

PAKISTAN STANDARD

PICKLES (3RD REVISION)



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**PAKISTAN STANDARD SPECIFICATION
FOR
PICKLED (3rd REVISION)**

0. FOREWORD:

- 0.1 This Pakistan Standard was adopted by the Pakistan Standard and Quality Control Authority, Standard Development Centre 21-01-2013 after the draft by the Fruit and Vegetable Products Technical Committee, had been approved by the National Standards Committee for Agriculture and Food Products.
- 0.2 This Standard was established in 1964, first revised in 1981, secondly revised 1999 and now the Committee felt it necessary to revise in the light of latest development made in the Industries.
- 0.3 The assistance has been derived from codex stand 260 is acknowledged with thanks.
- 0.4 In the Preparation of this standard the views of the manufacturers, technologist and testing authorities have been taken into consideration.
- 0.5 For the purpose of deciding whether particular requirement of this standard is complied with the final value observed or calculated expressing the results of a test or analysis shall be rounded off in accordance with PS: 103 for Methods of Rounding off Numerical values. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1 SCOPE

This Standard applies to products, as defined in clause 2 below, and offered for direct consumption, including for catering purposes or for repacking if required. The products covered by this Standard include, but are not limited to onions, garlic, mango, radish, ginger, beetroot, royal plum, peppers, hearts of palm, cabbage, lettuce, lemons, baby corn (young corn) and green mustard (*Brassica juncea* ssp). It does not apply to the product when indicated as being intended for further processing. This Standard does not cover pickled cucumbers, kimchi, table olives, sauerkraut, chutneys and relishes.

2 DESCRIPTION

2.1 PRODUCTS DEFINITION

Pickled is the product:

- (a) prepared from sound, clean and edible fruits and/or vegetables, with or without seeds, spices, aromatic herbs and/or condiments;
- (b) processed or treated to produce an acid or acidified product preserved through natural fermentation or acidulants. Depending on the type, appropriate ingredients are added in order to ensure preservation and quality of the product;
- (c) processed in an appropriate manner, before or after being hermetically sealed in a container, so as to ensure the quality and safety as well as to prevent spoilage; and/or
- (d) packed with or without a suitable liquid packing medium (e.g., oil, brine or acidic media such as vinegar) as specified in clause 3.1.2, with ingredients appropriate to the type and variety of pickled product, to ensure an equilibrium pH of less than 4.6.

2.2 STYLES

- (a) Any presentation of the product should be permitted provided that the product meets all requirements of the Standard;
- (b) Style presentations could include for example, whole, pieces, halves, quarters, cubes, shredded or chopped.

2.3 TYPES OF PACK

- 2.3.1 Solid Pack – without any added packing medium.
- 2.3.2 Regular Pack – with a packing medium added, as specified in clause 3.1.2.

3 ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 COMPOSITION

3.1.1 Basic Ingredients

Fruits and vegetables and liquid packing medium when appropriate, as defined in clause 2.1(a), 2.1(d) and 3.1.2, in combination with one or more of the other permitted ingredients listed in clause 3.1.3.

3.1.2 Packing Media

Packing media may contain ingredients subject to labelling requirements and may include, but is not limited to:

- (1) Sugars and/or other foodstuffs with sweetening properties such as honey;
- (2) Aromatics plants, spices or extracts thereof, seasoning;
- (3) Vinegar;
- (4) Regular or concentrated fruit juice;
- (5) Edible Oil;
- (6) Tomato puree

3.1.3 Other Permitted Ingredients

- (a) cereal grains;
- (b) dried fruits;
- (c) malt extract;
- (d) nuts;
- (e) pulses;
- (f) sauce (e.g., fish sauce);
- (g) soy sauce;
- (h) foodstuff with sweetening properties such as sugars (including syrups) and honey as defined in the Pakistan Standards for Refined Sugar and White Sugar PS: 1822 and Honey Pakistan Standard 1934 respectively; and
- (i) other ingredients as appropriate.

3.2 QUALITY CRITERIA

The product shall be free from any extraneous matter and objectionable taste or off flavor. The products shall have characteristic colour, flavor, odour and texture.

3.2.1 Other Quality Criteria

3.2.1.1 Pickled in edible oil

- a) The percentage of oil in the product shall not be less than 10% by weight.
- b) The basic ingredients in the final product shall be less than 60% by weight.

3.2.1.2 Pickled in brine

- a) The percentage of salt in the covering liquid shall not less than 10% by weight when salt is used as a major preserving agent.
- b) The drained weight of the final products shall not be less than 60% by weight.

3.2.1.3 Pickles in Acidic Media

- a) The acidity of the media shall not be less than 2% by weight calculated as acetic acid.
- b) The drained weight of the final products shall not be less than 60% by weight.

Note: Pickles which do not covered under the above categories shall contain basic ingredients not less than 60% by weight.

3.2.1.4 Definition of Defects

(a) Blemishes - means any characteristic including, but not limited to, bruises, scab, and dark discolouration, which adversely affects the overall appearance of the product.

(b) Harmless extraneous material - means any vegetable part (such as, but not limited to, a leaf or portion thereof, or a stem) that does not pose any hazard to human health but affects the overall appearance of the final product.

3.2.1.5 Defects and Allowances

The product should be practically free from defects as defined in clause 3.2.

3.3 CLASSIFICATION OF "DEFECTIVES"

A container that fails to meet one or more of the applicable quality requirements, as set out in clause 3.2 (except those based on sample averages), should be considered as a "defective".

3.4 LOT ACCEPTANCE

A lot should be considered as meeting the applicable quality requirements referred to in clause 3.2 when:

- (a) for those requirements which are not based on averages, the number of "defectives", as defined in Section 3.3, does not exceed the acceptance number (c) of the appropriate sampling plan with an AQL of 6.5; and
- (b) the requirements, which are based on sample averages, are complied with.

4 FOOD ADDITIVES

As permitted by Codex Alimentarius Commission

4.1 ACIDITY REGULATORS

INS No.	Name of the Food Additive	Maximum Level
260	Acetic Acid, Glacial	GMP
262(i)	Sodium Acetate	
270	Lactic Acid (L-, D-, and DL-)	
296	Malic Acid (D-, L-)	
330	Citric Acid	

4.2 ANTIFOAMING AGENTS

INS No.	Name of the Food Additive	Maximum Level
900(a)	Polydimethylsiloxane	10 mg/kg

4.3 ANTIOXIDANTS

INS No.	Name of the Food Additive	Maximum Level
300	Ascorbic Acid	GMP

4.4 COLOURS

INS No.	Name of the Food Additive	Maximum Level
101(i), (ii)	Riboflavins	500 mg/kg
140	Chlorophylls	GMP
141(i), (ii)	Chlorophyll, Copper Complexes	100 mg/kg
150(d)	Caramel Colour, Class IV	500 mg/kg
160(ai), (aii), (aiii), (e), (f)	Carotenoids	500 mg/kg
162	Beet Red	GMP
163(ii)	Grape Skin Extract	500 mg/kg

4.5 FIRMING AGENTS

INS No.	Name of the Food Additive	Maximum Level
327	Calcium Lactate	GMP
509	Calcium Chloride	

4.6 FLAVOUR ENHANCERS

INS No.	Name of the Food Additive	Maximum Level
621	Monosodium Glutamate	GMP

4.7 PRESERVATIVES

INS No.	Name of the Food Additive	Maximum Level
200 - 203	Sorbates	1000 mg/kg as sorbic acid
210-213	Benzoates	1000 mg/kg as benzoic acid
220-225, 227, 228, 539	Sulphites	100 mg/kg as residual SO ₂

4.8 SEQUESTRANTS

INS No.	Name of the Food Additive	Maximum Level
385, 386	EDTAs	250 mg/kg as anhydrous calcium disodium EDTA
451(i)	Pentasodium Triphosphate	2200 mg/kg as phosphorus
452(i)	Sodium polyphosphate	

4.9 SWEETENERS

INS No.	Name of the Food Additive	Maximum Level
950	Acesulfame	Potassium 200 mg/kg
951	Aspartame	200 mg/kg
954	Saccharin	160 mg/kg
955	Sucralose	150 mg/kg

5 CONTAMINANTS

5.1 PESTICIDE RESIDUES

The products covered by the provisions of this Standard shall comply with those maximum pesticide residue limits established by the PSQCA PS:2023 for these products.

5.2 OTHER CONTAMINANTS

The products covered by the provisions of this Standard shall comply with those maximum levels for contaminants established by the Codex Alimentarius Commission for these products.

6 HYGIENE

6.1 It is recommended that the products covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of the Code of Practice – General Principles of Food Hygiene PS-3944, Code of Hygienic Practice for Low-Acid and Acidified Low-Acid Canned Foods (CAC/RCP 23-1979) and other relevant Pakistan texts such as codes of hygienic practice and codes of practice.

6.2 The products should comply with any microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997)

7 WEIGHTS AND MEASURES

7.1 FILL OF CONTAINER

7.1.1 Minimum Fill

The container should be well filled with the product (including packing medium when appropriate) which should occupy not less than 90% (minus any necessary head space according to good manufacturing practices) of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20 °C which the sealed container will hold when completely filled.

7.1.2 Classification of "Defectives"

A container that fails to meet the requirement for minimum fill of clause 7.1.1 should be considered as a "defective".

7.1.3 Lot Acceptance

A lot should be considered as meeting the requirement of clause 7.1.1 when the number of "defectives", as defined in Section 7.1.2, does not exceed the acceptance number (c) of the appropriate sampling plan with an AQL of 6.5.

7.1.4 Minimum Drained Weight

7.1.4.1 The drained weight of the product should be not less than the following percentages, calculated on the basis of the weight of distilled water at 20 °C which the sealed container will hold when completely filled².

- (a) Whole and Halves Style should not be less than 40% of the net weight;
- (b) Pieces Style and Other Styles should not be less than 50% of the net weight (except for pickled red cabbage should not be less than 45% of the net weight).

7.1.4.2 Lot Acceptance

The requirements for minimum drained weight should be deemed to be complied with when the average drained weight of all containers examined is not less than the minimum required, provided that there is no unreasonable shortage in individual containers.

8 PACKING

8.1 The products shall be packed in hygienically suitable packaging material.

8.2 LABELLING – The labelling shall be carried out as prescribed in PS: 1485 for Labelling of Prepackaged Foods and PS: 2099 for Guidelines for Nutrition Labelling.

Note (a) Pickled fruits and/or vegetables shall be labelled according to the type and in combination with the name of major ingredient. Example - a pickle made from ginger shall be labelled "Pickled Ginger in Brine".

Note (b) The presentation style should be declared on the label of the food.

9. MARKING

9.1 Each pack shall be clearly marked or labeled with following particulars.

- a) All ingredients must be HALAAL.
- b) Name and address of the manufacturer/packer/importer/distributor.
- c) Name of the product.
- d) Net weight/volume (Average weight principal will be applicable).
- e) Date of manufacture & expiry.
- f) Storage instructions.
- g) Presentation style should be declared on the label of the food.
- h) Batch or code number.
- i) Pakistan Standard number, Mark & License number.

¹ For products that are rendered commercially sterile in accordance with the Recommended International Code of Hygienic Practice for Low-Acid and Acidified Low-Acid Canned Foods (CAC/RCP 23-1979), microbiological criteria are not recommended as they do not offer benefit in providing the consumer with a food that is safe and suitable for consumption.

² For non-metallic rigid containers such as glass jars, the basis for the determination should be calculated on the weight of distilled water at 20°C weight which the seal container will hold when completely filled less 20 ml.

10. LABELLING OF NON-RETAIL CONTAINERS

- 10.1 Information for non-retail containers shall be given either on the container or in accompanying documents, except that the name of the product, lot identification, and the name and address of the manufacturer, packer, distributor or importer, as well as storage instructions, shall appear on the container. However, lot identification, and the name and address of the manufacturer, packer, distributor or importer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

11. METHODS OF ANALYSIS AND SAMPLING

PROVISION	METHOD	PRINCIPLE	TYPE
Arsenic	AOAC 952.13 (Codex General Method)	Colorimetry, diethyldithiocarbamate	II
	ISO 6634:1982	Spectrophotometry, silver diethyldithiocarbamate	III
Benzoic acid	NMKL 103 (1984); or AOAC 983.16	Gas Chromatography	III
	NMKL 124 (1997)	Liquid Chromatography	II

PROVISION	METHOD	PRINCIPLE	TYPE
Drained weight	AOAC 968.30 (Codex General Method for processed fruits and vegetables)	Sieving Gravimetry	I
Fill of containers Weighing	CAC/RM 46-1972 (Codex General Method for processed fruits and vegetables)	Weighing	I
Lead	AOAC 972.25 (Codex General Method)	Atomic absorption spectrophotometry (Flame absorption)	III
pH	NMKL 179:2005	Potentiometry	II
	AOAC 981.12		III
Sorbate	NMKL 103 (1984); or AOAC 983.16	Gas Chromatography	III
	NMKL 124 (1997)	Liquid Chromatography	II
Sulphur Dioxide	EN 1988-1:1998-02 AOAC 990.28 General method for sulphites (food additives)	Optimized Monier-Williams method	III
Tin	AOAC 980.19 (Codex General Method)	Atomic absorption spectrophotometry	II

METHODS OF TEST

The relevant testing methods of ISO, CAC and of other internationally recognized standard methods may be taken in to account for analysis purpose.

**DETERMINATION OF WATER CAPACITY OF CONTAINERS
(CAC/RM 46-1972³)**

1. SCOPE

This method applies to glass containers⁴.

2. DEFINITION

The water capacity of a container is the volume of distilled water at 20°C which the sealed container will hold when completely filled..

3. PROCEDURE

3.1 Select a container which is undamaged in all respects.

3.2 Wash, dry and weigh the empty container.

3.3 Fill the container with distilled water at 20°C to the level of the top thereof, and weigh the container thus filled.

4. CALCULATION AND EXPRESSION OF RESULTS

Subtract the weight found in 3.2 from the weight found in 3.3. The difference shall be considered to be the weight of water required to fill the container. Results are expressed as ml of water.

³ As amended by the Committee on Methods of Analysis and Sampling, ALINORM 03/23, Appendix VI-H.

⁴ For determination of water capacity in metal containers the reference method is ISO 90.1:1986.