



**PRODUCT MANUAL FOR
EDIBLE GROUNDNUT FLOUR (EXPPELLER PRESSED)
ACCORDING TO IS 4684 : 1975**

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	Product	:	IS 4684 :1975
	Title	:	Edible Groundnut Flour (Expeller Pressed)
	No. of Amendments	:	03
2.	Sampling Guidelines:		
a)	Raw material	:	Raw material used for making expeller pressed edible groundnut flour shall be as per cl. 2.1 of IS 4684.
b)	Grouping guidelines	:	NA
c)	Sample Size	:	1 kg
3.	List of Test Equipment	:	Please refer ANNEX – <u>A</u>
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – <u>B</u>
5.	Possible tests in a day :		
	i. Description ii. Particle size iii. Moisture iv. Protein v. Total Ash vi. Acid Insoluble Ash vii. Fat viii. Acid value of extracted fat ix. Crude Fibre		
6.	Scope of the Licence :		
	“Licence is granted to use Standard Mark as per IS 4684 : 1975 with the following scope:		
	Name of the product		Edible Groundnut Flour (Expeller Pressed)

ANNEX A
TO PRODUCT MANUAL
EDIBLE GROUNDNUT FLOUR (EXPELLER PRESSED)
ACCORDING TO IS 4684 : 1975

LIST OF TEST EQUIPMENT

Major test equipment required to test as per the Indian Standard

Chemical Parameters:

S.No.	Tests used in with clause reference	Test Equipment / chemicals
1	Moisture Cl. 2.5 & Table 1 (Appendix B of IS 4684)	Analytical Balance, Aluminium plate, Hot Air oven, Spatula, Dessicator, Silica gel, Calcium Chloride.
2	Total ash Cl. 2.5 & Table 1 (Appendix D of IS 4684)	Analytical Balance, Dessicator, Silica gel, Silica crucible, Calcium Chloride, Muffle furnace, Heating mantle.
3	Acid Insoluble Ash Cl. 2.5 & Table 1 (Appendix E of IS 4684)	Analytical Balance, Dessicator, Silica gel, Silica crucible, Calcium Chloride, Muffle furnace, Watch glass, Water bath, hydrochloric acid, Hot Air oven, Funnel, conical flask, whatman No-42, Heating mantle.
4	Fat Cl. 2.5 & Table 1 (Appendix F of IS 4684)	Weighing Balance, Soxhlet apparatus, Soxhlet flask, Dessicator, heating mantle, Silica gel, Hot air oven, petroleum ether, Thimble, Tongs, whatmann No.1 filter paper, Calcium Chloride.
5	Acid Value of extracted fat Cl. 2.5 & Table 1 (Appendix G of IS 4684)	Weighing Balance, potassium hydrogen phthalate, soxhlet extraction apparatus, soxhlet flask, Measuring cylinder, Volumetric flask, conical flask, Burette, Pipette, petroleum ether(distilling below 65°C), Benzene, potassium hydroxide, Potassium permanganate, phenolphthalein indicator, potassium dichromate, ethyl Alcohol.
6	Aflatoxin Cl. 2.5 & Table 1 (Appendix J of IS 4684)	Weighing Balance, disc mill, wrist-action shaker, chromatographic column, measuring cylinder, Funnel, rotary evaporator with continuous feed, thin layer chromatographic plate (ready made), Micropipette, desiccating storage cabinet, storage rack, UV-Chamber with,15 -watt ultraviolet lamp, silica gel, Chloroform, diethyl ether, Hexane, methyl alcohol, aflatoxin standard solution (B1,B2,G1,G2), Acetone, sodium sulphate (Anhydrous), fluted filter paper, buchner funnel, whatman No-1, Boiling chips.

7	Crude fibre Cl. 2.5 & Table 1 (Appendix H of IS 4684)	Weighing Balance, Sodium Hydroxide, ethyl Alcohol, Petroleum Ether, Round bottom flask, Reflux Condenser, Heating mantle, Funnel, sulphuric acid, Linen cloth, Gooch crucible, Asbestos, Hot Air oven, Funnel, Desiccator, Silica gel, Calcium Chloride, Spatula, Muffle Furnace.
8	Protein Cl. 2.5 & Table 1 (Appendix C of IS 4684)	Weighing Balance, Round bottom flask, Rubber stopper, Kjeldal setup, Kjeldal flask, sodium sulphate (Anhydrous), Copper Sulphate, Sulphuric Acid, Sodium Hydroxide, Methyl Red Indicator, Potassium Hydrogen Phthalate, Phenolphthalein Indicator, Beaker, Pipette, Conical Flask, Pumice Stone, Heating Mantle, Burette.
9	Particle size Cl. 2.3 (Appendix A of IS 4684)	Weighing balance, Spatula, Particle size distributer, Brush, Sieve.
10	Castor Husk Cl. 2.2.1 (11 of IS 1714)	White photographic dish, Sodium Hydroxide, hydrochloric acid, Bleaching powder, Beaker, Muslin cloth, Microscope.
11	Mahua cake Cl. 2.2.1 (Appendix A of IS 1712)	Extraction tube, Antimony trichloride, chloroform, Calcium Chloride, Funnel, Filter paper, Rectified spirit, Whatman No.1, Beaker, Burner.

Microbiological Parameters:

S.No	Tests used in with clause reference	Test Equipment / chemicals
1	Total plate count	Plate count agar, Overlay medium (if necessary), Oven/Autoclave (for sterilization), Incubator-capable of operating at $30^{\circ}\text{C} \pm 1^{\circ}\text{C}$, Petri dishes, Pipettes, Water bath-capable of operating at 44°C to 47°C , Colony counting equipment, pH meter, Test tubes, flasks or bottles.
2	Coliform	Solid selective medium: Crystal violet neutral red bile lactose (VRBL) agar, Confirmation medium: Brilliant green lactose bile broth, Oven/Autoclave (for sterilization), Incubator-capable of operating at $30^{\circ}\text{C} \pm 1^{\circ}\text{C}$ or $37^{\circ}\text{C} \pm 1^{\circ}\text{C}$, Petri dishes, Total-delivery Pipettes, Water bath-capable of operating at 44°C to

		47°C, Colony counting equipment, pH meter, Test tubes, Durham tubes, flasks or bottles, loop.
3	Salmonella	<p>Buffered peptone water, Rappaport-vassiliadis magnesium chloride/malachite green medium (RV medium), Selenite/cystine medium, Solid selective plating-out media, Phenol red/brilliant green agar, Nutrient agar, Triple sugar/iron agar, Urea agar, L-Lysine decarboxylation medium, Reagent for detection of β-galactosidase.</p> <p>Reagents for Voges-Proskauer (VP reaction)</p> <ul style="list-style-type: none"> -VP medium -creatine solution -1-Naphthol -Potassium hydroxide solution -Reagents for indole reaction, <p>Water bath, Loops, pH meter, culture bottles and flasks, culture tubes, measuring cylinders, graduated pipettes, petri dishes, Filtration assembly and filter paper, Laminar Air Flow Bench.</p>

Other Accessories: Absorbent cotton, Tissue paper, Reagent bottle label, Non-absorbent cotton, Surgical Spirit, First aid Box, Lab coat, Moisture meter, IR Thermometer, Surgical Gloves and Mask, Vials, Microtips, fluted filter paper, thermometer K-Type thermocouple

The above list is indicative only and may not be treated as exhaustive

ANNEX B

**SCHEME OF INSPECTION AND TESTING
FOR EDIBLE GROUNDNUT FLOUR (EXPPELLER PRESSED)
ACCORDING TO IS 4684 : 1975**

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipments.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. PACKING AND MARKING – The Standard Mark as given in Schedule of the licence shall be stenciled/printed on each container of Edible Groundnut Flour (Expeller Pressed) or printed on the labels applied to the container, as the case may be, provided always that the material in each container to which this mark is thus applied conforms to every requirement of the specification.

3.1 PACKING – The material shall be packed in polyethylene-lined jute bags, or in clean tinplate containers. When packed in bags, the mouth of each bag shall be either machine- or hand-stitched. If hand-stitched, the mouth shall be rolled over and stitched. Stitches shall be two cross-rows with at least 14 stiches in each row.

3.2 MARKING – The particulars as mentioned under clause 3.2 of IS 4684 shall be marked or labelled on each container. In addition, the following details shall be mentioned on each container legibly and indelibly:

a) BIS Licence No. CM/L__.

b) BIS website details i.e – “For details of BIS Certification please visit www.bis.gov.in”.

4. CONTROL UNIT – For the purpose of this scheme, the quantity of Edible Groundnut Flour (Expeller Pressed) manufactured continuously in a day from the same consignment of raw materials and from the same set of machines shall constitute a control unit.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

6. RAW MATERIALS - The groundnut kernels used in the manufacture of Edible Groundnut Flour shall be free from insect or fungal infestation. In order to reduce the proportion of immature, shrivelled and mouldy kernels which could carry high levels of aflatoxin, the kernels shall be selected either by visual inspection, inspection under ultraviolet light, electronic sorting or by other means. The groundnut kernels shall also be cleaned, degermed and decuticled after mild roasting prior to expeller pressing.

7. HYGIENIC CONDITIONS – The place of manufacture, packing and storage of the material and the equipments employed shall be maintained under hygienic conditions as per IS 2491. All processing equipments should be properly cleaned and care should be taken to prevent infestation and contamination.

8. REJECTIONS – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE 1
LEVELS OF CONTROL

(1)				(2)	(3)		
Cl.	Test Details			Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
	Requirements	Test Method Cl. Ref.	Test Method IS		No. of Samples	Frequency	Remarks
2.2 & 2.2.1	Description	2.2	IS 4684	R	One	Each Control Unit	
2.3	Particle size	Appendix A	IS 4684	R	One	-do-	
2.5 & Table 1							
i)	Moisture (on dry basis)	Appendix-B	-do-	R	One	-do-	
ii)	Protein (on dry basis)	Appendix-C	-do-	R	One	-do-	
iii)	Total Ash (on dry basis)	Appendix-D	-do-	R	One	-do-	
iv)	Acid Insoluble Ash (on dry basis)	Appendix-E	-do-	R	One	-do-	
v)	Fat (on dry basis)	Appendix-F	-do-	R	One	-do-	
vi)	Acid value of extracted fat	Appendix-G	-do-	R	One	-do-	
vii)	Crude Fibre (on dry basis)	Appendix-H	-do-	R	One	-do-	
viii)	Aflatoxin	Appendix-J	-do-	S	One	Once in a month	
2.6 & Table 2							
i)	Total bacterial count	-	IS 5402	R	One	Each Control Unit	
ii)	Coliform bacterial count	-	IS 5401	R	One	-do-	
iii)	Salmonella bacteria	-	IS 5887 (Part 3)	S	One	Once in a month	

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Subcontracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.