

**PAKISTAN STANDARD SPECIFICATION**  
**FOR**  
**REFINED COTTON SEED OIL (2<sup>ND</sup> REV.)**



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**PAKISTAN STANDARDS & QUALITY CONTROL AUTHORITY**  
Standards Development Centre,  
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Karachi-74400.

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**FOR**

**REFINED COTTON SEED OIL (2<sup>ND</sup> REV.)**

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**0. FORWARD**

- 0.1** This Pakistan Standard was adopted by the Pakistan Standards & Quality Control Authority, Standards Development Centre on **28<sup>th</sup> January, 2003**, after the draft finalized by the Oil Seeds & their Allied Products Sectional Committee had been approved by the Agriculture & Food Products Divisional Council.
- 0.2** This Pakistan Standard specification was first revised in 1993 keeping in view the latest development the committee felt it to revise again.
- 0.3** This standard specification is based on data available on various varieties of Cotton Seed grown in different parts of the country. It is used as a edible /vegetable oil after suitable refining and deodorization and is also used in the manufacture of hydrogenated vegetable oil products.
- 0.4** In preparation of this standard, the views of the manufacturers, technologists and testing authorities, etc. have been taken into consideration.
- 0.5** The final value expressing the results of a test or analysis shall be rounded off in accordance with PS:103-991 (1<sup>st</sup> Rev.) “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 the standard.
- 0.6** All the ingredients preparation, processing, packaging storage and for transportation shall be according to PS: 3733 for Halaal Food Management System Requirement for any Organization in the Food Chain.

1. SCOPE

- 1.1 This standard prescribes the requirements and methods of sampling and test for refined. Cotton Seed Oil.

2. TERMINOLOGY

- 2.1 For the purpose of this standard the following definition in addition to the definitions given under 2 of PS:56-1996 Methods of Sampling & Test for Vegetable Oil (1<sup>st</sup> Rev,) shall apply.

- 2.1.1 Refined Cotton Seed Oil shall be obtained by Chemical or Physical refining, bleaching, and deodorization. The final products shall be free from harmful chemical.

3. REQUIREMENTS

Description — The material shall be obtained from the seeds of various cultivated species of. *Gossypium* by a process. of solvent extraction or by a process of expression or any other suitable process.

- 3.1 The material shall be clear and. free from adulterants, sediments suspended and other foreign matter, separated water and shall have acceptable taste and odour. It may contain antioxidants and synergist as follows:

**ANTIOXIDANTS**

**MAXIMUM LEVEL OF USE**

- |      |   |   |
|------|---|---|
| i.   | Propyl octyl, and dodecyl gallates                            | 100 mg/kg individually or in combination.       |
| ii.  | Butylated hydroxy-toluene(BHT) Butylated hydroxyanisole (BHA) | 200, mg/kg individually or in combination.      |
| iii. | Any combination of gallates with BHA, or BHT both.            | 200 mg/kg but gallates not to exceed 100 mg/kg. |
| iv.  | Natural & Synthetic tocopherols                               | Not limited                                     |
| v.   | Ascorbyl palmitate  | 200 mg/kg individually or in combination.       |
| vi.  | Ascorbyl stearate   | 200 mg/kg individually or in                    |

- |       |  |                           |
|-------|--|---------------------------|
| vii.  | Dilauryl thiodirodionate               | combination.<br>200 mg/kg |
| viii. | Tertiary Butly Hydroquinone<br>(TBHQ). | 200 mg / kg.              |

**ANTIOXIDANT SYNERGISTS**

**MAIXIMUM LEVEL OF USE**

- |      |                               |  |
|------|-------------------------------|--|
| i    | Citric acid & its sodium salt | 0.01 %. Max                                  |
| ii.  | Isopropyl Citrate mixture     | 100 mg/kg                                    |
| iii. | Phosphoric acid               | 100 mg/kg individually or in<br>combination. |
- 3.2 Colour - Only the natural colour should be used where necessary and the container should be labelled accordingly.
- 3.3 Flavour - Natural flavours and their identical synthetic equivalents except those which are known to represent a toxic hazard and other Synthetic flavours approved by the Codex Alimentarius Commission are permitted for the purpose of restoring natural flavour lost in processing or for the purpose of standardizing flavour as long as the added flavour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be greater than actual value.
- 3.3.1 Use of the following solvents in flavour is prohibited:
- Diethylene glycol Mono ethyl ether.
  - Isopropyl alcohol.
- 3.3.2 When natural flavour or artificial flavour shall be used, the container shall be labelled with legend “Contains natural flavour or synthetic flavour”.
- 3.3 The clarity of the material shall be judged by the absence or turbidity after keeping the filtered sample at 35 °C for 5 hours.
- 3.4 Turbidity - Admixture with other oils — The materials shall be free from mixture with mineral or other oils of vegetable or animal origin when tested according to the method, prescribed in PS:56—1996.
- 3.5 The material shall also comply with the requirements given in Table — 1 and Table — 2.

**4. PACKING AND MARKING**

4.1 The product shall be packed in suitable sealed and well closed containers made from food grade material in accordance with PS:4797-2002 for Flexible Packs for the Packing of Banaspati, Cooking Oil and Edible Oils or Plastic container made from Food Grade plastic or in accordance with PS:4773-2002 for Tinsplate Containers for Ghee, Banaspati, Cooking Oil/Edible Oils.

4.2 The weight of tin container for packing of Cotton Seed Oil shall be as follows :

<b>Weight of Finished Product Litre</b>	<b>Weight of Tin Containers (gm)</b>
16	880 to 890
10	660 to 670
05	330 to 340
03	200 to 210
0.1	-
500 ml	-
250 ml	-
100 ml	-

**4.3 MARKING**

The container shall be marked with the following particulars: -

- i. Name of the material in Block letter, e.g. REFINED COTTON SEED OIL
- ii. Date of manufacture and Date of expiry.
- iii. (PS:4449-1999 Expiration periods for food product shall be strictly followed).
- iv. Name and address of manufacturer.
- v. Net volume of the contents in litre.
- vi. The words contain Vitamin-A 33000 I.U. to 45000 I.U. and Vitamin-D<sub>3</sub> 3000 I.U. to 4500 I.U. per kg of the finished product when packed.
- vii. Pakistan Standard Number and PS Mark.
- viii. Licence Number.
- ix. Storage conditions.
- x. Product shall be labelled in accordance with the Pakistan Standard for Labelling of Prepackaged Foods (PS: 1485), in addition to category specific labelling / marking requirement(s).



- 5.1 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.

**TABLE - 1****REQUIREMENTS FOR REFINED COTTON SEED OIL ( 2<sup>ND</sup> REV.)**

SL. NO.	CHARACTERISTIC	LIMITS	METHOD OF TEST REF. TO PS:56-1996*
i.	Moisture, percent by weight, max.	0.1	4
ii.	Colour in a 5 ¼ inch cell on lovibond scale.	R 5 Y 50	12
iii.	Refractive index at 40 °C.	1.4580 to 1.4660	9
iv.	Relative density (20 °C/Water at 20 °C)	0.910 to 0.921	10
v.	Saponification value.	182 to 198	14
vi.	Iodine Value (Wijs).	100 to 115	13
vii.	Unsaponifiable matter, percent by weight, max.	1.5	7
viii.	Peroxide Value, expressed as milliequivalent oxygen per kg. Max.	10.0	20
ix.	Anisidine Value max /Rancidity (Kries Test) ****, max.	3.0 R	See Appendix-C of PS:221-2003 (3 <sup>rd</sup> Rev.)
x.	Vitamin-A	33000 I.U. to 45000 I.U. per kg of the finished product	23
xi.	Vitamin-D <sub>3</sub>	3000 I.U. to 4500 I.U. per kg of the finished product.	-
xii.	Cloud point, max.	10 °C	PS:ISO:3015-1992**
xiii.	Free Fatty Acid.(as oleic acid) percent by weight, max.	0.2	6
xiv.	Helphen Test <sup>1</sup>	Positive	See Vol.13 of Codex Alimentarius.
xv.	Soap content., ppm, max.	50	Appendix-D of PS:221-2003 (3 <sup>rd</sup> Rev.)***

\*Method of Sampling & Test for Vegetable Oil & Fats.

\*\*ISO-3015-1992 Petroleum Oil Determination of cloud point.

\*\*\*Banaspoti Ghee (3<sup>rd</sup> Rev.).

\*\*\*\* Colour produced in Kries Test shall be interpreted alongwith Peroxide Value and shall be sensory test as negative. If the colour is not deeper than 3.0 R 1 inch cell lovibond scale.

**NOTE:** Vitamin A and D3 in bulk oils on import stage is not necessary

<sup>1</sup> Kapok Oil and some other oils give a positive test and fats from Animals fed on cotton seed meal may also give a positive test. Different lots of Cotton Seed Oil may react with different intensities. Hydrogenation and heating of Cotton Seed Oil reduce the intensity of the reaction and may destroy it entirely..

**TABLE-2**  
**REQUIREMENTS FOR CONTAMINANTS**

	<b>Contaminant Limits</b>
Matter volatile at 105°C	Not more than 0.2%
Insoluble impurities	Not more than 0.05% m/m
Iron (Fe)	Not more than 1.5 mg/kg
Copper (Cu)	Not more than 0.1 mg/kg
Lead (Pb)	Not more than 0.1 mg/kg
Arsenic (As)	Not more than 0.1 mg/kg

**6. SAMPLING**

Representative samples of the material shall be drawn as prescribed under PS: 56-1996.

**7. TEST METHODS:**

Test should be carried out in accordance with the methods prescribed in PS: 56-1996.

Quality of Reagents — Unless specified otherwise analytical grade chemicals and distilled water (PS:593—1991) shall be used in test.

**NOTE** — Analytical grade chemicals shall mean chemicals that do not contain impurities which affect the results of analysis.