cadmium: 0.064 ppm

Lead: 0.107 ppm

Mercury: 0.021 ppm

Tin: 60.0 ppm

5. Transport and storage

Store dry conditions away from direct sunlight.

6. Shelf life

5 years preferably

7. Packaging

Packed in a water-repellent cardboard box containing 24 packs of 500g; each pack contains several bars in a grease -proof paper or polyethylene film. The compressed bars are vacuum packed in an air and watertight aluminum bag. Packaging must be suitable for emergency settings and allow airdrop delivery. Proper packaging integrity monitoring and packaging validation is required to assure the shelf life of the product.

7.1 Label on primary packaging/cardboard box

English and French, or another local language may be requested. The following information shall be included in the labeling.

-Brand
-Product name
-Target population
-Ingredients list
-Net weight
-Nutritional table (preferably)
-Storage instructions
-Production date, batch number, and best before by date
-Instructions on how to handle left-over food

-Serving instructions (Pictograms preferred)
-Allergen list

7.2 Secondary packaging and labeling

Fortified emergency ration must be packed in a secondary packaging which can tolerate the harsh condition of transport and distribution. The following information is required for the secondary packaging label.

-Brand
-Product name
-Production date, batch number, best before by date
-Manufacturing name and address
-Net content and number of units

7. Analytical requirements for Certificate of Analysis

A Certificate of Analysis is required for every batch supplied against UNICEF Supply Division Purchase Orders. The principal tests listed below must be performed in order to check if the quality of emergency food ration meets above requirements. Additional analyses shall be defined in case of further quality assessment.

List of compulsory tests for Certificate of Analysis and reference methods:

Moisture content: Max 4.5 % (Reference method: AOAC 18th ed.2006)

Energy: min 440kcal/100g (Reference method: by calculation).

Protein: 12-16 g/100 (Reference method: IS 7219: 1973 (Reaff:2005))

Fat: Min 15.0 g/100g (Reference method: AOAC 18th ed.2006)

Carbohydrates (diff.) 57 - 61g/100g (Reference method: by calculation)

Ash (total): Max 3.5 g/100g (Reference method: AOAC 18th ed.2006)

Vitamin C: Min 40mg/100g (Reference method: IS:5838-1970 (Reaff.2005))

One mineral tracer of choice

Microbiology

Standard plate count: Max 10,000 cfu per g (Reference method: 3M Petrifilm Aerobic Count Plate

AOAC® Official MethodsSM990.12)

Yeast and Moulds: < 100cfu per g (Reference method: 3M Petrifilm Yeast and Mould AOAC®

Official MethodsSM997.02)

Salmonella: neg/25g

Aflatoxin M1: < 0.5ppb

Useful Resources

1. Contaminants Reference
2. Table Stability study template for Nutritional Products
3. Interagency Requirements for stability study
4. Interagency Specialised Food Manufacturer Quality Questionnaire
5. Interagency Specialised food Product Questionnaire
6. Technical Requirements “Nutritional Products”

FOR MORE INFORMATION

CPHHQ-SD- Nutrition Supplies |sd.nutritionsupplies@unicef.org

Technical resources for nutrition products | UNICEF Supply Division