



**Technical Specifications for
FORTIFIED WHEAT FLOUR FOR PALESTINE**

Specification reference: **Fortified Wheat Flour for Palestine**

Version: **V15.0**

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V15.0 replaces the V13.0 and older versions.

Main changes are:

- *Shelf life is reduced to 6 months*
- *Updated nutrient range*
- *Addition of zinc and baking test*
- *Updated layout*

1. SCOPE

This specification applies to WFP **Fortified Wheat Flour** distributed in Palestine.

2. STANDARDS

The specification was elaborated after consulting the regulations of recipient country and country of origin.

The product shall comply, in terms of raw materials, composition or manufacture, except when specified otherwise in the contract, with the following guidelines or standards:

- 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.
- Codex standard for wheat flour: Codex stan 152-1985.

3. RAW MATERIALS

3.1 Wheat

Fortified Wheat Flour shall be manufactured from wheat of good quality, free from foreign materials, substances hazardous to health, excessive moisture, insect damage and fungal contamination and shall comply with all relevant national food laws and standards.

- Conform to Codex STAN 152-1985.
- Be obtained from non-genetically modified varieties (*if required by the contract*).

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

3.2 Vitamins and minerals

Complete micronutrient premixes must be purchased from GAIN Premix Facility or from any of the GAIN approved suppliers. Complete list of suppliers is shown at the following link: <http://gpf.gainhealth.org/suppliers/current-suppliers>

Micronutrient premixes must be delivered to the processor of **Fortified Wheat Flour** with a complete Certificate of Analysis as well as with a Proof of purchase of premixes. The two documents must be presented with other documents for payment.

Micronutrient premixes must be stored in a dry, cool and clean place.

4. PRODUCT SPECIFICATION

4.1 General requirements

4.1.1 Contaminant

Heavy metals

The product shall be free from heavy metals in amounts which may represent a hazard to human health.

Pesticide residues

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

Mycotoxins

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

4.1.2 Hygiene

It is recommended that the product covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the *Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969)* and other Codes of Practice recommended by the Codex Alimentarius Commission which are relevant to this product.

To the extent possible in good manufacturing practice, the product shall be free from objectionable matter.

When tested by appropriate methods of sampling and examination, the product:

- shall be free from micro-organisms in amounts which may represent a hazard to health;
- shall be free from parasites which may represent a hazard to health; and
- shall not contain any substance originating from micro-organisms in amounts which may represent a hazard to health.

4.1.3 Food additives

Any food additive (if used) must comply with Codex or relevant regulations.

4.1.4 Fit for human consumption guarantee

Suppliers shall have to check the quality of the products and guarantee that the product covered by the provision of this specification are '**fit for human consumption**'.

4.2 Specific requirements

4.2.1 Micronutrients

Wheat flour must be fortified to provide the micro nutrient supplement shown at table 1.

Table 1: Micronutrient rate and chemical form

	Permitted variation	Chemical form
Vitamin A	1000.0-1250.0 mcg/kg	Retinyl palmitate 250 n.s
Vitamin B1	2.0-2.5 mg/kg	Thiamine mononitrate
Vitamin B2	2.5-3.125 mg/kg	Riboflavin
Vitamin B3	25.0-31.25 mg/kg	Nicotinamide
Vitamin B6	2.5-3.125 mg/kg	Pyridoxine hydrochloride
Vitamin B9	1000.0-1250.0 mcg/kg	Folic acid
Vitamin B 12	0.0025-0.0031 mg/kg	Cyanocobalamin
Vitamin D	15.0-18.75 mcg/kg	Cholecalciferol
Zinc	15.0- 18.75 mg/kg	Zinc oxide
Iron	25.0-31.25 mg/kg	Ferrous sulphate

4.2.2 Characteristics

The wheat flour must be freshly milled, suitable for bread making. The product must have a pleasant smell and typical taste and colour. The product must be free of insect (all stages, dead or live).

4.2.3 Shelf life

The product covered by this specification shall retain above qualities for 6 months from date of manufacture when stored dry at ambient temperatures prevalent in the country of destination.

5. PACKAGING

The product covered by the provision of this specification must be packed in appropriate packaging which safeguard the hygienic, nutritional, technological, and organoleptic qualities of the product. The containers, including packaging material, shall be made of substances which are safe and suitable for their intended use. They should not impart any toxic substance or undesirable odour or flavour to the product.

Unless otherwise specified in the contract, the product must be packed in new uniform strong polypropylene (PP) bags fit for export and multiple handing. The outer polypropylene bags must have a heat cut mouth to prevent fibrillation and have sewn single folder bottom.

6. MARKING

- Name of the product: **Fortified Wheat Flour**
- Net content.
- Name and address of the supplier (including country of origin).
- Batch number (or SI).
- Production date.

Additional marking is as per contractual agreement.

7. STORING

The product must be stored under dry, ventilated and hygienic conditions and far from all source of contamination.

8. ANALYTICAL REQUIREMENTS

The principal tests in table 2 must be performed in order to check if the quality of the product meets above requirements. Additional tests may be defined in case of further quality assessment is required.

Table 2: List of compulsory tests and reference methods

No	Tests	Requirements	Reference methods (or equivalent- Latest version)
1	Moisture content	MAX. 14.0 %, w/w	ISO 711
2	Ash	MAX. 0.65 % of dry matter	ISO 2171
3	Protein	MIN. 11.0 % of dry matter	ISO 20483
4	Zeleny index	MIN. 30 ml	ICC 116/1
5	Delayed sedimentation	MIN. Zeleny value + 5 ml	
6	Hagberg Falling Number (HFN)	MIN. 230 seconds (incl. 60 sec preparation)	ICC 107/1
7	Wet gluten	MIN: 28 %	AACC 38-12
8	Gluten index	MIN: 85 %	AACC 38-12
	<i>Chopin Alveograph</i>		
9	W	MIN. 215	ICC 121
10	P	MIN. 80	
11	L	MIN. 80	
12	Fat acidity	MAX. 120 mg KOH per 100 gram dry matter	ISO 7305
13	Vitamin A	1000-1250 mcg/kg	AOAC 992.04
14	Iron (total iron from premix and wheat flour)	34.0-40.25 mg/kg	AOAC 944.02
15	Zinc (total zinc from premix and wheat flour)	23.5-27.25 mg/kg	AOAC 999.10
16	Baking test	Suitable for bread making	ICC 131