



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

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

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## **1. SCOPE**

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

## **2. RAW MATERIALS**

### **2.1 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.

### **2.2 Vitamins and minerals**

Complete micronutrient premixes must be purchased from a WFP approved supplier: BASF (Stern Vitamin), DSM, Fortitech, Nicholas Piramal, Hexagon Nutrition or their authorized dealers and GAIN premix facility. Addresses of premix suppliers are on <http://foodqualityandsafety.wfp.org>

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.

## **3. PRODUCT SPECIFICATION**

### **3.1 General requirements**

The wheat flour must be produced according to Recommended General Principles of Food Hygiene CAC/RCP 1-1969 Rev 4 – 2003. Wheat supplier warrants that the wheat flour shall conform to Codex Stan 152-1985, be freshly milled, suitable for bread making.

- Moisture content: 14 % maximum (50kg at 14% MC)
- Ash: 0.65% maximum of dry matter
- Protein: 11.0 % minimum of dry matter
- Zeleny index: 30 ml minimum
- Delayed sedimentation: Zeleny value + 5 ml minimum
- Hagberg Falling Number (HFN): 230 minimum (incl. 60 sec preparation)
- Wet gluten: 28 % minimum
- Gluten index: 85 % minimum
- Chopin Alveograph
  - W: 215 minimum
  - P: 80 minimum
  - L: 80 minimum
- Fatty acid: maximum 120 mg KOH per 100 gram dry matter

### 3.2 Micronutrients

**Wheat flour** must be fortified to provide the following micro nutrient supplement per as per kilogram.

*Table 1: Micronutrient rate and chemical form*

	<b>Permitted variation</b>	<b>Chemical form</b>
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	1000.0-1250.0mcg/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

### 3.3 Additional safety parameters

**Fortified Wheat Flour** shall be free from objectionable matter; not contain any substances originating from micro-organisms or any other poisonous or deleterious substances such as anti-nutritional factors, heavy metals or pesticide residues, in amounts which may represent a hazard to health.

### 3.4 Shelf life

It shall retain above qualities for at least one year from date of manufacture when stored dry at ambient temperatures prevalent in the country of destination.

### 3.5 Fit for human consumption guarantee

Suppliers shall have to check the quality of their products and guarantee that they are ‘**fit for human consumption**’.

#### 4. PACKAGING

As per contractual agreement.

#### 5. 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 as per contractual agreement.

#### 6. STORING

**Fortified Wheat Flour** must be stored under dry, ventilated and hygienic conditions.

#### 8. ANALYTICAL REQUIREMENTS

*Table 2: List of compulsory tests and reference methods*

No	Tests/Analyses	Recommended level	Reference method (or equivalent)
1	Moisture content	14.0 % max.	ICC No 110 ISO 711-2009
2	Ash	0.65% max. of dry matter	ICC No. 104
3	Protein	11.0 % min. of dry matter	ICC No. 105
4	Zeleny index	30 ml min.	ICC No 116 & 118 ISO 5529
5	Delayed sedimentation	Zeleny value + 5 ml min.	
6	Hagberg Falling Number (HFN)	230 min. (incl. 60 sec preparation)	ICC No 107 ISO 3093
7	Wet gluten	28 % min.	AACC 38-12A ICC No 155 ISO 21415-1
8	Gluten index	85 % min.	ICC 155 AACC 3812
	Chopin Alveograph		
9	W	215 min.	AACC 54-30A ISO 27971
10	P	80 min.	
11	L	80 min.	
12	Fatty acid	Max. 120 mg KOH per 100 gram dry matter	ISO 7305 AOAC 14022
13	Vitamin A	1000-1250 mcg/kg	AOAC 992.04 AACC 86-03
14	Iron	25.0-31.25 mg/kg	AOAC 944.02 AACC 40-41B