

**PAKISTAN STANDARD SPECIFICATION
FOR
MARGARINE
(4TH REVISION)**



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Gulistan-e-Jouhar, Karachi-**

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0 FOREWORD:

- 0.1 This Pakistan Standard was adopted by the Pakistan Standards & Quality Control Authority Standards Development Centre on **23-06-2023** the draft finalized by the Oil, seed and their Allied Products Technical Committee had been approved by the National Standards committee for Agricultural & Food Products.
- 0.2 This Pakistan Standard Specification was established in 1984 and 1st revised in 1998, 2nd revised in 2002 and 3rd time it was revised in 2012. Keeping in view the latest development in the Industries the committee felt it necessary to revise again.
- 0.3 This standard has been prepared to regulate the quality of locally produced or imported Margarine.
- 0.4 In the preparation of this standard the views of the manufacturers, technologists, testing authorities, etc. have been taken into account.
- 0.5 The final value expressing the results of a test or analysis should 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 shall be the same as that of the specified value in this standard.
- 0.6 All the ingredients and preparation, processing, packaging, storage and/or transportation shall be in accordance with PS 3733-2022 @ /OIC SMIC 1 :2019 –Second Revision (Modified Adoption) for General Requirements for Halal Food.

1. SCOPE:

- 1.1 This standard applies to fat products containing 10 % to 90 % fat, intended primarily for use as spreads. However, this standard does not apply to fat spreads derived exclusively from milk and/or milk products. It only includes margarine and products used for similar purposes. Butter and dairy spreads are not covered by this standard.

2. TERMINOLOGY:

- 2.1 For the purpose of this standard, the following definitions shall apply.

2.1.1 MARGARINE:

Margarine is plastic or fluid emulsion of refined, deodorized, hydrogenated or unhydrogenated / Interesterified edible vegetable oils / fats and water containing not less than 80% and not more than 90% fat which may contain permissible additives as given in Table-1 & Table-2.

2.1.2 MARGARINE SPREAD:

Margarine Spread and Spread are plastic or fluid emulsions of refined, deodorized, hydrogenated or unhydrogenated / interesterified edible vegetable oils / fats and water containing 10 % or more and less than 80 % fat which may contain permissible additives as given in Table-1 and Table-3. Margarine Spread may be termed as Spread if the fat content is lower than 60 %.

2.1.3 INDUSTRIAL MARGARINE:

“Industrial Margarine” means Margarine with a melting point maximum 48 °C.

3. SAMPLING:

3.1 Representative samples of the material shall be drawn as prescribed under PS: 56 for Methods of Sampling & Test for Vegetable oil.

4. TESTS:

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

4.2 Quality of Reagents: - Unless specified otherwise analytical grade chemicals and distilled water PS: 593 for Water for analytical Laboratory use shall be used in all test / analysis.

Table 1

	Permissible Ingredients: (other than Oils/ fat and water)	INS Numbers	Max. Level of use
1	Skimmed Milk Powder, Whey, Casein or any other edible protein.	-	Not more than 10%
2	Sodium Chloride Max.	-	2.5 % by weight
3	Sugar (i.e. any carbohydrate sweetening matter).	-	Limited by GMP
5	Flavour: Only natural flavours and their identical synthetic equivalent provided that it has been established that they represented non toxic hazard.	-	Limited by GMP
6	Emulsifiers: Polysorbates	432, 433, 434, 435, 436	10,000 mg/kg (singly or in combination)
	Diacetyltartaric and fatty acid esters of glycerol	472e	10,000 mg/kg
	Sucrose esters of fatty acids	473	10,000 mg/kg
	Sucroglycerides	474	10,000 mg/kg
	Polyglycerol esters of fatty acids	475	5,000 mg/kg
	Polyglycerol esters of interesterified ricinoleic acid	476	4,000 mg/kg
	Propylene glycol esters of fatty acids	477	20,000 mg/kg
	Thermally oxidized soya bean oil interacted with mono- and diglycerides of fatty acids)	479	5,000 mg/kg (in fat emulsions for frying or baking purpose, only).
	Stearoyl-2-lactylates	481(i), 482(i)	10,000 mg/kg (singly or in combination)

	Stearyl citrate	484	100 mg/kg (fat or oil basis)
	Sorbitan esters of fatty acids	491, 492, 493, 494, 495	10,000 mg/kg (singly or in combination)
7	Preservatives:		
	Sorbates	200, 201, 202, 203	2,000 mg/kg (singly or in combination (as sorbic acid))
	Benzoates	210, 211, 212, 213	1,000 mg/kg (singly or in combination (as benzoic acid))
	If used in combination, the combined use shall not exceed 2000 mg/kg of which the benzoic acid portion shall not exceed 1000 mg/kg.		
8	Colours:		
	Curcumin	100(i)	10 mg/kg
	Riboflavins	101(i), (ii)	300 mg/kg
	Carmines	120	500 mg/kg
	Caramel II - caustic sulfite process	150b	500 mg/kg
	Caramel III - ammonia process	150c	500 mg/kg
	Caramel IV - sulfite ammonia process	150d	500 mg/kg
	<i>beta</i> -Carotenes, (vegetable)	160a(ii)	1000 mg/kg
	<i>beta</i> -Carotenes (synthetic)	160a(i)	35 mg/kg singly or in combination
	<i>beta</i> -Carotenes (<i>Blakeslea trispora</i>)	160a(iii)	
	<i>beta</i> -apo-8'-Carotenal	160e	
	<i>beta</i> -apo-8'-Carotenoic acid, methyl or ethyl ester	160f	
	Annatto extracts, bixin-based	160b(i)	100 mg/kg (as bixin)
9	Antioxidants:		
	Ascorbyl esters	304, 305	500 mg/kg (as ascorbyl stearate)
	Tocopherol, d- <i>alpha</i> -	307a	500 mg/kg (Singly or in combination)
	Tocopherol concentrate, mixed	307b	
	Tocopherol, dl- <i>alpha</i>	307c	
	Propyl gallate	310	200 mg/kg (fat or oil basis) singly or in combination.
	Tertiary butylhydroquinone	319	
	Butylated hydroxyanisole	320	
	Butylated hydroxytoluene	321	
	Isopropyl citrates	384	100 mg/kg
	EDTAs	385, 386	100 mg/kg (as anhydrous calcium disodium EDTA)
	Thiodipropionates	388, 389	200 mg/kg (as thiodipropionic acid)
10	Antifoaming Agents:		
	Polydimethylsiloxane	900a	10 mg/kg (frying purposes, only)
11	Acidity Regulators :		
	Citric acid lactic acids and their Potassium and sodium salts.	-	Limited by GMP
	Sodium diacetate	262(ii)	1,000 mg/kg
	Tartrates (L-tartaric acid and its sodium and Sodium/potassium salts)	334; 335(i), (ii); 336(i), (ii); 337	100 mg/kg (as tartaric acid)
	Phosphates	338; 339(i), (ii), (iii); 340(i),	1,000 mg/kg (as

		(ii), (iii); 341(i), (ii), (iii); 342(i), (ii); 343(i), (ii), (iii); 450(i), (ii), (iii), (v), (vi); (vii), 451(i), (ii); 452(i), (ii), (iii), (iv), (v); 542	Phosphorus)
12	Thickening and Stabilizing Agents:		
	Carboxy Methyl Cellulose (CMC)	-	Limited by GMP
	Locust Bean Gum (LBG)	-	
	Xanthum Gum	-	
	Propylene Glycol Alginate (PGA)	405	3000 mg/kg
13	Other Vitamins		Limited by GMP

Table 2

Requirements for Margarine		
	Characteristics	Requirements
1	Moisture percent by wt. max	16
2	Oil/Fat percent by wt. min.	80
3	Free Fatty acid (as Oleic acid) of the constituent Oil/Fat, percent by wt. max	0.35
4	Unsaponifiable matter of the constituent Oil/Fat, percent by wt., max	1.5
5	Peroxide value expressed as milliequivalent oxygen per Kg. max	For Table Margarine: 10 For Industrial Margarine: 5
6	Slip Melting Point maximum	For Table Margarine: 38.5 °C For Industrial Margarine: 48°C
7	Metal Contaminants , Parts per million , max	
	Iron (Fe)	1.5
	Copper (Cu)/Lead (Pb)/Arsenic(As)	0.1
	Nickel (Ni)	0.5
8	Vitamin 'A' I.U per Kg. of finished product, min.	33,000 ±10%
9	Other Vitamins	Limited by GMP
10	Trans Fatty Acids	Not more than 2g per 100g of total fat

Table 3

Requirements for Margarine Spreads		
	Characteristics	Requirements
1	Moisture percent by wt.	39
2	Oil/Fat percent by wt. min	≤60 and > 40
3	Free Fatty acid (as Oleic acid) of the constituent Oil/Fat, percent by wt. max	0.35
4	Unsaponifiable matter of the constituent Oil/Fat, percent by wt., max	1.5
5	Peroxide value expressed as milliequivalent oxygen per Kg. max	10
6	Slip Melting Point maximum	For water continuous: Not Applicable For Oil continuous 42°C
7	Metal Contaminants , Parts per million , max	
	Iron (Fe)	1.5
	Copper (Cu)/Lead (Pb)/Arsenic(As)	0.1
	Nickel (Ni)	0.5

8	Vitamin-'A' I.U. per kg of finished product.	33,000 to 4500
9	Vitamin D ₃ I.U. per kg of finished product.	3000 to 4500
10	Other Vitamins	Limited by GMP
11	Trans Fatty Acids	Not more than 2 g per 100 g of total fat

Acidity regulators, antifoaming agents, antioxidants, colours, emulsifiers, flavours, flavor enhancers, packing gases, preservatives, stabilizers and thickeners used in accordance with Codex Stand. 256 and Table-3 of the Codex General Standard for Food Additives are acceptable for use in foods conforming to this standard.

5. SHELF LIFE:

“Shelf life of Margarine, Margarine Spread and Spread shall not be more than 9 months and for Industrial Margarine not more than 12 months.

6. MICROBIOLOGICAL REQUIREMENTS:

Margarine and Margarine Spreads shall comply with the microbiological requirements given in Table-4.

TABLE- 4

Microorganisms	Limits
Total Viable Plate Count	< 25000 cfu/g
Coliforms	< 100 cfu/g
Yeast and Mould	< 1000 cfu/g
Salmonella	Negative in 25 ml or g
Listeria	Negative in 25 ml or g
Staph. Aureus	Negative in 25 ml or g

7. PACKING:

7.1 The product shall be packed in suitable containers made by food grade material or wrapped in suitable wrappers made of food grade paper.

8. MARKING:

8.1 The container/wrapper shall be marked with the following particulars:

- i. Brand name of the material,
- ii. Industrial, Margarine or Margarine Spread / Spread or as the case may be.
- iii. Percentage of total fat, saturated fat and unsaturated fat.
- iv. Contains “artificial flavour”, if such a flavour is used.
- v. Date of manufacture & Date of Expiry.
- vi. Name and address of manufacturer and trade mark, if any. For imported Margarine the name and address of the importer should also be mentioned.
- vii. Net weight of the contents in kg or gm.
- viii. List of ingredients in descending order of proportion and,
- ix. Pakistan Standard Number, Licenses number & PS Mark.

8.2 No. label, declaration, methods of preparation and publicity concerning the product, shall be made in a manner likely to mislead the purchaser and/or consumer as to the true nature or composition of the product as a whole.

8.3 Disclaimer for Margarine/Margarine Spread:

The Statement shall be added on the label of the packing as follows:

“YEH MAKHAN NAHI HEY” (in both Urdu and English)