Technical Specifications for
FORTIFIED UHT MILK
Palestine & Haiti

Version: v.1
Replacing: v.14.0, 2014
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Key update:
- *Haiti CO included in the scope of the specification.*
- *Specification aligned with the latest template for processed food commodities.*

Additional note:
This new version has been urgently developed to enlarge the scope of work, however a complete revision of the specification is required.

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1. Introduction

Product name (hereafter called the product): Fortified UHT Milk.

General description: the specification prescribes the requirements for Fortified UHT milk for Palestine and Haiti.

Definitions

Milk: means the normal, clean and fresh secretions, without any addition or subtraction, extracted from the udder of a healthy cow, and free from colostrums, i.e. excluding that got during the first seven days after calving.

Pasteurized milk: milk which has been subjected to pasteurization.

Homogenization: process by which milk fat globules are finely divided and interspersed to form a homogeneous product so as to prevent the fat from floating on the surface and adhering to the inside of the container.

UHT milk: the milk, ultra-high temperature treated, homogenized, filled and sealed aseptically into sterile retail containers in order to achieve commercial sterility.

Commercial sterility: the attained practical sterility after the product has been treated aiming at absolute sterility.

2. Standards

Except when specified otherwise in the contract, the manufacture, testing, packaging and labelling, of the product shall be in strict compliance with the specifications set forth herein, and with the latest edition of the following standards/guidelines (whichever is stricter). Supplier shall not deviate in any way from the specifications without WFP's prior written consent.

Codex Texts can be found in the following webpages:

Standards: https://www.fao.org/fao-who-codexalimentarius/codex-texts/list-standards/tr/;

Codes of practice: https://www.fao.org/fao-who-codexalimentarius/codex-texts/codes-of-practice/en/;

Guidelines: https://www.fao.org/fao-who-codexalimentarius/codex-texts/guidelines/tr/;

Guidelines of International Commission on Microbiological Specifications for Foods: https://www.icmsf.org/publications/books/

Maximum Residue Limits of pesticide and veterinary drug: https://www.fao.org/fao-who-codexalimentarius/codex-texts/maximum-residue-limits/tr/.

- CODEX GENERAL STANDARD FOR CONTAMINANTS AND TOXINS IN FOOD AND FEED (CXS 193-1995)
- CODEX GENERAL PRINCIPLES OF FOOD HYGIENE (CXC 1-1969)
- RECOMMENDED METHODS OF SAMPLING FOR THE DETERMINATION OF PESTICIDE RESIDUES FOR COMPLIANCE WITH MRLS (CXG 33-1999)
- CODEX GENERAL STANDARD FOR FOOD ADDITIVES (CXS 192-1995)
- CODE OF PRACTICE ON FOOD ALLERGEN MANAGEMENT FOR FOOD BUSINESS OPERATORS (CXC 80-2020)
- CODEX GENERAL GUIDELINES ON CLAIMS (CXG 1-1979)
- CODEX GENERAL STANDARD FOR THE LABELLING OF PREPACKAGED FOODS (CXS 1-1985)
- CODEX GUIDELINE ON NUTRITION LABELLING (CXG2-1985)
- CODEX GENERAL PRINCIPLES FOR ADDITION OF ESSENTIAL NUTRIENTS TO FOODS (CXG 9-1987)
- MAXIMUM RESIDUE LIMITS (MRLS) AND RISK MANAGEMENT RECOMMENDATIONS (RMRS) FOR RESIDUES OF VETERINARY DRUGS IN FOODS (CXM 2)
- CODE OF HYGIENIC PRACTICE FOR MILK AND MILK PRODUCTS (CXC 57-2004)

3. Raw Materials

Milk

UHT milk shall be produced from milk which conforms to Codex Stan 206-1999 definition,
i.e. 'Milk is the normal mammary secretion of milking animals obtained from one or more milkings without either addition to it or extraction from it, intended for consumption as liquid milk or for further processing'.

Micronutrients

Table 1 - Required fortification per 100 ml of ***Fortified UHT milk***

Micronutrient	**Unit**	**Recommended level (per 100 ml)**		**Chemical from**
		Minimum	*Maximum*	
Zinc	mg	0.40	0.50	Zinc lactate
Vitamin D	mcg	1.00	1.25	Cholecalciferol
Vitamin A	mcg	40.00	50.00	Retinyl acetate
Thiamin (B1)	mg	0.10	0.125	Thiamin mononitrate
Riboflavin (B2)	mg	0.10	0.125	Riboflavin 5'-phosphate, sodium
Pyridoxine (B6)	mg	0.08	0.10	Pyridoxine 5'-phosphate
Niacin (B3)	mg	1.50	1.875	Nicotinic acid
Iron	mg	2.00	2.50	Ferric sodium diphosphate
Folic acid (B9)	mcg	100.00	125.00	Folic acid
Cobalamin (B12)	mcg	0.20	0.25	hydoxocobalamin

Suppliers shall implement an effective food safety and quality management system for the premix, including supplier approval and premix quality control.

Additionally, the premix shall:

- Conform to all relevant quality standards, including food chemical Codex.
- Be suitable for vegetarian. The definition of the terms "Food suitable for vegetarians" can be found here: https://www.fooddrinkeurope.eu/wp-content/uploads/2021/09/Joint-statement-on-vegan-vegetarian-definitions.pdf (Annex I).
- Be purchased from WFP or GAIN approved suppliers (http://gpf.gainhealth.org).
- Be delivered to the manufacture with a Certificate of Analysis (CoA) showing levels of all micronutrients included in the premix. This CoA shall be submitted to WFP along with other documents for payment.
- Micronutrient premixes shall be stored as recommended by premix manufacturer (e.g., under 25 ◦C).

4. Processing

The milk shall be subjected to temperatures between 135 °C and 150 °C for 2 to 6 seconds, sufficient to attain commercial sterility, followed by immediate cooling to ambient temperature and aseptically packaged in sterile containers.

Where steam injection is used for heating, only culinary steam shall be used, and the compositional quality of the milk shall be the same before and after treatment.

UHT milk shall be held by the processor at ambient temperatures for at least seven days before release to the market. When samples are tested organoleptically after this storage, the flavour shall be normal, and all signs of spoilage shall be absent.

Food safety and quality management at manufacturing premises

The manufacturer shall be able to demonstrate by principle and practice the adoption, implementation and recording of:

- Good Manufacturing Practices (GMPs)
- Good Hygiene Practices (GHPs)
- Hazard Analysis Critical Control Point program (HACCP)
- Global Food Safety Initiative (GFSI) scheme principles

In this context an appointed WFP staff/ Quantity & Quality Inspector / Surveyor / Auditor is entitled to visit the factory without prior notice during any period when WFP product is being manufactured to check that production is done as per WFP contract specifications.
The WFP staff/Inspector/Surveyor/Auditors may examine any aspect of Supplier's manufacturing premises and its documentation relating to any products or services provided to WFP, including but not limited to production facilities, procedures, records, certifications, or practices.
Food suppliers shall notify WFP immediately of lots (pre-delivery and post-delivery) that fail to meet contract requirements. Any testing on food safety parameters for foods (and/or the associated raw materials) delivered to WFP shall be pre-agreed with WFP.

Homogeneity of micronutrients

Maximum Coefficient of Variation (CV) is: 10%
The associated indicator element is: Iron
The guidelines for calculating CV: https://foodqualityandsafety.wfp.org/food-fortification-and-coefficient-of-variation-cv-calculation.

5. Product Specifications

General requirements

Milk shall be produced, processed and handled in accordance with CAC/RCP 57.

Note: Reference to CAC/RCP 57 does not mean an endorsement of the use of actoperoxidase system as a means of preservation of raw milk as contained therein.

Average nutritional values per 100g Fortified UHT Milk:

- Energy: 60 kcal
- Protein: 3 g min
- Fat: 2 g min
- Carbohydrates 4.5 g min

Fortified UHT Milk shall comply with the requirements given in Table 2.

Table 2- Chemical requirements for Fortified UHT Milk

	Whole milk	**Fat reduced milk**	**Low fat milk**	**Fat free milk**	**Test method**
pH variation on 7 days incubation (units max.)	0.3	0.3	0.3	0.3	
Titratable acidity variation on 7 days incubation, % lactic acid (units max.)	0.02	0.02	0.02	0.02	
Milk fat (%)	3.25%, min.	1.51-3.24%	0.51-1.50%	0.50% max.	ISO 2446
Milk solids not fat (% min.)	8.5	8.5	8.5	8.5	ISO 6731

Note: Solids-non-fat content is calculated from total solids and fat contents.

The density of the milk at 20 °C shall be not less than 1.028 g/ml and not more than 1.036 g/ml.

Milk shall not contain added water. When determined in accordance with ISO 5764, the freezing point depression of milk shall be not less than 0.525 °C and not more than 0.550 °C.

UHT milk shall be normal in texture and colour. It shall be processed without affecting the composition of the product and can be flavoured with chocolate, strawberry, vanilla or banana. Flavouring agents' usage should conform to Codex Alimentarius Standards and Good Manufacturing Practices.

Product Safety

- The product shall not contain any harmful substances including, but not limited to, micro-organisms, heavy metals, pesticides, mycotoxin, foreign matter or anti-nutritional factors, in amounts that may represent a hazard to health. Where Codex standard is absent, JECFA and EFSA evaluations shall be considered for guidance limits.
- Fit for human consumption guarantee: Suppliers shall manage the quality of their product and guarantee that the product is 'fit for human consumption' and in line with TIC Council/IFIA Guidelines*.
- The product shall comply strictly with Codex General Standard for Contaminants and Toxins in Food and Feed (CXS 193-1995), Codex Maximum Residue Limits for Pesticide Residues, and Codex Maximum Residue Limits for Veterinary drugs.

Links of references mentioned above:

*http://www.ifia-federation.org/content/wp-content/uploads/Fit_for_Human_Consumption_Bulletin_Rev_4.pdf

Microbiology

UHT milk shall comply with the microbiological limits given in Table 3.

Table 3 — Microbiological limits for Fortified UHT Milk

Micro-organism	Maximum level	Test method
Total plate count, per 10 ml	10 ufc	ISO 4833
Total Coliforms, per ml	absent	ISO 21528-1
Escherichia coli, per ml	absent	ISO 11866

Contaminants

- ***Aflatoxin*** M1: < 0.5 µg/kg
- ***Heavy metals***

The products covered by this Standard shall comply with the maximum limits as specified in CODEX STAN 193-1995.

- Lead: < 0.02 mg/kg

Shelf life

The shelf-life shall be minimum 6 months when stored in ambient temperature, dry place and hygienic conditions, away from direct sunlight. Or reduced shelf life as per contract.
Products shall meet this specification, remain stable & suitable for human consumption throughout the shelf-life. Suppliers should conduct shelf-life studies following WFP shelf-life study requirements (available at https://docs.wfp.org/api/documents/WFP-0000118387/download/) to support the shelf-life claim.
Products shall have a minimum of 80% of shelf-life remaining when presented to WFP for inspection, unless otherwise authorized by WFP.

6. Packaging and Marking

UHT milk shall be packaged in properly sealed, safe, food grade sanitised packaging materials. The product when marketed shall be packaged in well-sealed packaging materials in order to prevent spoilage or contamination of the product.
The packaging material used for Fortified UHT Milk shall be a 150 mL Tetra Pak® having the following requirements:

- lightproof
- gas proof
- mechanically strong
- non-toxic
- not impart any off-flavour to the milk
- able to withstand aseptic packaging pre-treatment procedure
- able to allow hermetic sealing

Fortified UHT Milk shall be packaged aseptically into sterile packaging material and sealed hermetically.
Fortified UHT Milk packages shall be not deformed, creased, dented or have crushed corners.

The containers shall be labelled in accordance with provisions of the CODEX STAN 1-1985. In addition, the following particulars shall be legibly and indelibly labelled on the container:

- name of the product
- net content in volume (in mL)
- name and address of manufacturer
- batch or code number
- the date of manufacture and expiry of the product
- instruction for storage and hygienic handling of the product
- any other additional requirements stipulate in the contract

7. Additional technical document requirements

When required, suppliers shall submit a Certificate of Analysis (CoA) of the final product to WFP, along with other documents for payment. Additionally, suppliers shall provide other technical documents upon request from WFP.