



**PRODUCT SPECIFICATIONS SHEET**

**High Energy Biscuits**

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**General Description**

High energy biscuits, 16 units of 400g per carton.

**Technical Specifications**

Moisture content: 4.5% maximum

Nutritional value: it shall contain the following nutritional value per 100g dry matter:

Energy: 450 kcal minimum

Protein: 10.0-15.0g (N x 6.25)

Fat: 15.0g minimum

Sugar (total): 10.0-15.0g

Fiber (crude): 2.3g maximum

Ash (total): 3.5g maximum

Vitamin and Mineral content per 100g finished product

Vitamin A as Retinol: 212.5-287.5mcg as palmitate/acetate CWS

Vitamin B1: 0.425-0.575mg as thiamine mononitrate

Vitamin B2: 0.595-0.805mg as riboflavin

Niacin: 5.1-6.9mg as nicotinamide

Pantothenic acid: 2.55-3.45mg as calcium d-pantothenate

Vitamin B6: 0.85-1.1mg as pyridoxine hydrochloride

Folic acid: 68-92mcg as folic acid

Vitamin B12: 0.6 - 3.3mcg as cyanocobalamin

Vitamin C: 17-23 mg as ascorbic acid

Vitamin D: 1.615-2.185mcg as cholecalciferol CWS

Vitamin E: 4.25-5.75mg as alpha or dl- tocopherol CWS

Calcium: 212.5-287.5mg as calcium carbonate

Magnesium: 127.5-172.5mg as magnesium oxide

Iron: 9.35-12.65 mg as ferrous fumarate

Iodine: 63.75-86.25mcg as potassium iodate

Note: Variable levels of micronutrients (i.e iron, zinc, calcium etc.) are naturally present in raw materials may lead variable of micronutrients in finished product. The product should meet UNICEF's specification for all parameters through-out the shelf-life.

**Product purpose**

High Energy Biscuits (HEB) are biscuits (small baked bread or cakes) that are supplemented with a premix of vitamins and minerals. This ready to eat food is used to cover urgent needs in the acute phase of an emergency situation during which population is not able to cook due to a lack of access to basic facilities (clean water, cooking equipment, etc.). Their use is also extended to a complement food ration (such as snacks) to provide vitamins and minerals in regions/population where diet is subject to nutritional deficiencies.

HEB can also be used to prevent micronutrient deficiency in young and school age children.

### **International Standards**

High Energy Biscuits shall comply, except when specified otherwise in this contract, with the following guidelines or standards of Codex Alimentarius:

Guidelines on Formulated Supplementary Foods for Older Infants and Young Children, CAC/GL 08-1991 of the Codex Alimentarius.

Code of Hygienic Practice for Foods for Infants and Children CAC/RCP 66 - 2008 of the Codex Alimentarius;

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.

General principles for addition of essential nutrients to foods: CAC/GL 09-1987 (amended 1989, 1991), of the Codex Alimentarius.

### **RAW MATERIALS**

Main ingredients

HEB shall be manufactured from fresh and high quality raw materials, HEB shall be free from foreign materials and substances which represent a hazard to health. HEB shall be free from excessive moisture, insect damage and fungal contamination and shall comply with all relevant national food laws and standards.

Standards for raw materials:

Wheat flour: Codex STAN 152-1985.

Soy flour/soy protein: Codex STAN 171-1989 (for soy) or Codex STAN 175-1989 (for soy protein).

Sugar: to Codex STAN 212-1999.

Skimmed milk powder: Codex STAN 207-1999

- Maximum level aflatoxin M1: < 0.5 mcg/kg milk (recommended methods ISO 14501/IDF 171:20071 or ISO 14674/IDF 190:20052).

HEB shall be melamine-free certified.

### **Notes:**

Milk and milk powder: determination of aflatoxin M1 content, clean up by immune-affinity chromatography and determination by HPLC.

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### **Additives:**

- Lecithin shall be in proportion as specified in the Codex STAN 074-1981.

- Raising (SODA) agent as specified in the Codex STAN 074-1981, the maximal value is determined by the GMP principles.

- Shortening: the only shortening agent allowed is palm oil as per Codex STAN 074-1981.

- Artificial flavoring agents are not allowed except ethyl vanillin and vanillin: 7mg/100g.

- Other additives must comply with Codex STAN 192-1995 and Codex STAN 074-1981.

Other raw materials need to comply with Codex or relevant regulations.

Raw materials shall be stored under dry, ventilated and hygienic conditions. Only safe insecticides (i.e. phosphine) may be used for fumigation control. Where needed, fumigation shall be performed by certified operators.

Vitamins and minerals

The mineral and vitamin premix(es) shall not be produced by the HEB manufacturer itself and shall be supplied only from a restricted list of authorized suppliers of premix. List of authorised sources of

premix established and updated by the World Food Programme (WFP) and GAIN premix suppliers and is available at: <http://gpf.gainhealth.org/suppliers/current-suppliers>  
Micronutrient premixes shall be stored in a dry, cool and clean place.

## **PROCESSING**

Food safety and risk assessment at manufacturing premises:

For compliance with Codex standards the processor must be able to demonstrate by principle and practice the adoption, implementation and recording of:

Good Manufacturing Practice

Hazard Analysis Critical Control Point program

The manufacturer must be registered under national food law as a processor of foods for human consumption.

Microbiology

The following levels of microbiological contamination in the finished product shall not be exceeded:

### **Microorganisms acceptable limits:**

Standard plate count: Max 10,000cfu per g

Mesophilic aerobic bacteria: Max 10,000cfu per g

Coliforms: Max 10cfu per g

Escherichia coli: Absent in 10g

Salmonella: Absent in 25g

Staphylococcus aureus: <10cfu per g

Bacillus cereus: Max 10cfu per g

Enterobacter sakazakii: Absent in 10g

Yeasts and moulds: Max 100cfu per g

### **Additional Requirements**

Organoleptic: HEB shall have a pleasant smell and palatable taste.

Broken biscuits: not be more than 5.0% (by weight).

Weight: one biscuit should weigh between 5g and 10g.

Peroxide value: shall not be above 10 meq/kg fat.

Shelf life: 24 months from date of manufacture when stored dry at ambient temperatures prevalent in the country of destination, protected from direct sunlight.

### **Safety**

HEB shall be free from objectionable matter; shall not contain any substances originating from micro-organisms or any other poisonous or deleterious substances, heavy metals or pesticide residues, in amounts which may represent a hazard to health.

Permitted level of aflatoxin M1: < 0.5 ppb

Heavy Metals:

Arsenic (As): <0.10ppm

Cadmium (Cd): <0.10ppm

Lead (Pb): <0.02ppm

Mercury (Hg): <0.20ppm

Pesticide residues :

Carbamate: <10ppb

Organochlorine: <10ppb  
Organophosphorus: <10ppb  
Pyrethroid: < 10ppb  
Melamine: max 2.5mg/kg

#### **Other requirements**

Free from radioactivity  
Free from Genetically Modified Organisms (GMO) (if required by the recipient country).  
Suppliers shall have to check the quality of their product and guarantee that HEB is fit for human consumption.

#### **PACKAGING**

Biscuits shall be packed in metalized laminate OPP 20micron/PR 3C/DRY/VMCPP 25micron packages.  
Each package shall contain 400 grams biscuits.

Carton

16 Individual packages shall be packed in strong cardboard cartons suitable for multiple handling.  
N.B. About 15-20 bags of silica gel of at least 1 Kg each should be placed in each container in order to absorb moisture. In addition craft paper should be laid to all sides of the container.

#### **Labelling**

Primary labeling shall include the following information in English and Arabic:

List of ingredients in descending order

Nutritional value per 100 g.

Manufacturing date (month/year)

Best before date (month/year)

Nutritional information per 100g

This product contains no lard

Tot for individual sale

Additional marking as per contractual agreement

#### **Secondary labeling:**

Cartons shall be marked in English and Arabic with the following information:

In letters measuring 1.0 to 1.5cm on the cartons:

Net weight

Month and year of production

Full name or code of the production enterprise

Ingredients, nutritional information

Additional marking as per contractual agreement.

#### **STORING**

HEB must be stored under dry, ventilated and hygienic conditions away from direct and sunlight and excessive heat.

#### **Shelf life:**

24 months from date of manufacture when stored as instructed by the manufacturer.

#### **ANALYTICAL REQUIREMENTS**

The principal tests listed below must be performed in order to check if the quality of HEB meets above requirements. Additional analyses shall be defined in case of further quality assessment.

#### **List of compulsory tests and reference methods:**

Moisture content: Max 4.5% Reference method: AOAC 925.10, 2002

Energy: 450kcal/100g Reference method: by calculation

Protein: 10.0-15.0 g/100g Reference method: AOAC 981.10

Fat: Min 15.0g/100g Reference method: AOAC 963.15, 2000

Sugar (total): 10.0-15.0g/100g Reference method: IFFJP method 14, 2001

Crude fiber: Max 2.3g/100g Reference method: AOAC 962.09

Ash (total): Max 3.5g/100g Reference method: ISO 2171.2000

Vitamin A-Retinol: 250mcg/100g Reference method: AOAC 960.45

Iron: 11 mg/100g

Reference method: AOAC 945.40

Standard plate count: Max. 10,000 cfu per g Reference method: ICC No 125 AACC 42-11

Bacillus cereus: Max 10 cfu per g Reference method: AOAC 980.31

Moulds: Max <300 cfu per g Reference method: ICC No 146

Aflatoxin M1: <0.5ppb Reference method: AACC 45-16

Organoleptic characteristic (color, smell and taste): typical color, pleasant smell and palatable taste.

Reference method: sensorial inspection

Broken biscuits: max. 5.0% broken (by weight).

Reference method: visual inspection

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