



Technical Specifications for

BULGUR WHEAT

Version: V1
Replacing Version: V13
Date of issue: 2021

This version replaces the version V13.0 and all older versions.

The main adjustments are:

- Updating requirements for kernel size*
- Updating test methods*

1. SCOPE

This specification applies to Bulgur wheat (hereafter called the product) purchased and/or distributed by WFP. The product is processed from Durum wheat grain (*Triticum durum*).

2. REFERENCES

Except when specified otherwise in the contract, the product shall comply with the following standards/guidelines, the applicable laws and regulations in the food originating and recipient countries, and other requirements specified in this document (whichever is stricter). The latest edition of the referenced below (including any amendments) applies.

- Recommended International Code of Practice: General Principles of Food Hygiene CAC/RCP 1-1969, including Annex “Hazard Analysis and Critical Control Point (HACCP) System and Guidelines for its application”.
- General standard for contaminants and toxins in food and feed: CODEX STAN 193- 1995.
- Syrian National Standard for bulgur wheat (SNS 1629:2019, second edition)

3. DEFINITIONS

Impurities: all other material than processed wheat kernels which includes but not only, wheat kernels, other plan seeds, dirt, others).

Purity includes only bulgur wheat and excludes all other material.

Ungelatinized kernels: Kernels with its cross section are semi-transparent and show spots of starchy appearance (inside section is in white color and not well cooked).

Scorched Kernels: Kernels exposed to excessive processing conditions that lead to colour modification and loss in nutritional value. Kernels which are red and crimson colored (except brown bulgur wheat).

Brown bulgur wheat: Bulgur obtained from red bread wheat.

4. RAW MATERIALS

The product shall be manufactured from fresh 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.

Wheat shall conform to Codex STAN 199-1995.

5. PROCESSING

The product is obtained by cleaning, cooking, drying and cracked by removing the husk of wheat grains.

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

In this context an appointed WFP Inspector / Quality Surveyor is entitled to visit the factory without prior notice during any period when WFP product is being manufactured to check that the GMP and HACCP systems are in place. The Inspector / Quality Surveyor may request to see:

- **Records** (i.e. names of people in charge of the process and quality control, temperatures of the process, cleaning schedules, etc).
- **Procedures** (e.g. cleaning, personnel hygiene, HACCP, sampling and analysis).
- **Instructions** (e.g. process instructions, cleaning instructions).
- The **quality manual** for the process or factory.

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

6. PRODUCT SPECIFICATION

6.1 General requirements

6.1.1 Contaminants

6.1.1.1 Heavy metals

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

6.1.1.2 Pesticide residues

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

The product shall be prepared with special care under good manufacturing practices, so that residues of those pesticides which may be required in the production, storage or processing of the raw materials or the finished food ingredient do not remain, or, if technically unavoidable, are reduced to the maximum extent possible.

These measures shall take into account the specific nature of the products concerned and the specific population group for which they are intended.

6.1.1.3 Mycotoxins

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

6.1.1.4 Other contaminants

The product shall be free from residues of hormones, antibiotics as determined by means of agreed methods of analysis and practically free from other contaminants, especially pharmacologically active substances.

6.1.2 Hygiene

6.1.2.1 It is recommended that the product covered by the provisions of this specification 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.

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

6.1.2.3 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.

6.1.3 Fit for human consumption guarantee

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

6.2 Specific requirements

6.2.1 Product characteristics

The product shall be fresh, free from abnormal flavours, odours, colour, insect (all stages, dead or live).

If required by recipient country, the product needs to be tested for radiation.

Type of the product (kernel size) must comply with recipient country requirements and shall be specified in the contract. Kernel size requirements in the standard of some countries are showed in annex 1.

The product must also comply with other requirements specified in table 1. The characteristics (quality, presentation, packaging, marking) of entire lot must be homogenous.

6.2.2 Shelf life

The product covered by this specification shall retain above qualities for at least the duration required by recipient country when stored dry at ambient temperatures prevalent in the country of destination.

7. PACKAGING AND MARKING

7.1 Packaging

The product covered by the provisions 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.

Packaging for the product must comply with below requirements:

- made of food grade material.
- be clean, sound and free from insect, fungal infestation.

- be new, uniform, strong, fit for export and multiple handling.

Bags of finished product and secondary packaging (such as cartons, bag bags..., containing required units, *if applicable*) must pass the drop test (after each drop, there shall be no rupture or loss of contents) following appropriate standards.

For the bags made from thermoplastic flexible film, the principles of drop test standard such as EN 277, ISO 7965-2 (or equivalent) can be applied with following specific sequence:

- Butt dropping: Bag is dropped from a height of 1.20 m on the bottom and the top of the bag.

- Flat dropping: Bag is dropped from a height of 1.60 m twice on one flat face and twice on the opposite flat face.

If required in the contract, two percent marked packaging (included in the price) must be sent with the lot.

Note: For shipping containers, unless otherwise specified in the contract, kraft paper must be adhered to all internal sides, door, and floor of container. Kraft paper also need to be placed on the top of packaging. Desiccant needs to be placed/laid in container as appropriate location in order to absorb moisture. Supplier needs to use high quality desiccant and calculate the quantity of desiccant based on:

- Efficiency of desiccant
- Length of time in transit in container
- Container capacity

Supplier needs to provide in the offer the type of desiccant and quantity to be used for the consignment. If silica gel is used, 15 bags of at least 1 kg each must be placed in each 20 feet container.

7.2 Marking

Below information must be printed on the bags:

- Name of the product
- Net weight
- Name of supplier
- Production date
- Best before
- Address and country of origin

Additional marking is as per contractual agreement.

8. STORING

The product must be stored under cool, dry, ventilated, hygienic conditions and free from insect infestation and all other sources of contamination.

9. ANALYTICAL REQUIREMENTS

Unless otherwise decided by WFP, the principal tests in table 1 are performed by WFP appointed inspection company/ laboratory and the results of the tests shall be used for lot release decision. If the analysis certificate indicates at least a parameter doesn't comply with WFP specification, WFP will decide whether or not the lot can be accepted. Additional tests

may be defined in case of further quality assessment is required. Supplier/processor should also conduct internal tests to make sure that the quality of the product meets WFP requirements.

Table 1: List of compulsory tests and reference methods

No	Tests	Requirements	Reference methods (or equivalent- Latest version)
1	Moisture	<i>Max. 13.0 % (by weight)</i>	ISO 712
2	Organoleptic characteristics	Typical smell, taste and color	Organoleptic examination
3	Kernel Size	Over 2.0 mm: <i>Min. 85%</i> Below 1.5mm: <i>Max. 2%</i> (Sieves shake for 40 seconds) Or as per contract	AACC 66-20
4	Purity	<i>Min. 99.9 % (by weight)</i>	Visual examination
5	Impurities	<i>Max. 0.1 % (by weight)</i>	Visual examination
6	Scorched kernel (whole, or parts)	<i>Max. 0.2 % (by weight)</i>	Visual examination
7	Ungelatinized kernels	<i>Max. 1.0 % (by weight)</i>	Chang and Johnson, Cereal Chemistry 54, 1977
8	Total ash	<i>Max. 1.75 % (by weight, on dry basis)</i>	ISO 2171
9	Ash insoluble in acid	<i>Max. 0.3 % (by weight, on dry basis)</i>	ISO 5985
10	Protein	<i>Min. 9.3 % (by weight, on dry basis)</i>	ISO 20483
11	Crude fibres	<i>Max. 2.3 % (by weight, on dry basis)</i>	AOAC 962.09
12	Aerobic mesophilic bacteria	<i>Max. 10,000 cfu/g</i>	ICC No 125
13	Coliforms	<i>Max. 100 cfu/g</i>	AACC 42-11
14	Salmonella	0 cfu/25g	AOAC 2005.03
15	Escherichia Coli	<10 cfu/g	AACC 42-25B
16	Yeasts and moulds	<i>Max. 1,000 cfu/g</i>	ICC No 146
17	GMO (<i>only if required</i>)	As per contract	Quantitative PCR-ISO 21570