



Technical Specifications for the manufacture of:

## **FORTIFIED DATE-BARS**

Specification code: **MIXHEB010**

Version: **16.0**

Date of issue: **12/02/2016**

Developed by: **Van Hoan NGUYEN; Charles JELENSPERGER, *Food Technologists, OSPFQ-WFP***

Reviewed by: **Mohamed NASSER, *Food Technologist, RBC-WFP***

Approved by: **Isabelle MBALLA, *CHIEF, OSPFQ-WFP***

---

### **1. SCOPE**

This specification is applied for **Date-bars** that WFP purchases and/or distributes for school feeding programmes.

### **2. PRODUCT DEFINITION**

**Date-bars** are filled biscuits supplemented with dry skimmed milk, mineral(s) and vitamin(s).

**Date-bars** are culturally well-accepted by populations living in Middle East and North Africa, and belong to the category of ready-to-eat food.

### **3. STANDARDS, REGULATIONS and REFERENCE**

#### **3.1 General requirements**

- The manufacturer shall be registered under national food law/regulation as a processor of food intended for human consumption.
- **Date-bars** produced for WFP shall comply with the relevant national food legislation of the country of origin and the country of destination<sup>1</sup>.

#### **3.2 Specific guidelines and standards of 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.
- General standard for the labelling of pre-packaged foods: CODEX STAN 1-1985

---

<sup>1</sup> Refers to additional requirements of the contract

- Codex Standard 146-1985 - General standard for the labelling of and claims for pre-packaged foods for special dietary uses.

#### 4. RAW MATERIALS

##### 4.1 Main ingredients

**Date-bars** shall be manufactured from fresh raw materials of high quality, clean, safe, free from foreign matters, hazardous substances to health, excessive moisture, insect damage and fungal contamination and shall comply with all relevant food safety and quality laws, regulations and standards for each material (if used) as following:

- **Wheat flour** must conform to Codex STAN 152-1985.
- **Date** must conform to Codex STAN 143-1985.
- **Date paste** must conform to CODEX STAN 314R-2013.
- **Sugar** must conform to Codex STAN 212-1999.
- **Skimmed milk powder** must conform to Codex STAN 207-1999 and shall be accompanied by a 'melamine-free' certificate with maximum level aflatoxin M1: < 0.5 mcg/kg milk<sup>2</sup>
- **Shortening** shall conform to Codex STAN 210-1999, must be free from trans-fat content and shall contain only antioxidant that comply with Codex standards and relevant regulations; in case of using palm oil, must conform to Codex STAN 074-1981 and in case using butter, must conform to CODEX STAN for Butter 279-1971 (Revision 1999 and amendment 2003, 2006)
- **Salt** must be food grade salt and conform to Codex STAN 150-1985.

##### 4.2 Additives

- **Lecithin** shall be in proportion as specified in the Codex STAN 074-1981.
- **Raising agent** (i.e. SODA) must be added as specified in the codex STAN 074-1981, the maximal value is determined by the principles of GMP.
- **Other additives and ingredients** (if used) must conform to relevant Codex standards and/or international standards.

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

---

<sup>2</sup> The recommended methods; ISO 14501/IDF 171:2007 (Milk and milk powder: determination of aflatoxin M1 content, clean up by immunoaffinity chromatography and determination by HPLC) or ISO 14674/IDF 190:2005 (Milk and milk powder: determination of aflatoxin M1 content, clean up by immunoaffinity chromatography and determination by Thin Layer Chromatography)

### 4.3 Vitamins and minerals

**Micronutrient premix** must be purchased from GAIN Premix Facility or any of the GAIN approved supplier, a complete list for registered suppliers is available at the following link: <http://gpf.gainhealth.org/suppliers/current-suppliers>

**Micronutrient premix** shall be delivered to the processor of date bars with a certificate of Analysis. This document shall be presented with other documents to WFP for payment.

**Micronutrient premix** shall be stored in a dry, cool (Below 25 °C), and clean place. According to the storing instructions declared by manufacturer.

**Micronutrient premix** shall provide the following nutrient supplementation per 100g of final product as per table 1

**Table1:** Premix contribution and premix nutrient sources (incorporation rate: 0.25% or 2.5 kg per MT date-bar)

Micronutrients	Nutrient added per 100g Date-bars	Chemical form
Vitamin A	284 µg	Vitamin A Palmitate 250 CWS
Vitamin D	2.85 µg	Vitamin D3 100 CWS
Vitamin E Tocopherol Equivalent (Vitamin E)	4.0 mg	Vitamin E 50 CWS
Vitamin K1	0.03 mg	Dry Vitamin K1 5% SD
Thiamine (Vitamin B1)	0.51 mg	Thiamine mononitrate
Riboflavin (Vitamin B2)	0.51 mg	Riboflavin fine powder
Pyridoxine (Vitamin B6)	0.57 mg	Pyridoxin hydrochloride
Vitamin C	17.0 mg	Ascorbic acid
Folic Acid (Vitamin B9)	0.17 mg	Folic acid
Niacin	6.8 mg	Nicotinamide
Vitamin B12	1.02 µg	Vitamin B12 (0.1% or 1%)
Copper	0.34 mg	Copper Gluconate
Iron	7.10 mg	Ferric Pyrophosphate or ferrous fumarate
Zinc	3.18 mg	Zinc Oxide

*Note: The permitted variation in premix content is +/- 10% for each nutrient added*

### 5. FORMULATION

**Date-bars** formulation shall be based on supplier experience. A clear and full recipe including all ingredients and additives should be shared with WFP and shall comply with the following constraints:

- **Date paste:** should be fresh produced date paste with minimum 25.0 % (250 kg date paste per 1 MT date-bars) and maximum 30% (300 kg date paste per 1 MT date-bars).

- **Dry Skimmed Milk powder:** The mandatory minimum content is 4.0 % (40 kg dry skimmed milk per 1 MT date-bars)
- **Sugar:** the allowed percentage is 8.0 to 12.0 % (80.0-120.0 kg sugar per 1 MT date-bars)
- **Soybean and soybean derivatives** are prohibited to be used as ingredient for production of date-bar, except soya lecithin and therefore must be clearly declared on the label of the final product.
- **Recycling of biscuit's waste is forbidden for any production for WFP (i.e. addition of broken and/or misshaped biscuits to the mixtures of paste or dough to produce new products).**
- **Micronutrient premix:** As per table 1
- **Micronutrient premix** could be added to the date paste or to the dough or in both; date paste and dough based on available equipment, tools and technology. The supplier should develop the appropriate mixing procedures to ensure a good homogeneity of micronutrient in the Date-bars and it is the supplier's responsibility to ensure that:
  - Recommended incorporation rate based on finished product is followed;
  - Process losses are minimised to the ratio that acceptable in GMP during mixing, baking and processing of dough and paste;
  - Premix does not impact taste in the final product;
  - Premix is homogeneously distributed with a coefficient of Variation of max. 10%, it is required to justify a good mixing system by using iron as indicator element as shown at following link; <http://foodqualityandsafety.wfp.org/coefficient-of-variation-calculator>.

## 6. PRODUCT SPECIFICATIONS

### 6.1 Sensory requirements

The products covered by this Specification shall have a typical colour, nice texture, pleasant smell and palatable taste which consumers will like and enjoy.

### 6.2 Specific requirements

- Each individual Date-bar shall have a corresponding net weight (20 or 40 gm) based on contractual requirements and shall be declared on the label of each pack<sup>3</sup>.
- Different shapes of date-bar units are accepted; including round, bar and rectangular shape.
- Melamine content of final product must not exceed 1 mg/Kg.
- Percentage of total broken Date-bars must not be more than 5.0% (by weight).

### 6.3 Contaminants

#### 6.3.1 Heavy metals

The final product of date-bars shall be free from heavy metals in amounts which may represent a hazard to human health.

#### 6.3.2 Pesticide residues

The product shall comply with those maximum residue limits established by the Codex Alimentarius Commission for this commodity.

---

<sup>3</sup> The net weight refers to the weight of individual date-bar after complete processing and packaging (i.e. the weight of individual date-bar before baking is not expressing the net weight)

### 6.3.3 Physical and microbiological

Date bar shall be free from objectionable matter; not contain any micro-organisms, substances originating from micro-organisms or any other poisonous or deleterious substances such as anti-nutritional factors, in amounts which may represent a hazard to health of the specific population group for which they are intended (school age children).

### 6.4 Radiation:

The final product shall be free from radioactivity and the certificate of free from radioactivity may be requested (Contractual requirements).

### 6.5 Shelf life

The product shall retain above quality for 12 months from date of manufacture when stored up to 30 °C (Degree Celsius) and 75% relative humidity (Different requirements may be agreed upon on the contract due to local regulations)

## 7. PACKAGING

### 7.1 Primary packaging

Under supplier's responsibility and based on accumulated experience; the supplier is responsible to select the appropriate packaging material which safeguard the hygienic, nutritional, technological, and organoleptic characteristics of the final product during the whole shelf life.

The package, including packaging material, shall be made of food grade materials which are safe and suitable for their intended use. It should be new, uniform, strong, fit for export and multiple handing as well as it should not impart any toxic substances or undesirable odour or flavour to the product and shall be hermetically sealed.

Unless otherwise specified in the contract, each individual package shall contains 4 Date-bars

It shall include a metalized layer to reduce permeability to oxygen and vapour. Typically, a laminated composed of BOPP + VMCPP (20 and 25 microns respectively) or equivalent or stronger can be used.

All packaging materials shall be stored under dry, well ventilated and hygienic conditions.

### 7.2 Secondary package

Unless otherwise specified in the contract, each carton shall contain 160 individual package.

It is under supplier responsibility to select a packaging material that will resist to multiple handling and up to 3 meter stacking.

- Cartons shall be new with an edge crush resistance of 11 kN/m (61 pounds per inch) and a specific weight of 700 to 800 grams per square meter.
- 60% of the edge crush resistance shall remain at 90% relative humidity and 40°C.
- Cartons shall be fully filled for maximum strength.
- Cartons shall be firmly closed by tape.
- Two percent (2%) empty cartons (included in the price) to be shipped along with commodity for repacking of any damaged cartons.

- Dunnage (of strong sheets such as carton, plywood...) should be placed inside each container at every three layer of cartons to provide the required stacking strength.

*Note: For shipping container, unless otherwise specified in the contract, minimum 15 bags of desiccant (such as silica gel or other authorized products) of at least 1 kg each must be placed in each 20 feet container in order to absorb moisture. In addition, craft paper must be laid to all internal sides of container.*

## 8. MARKING

**Date Bar** must be labelled: in an appropriate language, in accordance with table 2 and codex standard below. Labels of individual package and cartons must be proof read by WFP.

- Codex Stan 146-1985 - General standard for the labelling of and claims for pre-packaged foods for special dietary uses.
- Codex Stan 1-1985 - General standard for the labelling of pre-packaged foods

*Table 2: Generic marking requirements*

	Individual package	Carton
Product name	Date-bars	
Net weight	80g or as per contractual requirement	as per contractual requirement
Nutrients content <sup>4</sup>	XXX	-
Ingredient list (recipe)	XXX	-
Storage instruction	"Store in dry, hygienic conditions and away from heat"	
Manufacturer name	Produced by: XXX	
Manufacturer address	XXX, including country of origin	
Manufacturer batch/lot number	XXX	
Production date	Day/month/Year	
Best Before Date	XXX	
Other	"not for sale or exchange" "Contains no ingredients of animal origin besides dairy products"	
Donor and WFP logo	as per contractual requirement	
Additional marking	as per contractual requirement	

## 9. ANALYTICAL REQUIREMENTS

Analytical requirements are defined, at the point of procurement. As per contractual agreement, WFP will appoint an inspection company to inspect the factory during production

---

<sup>4</sup> Nutrient content that will be printed on the package shall be based on analytical reports from accredited laboratory. Values will depend on the premix formula and recipe of the Date-bars.

and perform these analysis at accredited laboratory. The final product should conform the results required at table 3.

*Table 3: List of compulsory tests and reference methods*

<b>N o</b>	<b>Tests</b>	<b>Requirements</b>	<b>Reference methods (or equivalent)</b>
1	Organoleptic characteristics	<b>Free from abnormal, harmful material. Typical and pleasant colour, smell. Soft and pleasant texture.</b>	Organoleptic examination
2	Broken percentage	<i>Max. 5.0 %</i> by weight	Visual examination and weighing
3	Moisture	<i>Max. 12.0 g/100g</i>	AOAC 925.10
4	Crude fiber	<i>Max. 1.2 g/100g</i>	ISO 5498 (latest version)
5	Protein	<b>Minimum 6.0 g/100g</b>	AOAC 981.10
6	Fat	<b>12.0 – 20.0 g/100g</b>	AOAC 963.15
7	Peroxide value	<i>Max. 10 meq/kg fat</i>	AOAC 965.33
8	Iron	<b>6.3-9.1 mg/100g</b>	AOAC 945.40
9	Vitamin A	<b>230-344 µg/100g</b>	AOAC 960.45
10	Escherichia coli	<b>Absent</b>	ISO 7251 (latest version)
11	Salmonella	<b>Absent</b> in 25g	ISO 6579 (latest version)
12	Aerobic Mesophilic Bacteria	<b>&lt; 10,000 cfu/ g</b>	ICC No 125
13	Yeast and mold	<b>&lt;100 cfu/g</b>	ISO 21527/2008