



Technical Specifications for WHOLE LENTIL

Specification reference: **PULLEN000**
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This version replaces the version 13.0 and all older versions.

The main changes are:

- 1- Updated parameter limits: Total foreign matter.*
- 2- Addition of tests: Other colour grains, Filth, Dead insect, Toxic-noxious seeds, Size.*
- 3- Update layouts.*

1. SCOPE

This specification applies to **Whole Lentil** purchased and/or distributed by WFP.

2. DEFINITION

Damaged lentils may be peeled, split, broken, sprouted, distinctly green, frost damaged, distinctly deteriorated or discoloured by weather or disease, insect damaged, heat damaged or otherwise damaged in a way which materially affects quality.

Insect damaged are any lentil grains which has been damaged by insects or pests.

Peeled, split and broken includes lentils which are otherwise sound but which are less than three-quarters of whole seeds or where less than one-half of the seed coat is intact. Lentils with cracked or clipped seed coats are considered sound when the cotyledons are firmly held together.

Heated lentils are usually dark tan to black in appearance. If the sample contains lentils with tan-coloured cotyledons and a distinct heated odour, then the grading factors is heated.

Frost damaged is normally indicated by a combination of wrinkling and close adherence of the seed coat to the cotyledon. The seed coat may be translucent in appearance, and the cotyledons are brittle in texture. Frost damage is included in the tolerance for Damage.

Sprouted: Lentils are considered sprouted when the seed coat splits and the primary root emerges from between the cotyledons.

Foreign matter is mineral or organic matter (dust, twigs, seedcoats, seeds of other species, dead insects, fragments, or remains of insects, other impurities of animal origin) other than lentil or part of lentil.

Inorganic matter includes metallic pieces, shale, glass, dust, sand, gravel, stones, dirt, pebbles, lumps or earth, clay, mud.

Filth: impurities of animal origin, including dead insects.

Poisonous, toxic and/or harmful seeds: any seed which if present in quantities in amount which may have damaging or dangerous effect on health, organoleptic properties or technological performance such as Jimson weed —datura (*D. fastuosa* Linn and *D. stramonium* Linn.) corn cokle (*Agrostemma githago* L., *Machai Lallium remulenum* Linn.) Akra (*Vicia* species), *Argemone mexicana*, Khesari and other seeds that are commonly recognized as harmful to health.

Other colour lentil is defined as all lentil grains whose colour is different than colour of designated lentil (Red).

3. REFERENCE

Codex Standard for certain pulses grains (Codex Stan 171-1989, rev. 1-1995).

Canada Grain Commission: Official grain grading guide- Lentil

(<http://www.grainscanada.gc.ca>).

4. PRODUCT SPECIFICATION

4.1 General requirements

4.1.1 Toxic or noxious seeds

The product covered by the provisions of this specification shall be free from the following toxic or noxious seeds in amounts which may represent a hazard to human health.

– *Crotalaria* (*Crotalaria* spp.), Corn cockle (*Agrostemma githago* L.), Castor bean (*Ricinus communis* L.), Jimson weed (*Datura* spp.), Akra (*Vicia* species), *Argemone mexicana*, Khesari and other seeds that are commonly recognized as harmful to health.

4.1.2 Contaminants

4.1.2.1 Heavy metals

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

4.1.2.2 Pesticide residues

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

4.1.2.3 Mycotoxins

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

4.1.3 Hygiene

4.1.3.1 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 these products.

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

4.1.3.3 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.

4.2 Specific requirements

The product covered by the provision of this specification shall be fresh, free from abnormal flavours, odours, colour and live insects. The product must be fit for human consumption.

The product must also comply with other requirements specified in table 1.

5. 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.

Unless otherwise specified in the contract, the product covered by this specification must be packed in new uniform strong polypropylene (PP) bags. The specific requirements for the bags are:

- Bags is made of woven polypropylene (PP) are to be given special food grade “ultraviolet” treatment.
- Bags have a heat cut mouth to prevent fibrillation and have sewn single folder bottom.
- Bags must be closed by double stitching with suitable thread.
- Bags must be clean, sound and free from insect, fungal infestation.
- Bags must be new, uniform, strong, fit for export and multiple handing.
- Construction of fabric must be solid to sustain harsh handling.

The bags of the product must pass the drop test (after each drop, there shall be no rupture or loss of contents) following the principles of the drop test standard (EN 277, ISO 7965-2 or equivalent) with following sequence:

- Butt dropping: Bag is dropped from a height of 1.20m on the bottom and the top of the bag.
- Flat dropping: Bag is dropped from a height of 1.60m twice on one flat face and twice on the opposite flat face.

Two percent marked bags (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.

6. MARKING

Unless otherwise specified in the contract, the following information should be available on the packaging of the product covered by the provisions of this specification:

- Name of the product
- Net content
- Name and address of the supplier (including country of origin)
- Crop year

Additional marking is as per contractual agreement.

7. STORING

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

8. ANALYTICAL REQUIREMENTS

The principal tests in table 1 must be performed in order to check if the quality of product meets above requirements. Additional analyses shall be defined in case of further quality assessment is required.

Table 1: List of compulsory tests and reference methods

No	Tests	Requirements	Reference methods (or equivalent- Latest version)
1	Organoleptic characteristic	Bright and clear appearance, Normal smell and colour	Organoleptic examination
2	Moisture	MAX. 14.0 %, m/m	ISO 24557
3	Other colour grains	MAX. 5.0 %, m/m	Visual examination
4	Insect damaged grains	MAX. 1.0 %, m/m	ISO 605
5	Other damaged grains (<i>Peeled, split, broken, immature, heated, sprouted, diseased...</i>)	MAX. 3.5 %, m/m	
6	Total damaged grains (<i>Insect damaged grains+ Other damaged grains</i>)	MAX. 3.5 %, m/m	
7	Inorganic matter	MAX. 0.2 %, m/m	
8	Filth	MAX. 0.1 %, m/m	
9	Live insects	Nil	
10	Dead insect (whole or fragment)	MAX. 10 /kg	
11	Toxic-noxious seeds	Free	
12	Total foreign matter (<i>Organic matter+ Inorganic matter+ Insects+ other impurities of animal origin</i>)	MAX. 1.0 %, m/m	
13	Size	As per contractual agreement	
14	Varieties (<i>only if required</i>)	As per contractual agreement	
15	Total aflatoxin (B1+B2+G1+G2) (<i>only if required</i>)	MAX. 20.0 ppb	ISO 16050
16	GMO (<i>only if required</i>)	< 0.9 % of GMO material in total lentil DNA	Quantitative PCR- ISO 21570