

# PEANUT BUTTER



## 1.0 INTRODUCTION

Peanuts have considerable nutrients and are consumed in different forms all over the world since long. Peanut butter is one such product consumed in large quantities especially in western countries since many years. It is not very popular in India and the domestic market is dominated by milk butter. Hence, the promoters must target growing export market and should be financially sound. The technology is available indigenously and it is advisable to engage a technical consultant to ensure quality. Familiarity with export markets would be an additional advantage.

## 2.0 PRODUCT

### 2.1 Applications

Peanut butter is an ideal substitute for milk butter. It is a low calorie, high protein product. Compared to milk butter, its price is very competitive. But it has not yet become popular in our country and is rarely used by individual consumers. Gujarat and Maharashtra are the preferred locations in view of good quality peanuts cultivated in Gujarat and two well developed ports being available for exports.

### 2.2 Quality standards and compliance

BIS has laid down quality norms vide IS 9037:1979. Compliance under the PFA Act is mandatory.

## 3.0 MARKET POTENTIAL

Indian peanuts (especially Saurashtra variety of Bold & Jawa) are popular all over the world with large exports every year. But unfortunately, our market share is primarily confined to raw peanuts and value-added products like blanched & roasted peanuts or peanut butter

have very negligible contribution. There is only one unit manufacturing peanut butter in Gujarat. Consumption of peanut butter is yet to pick up in the country and the project must concentrate on foreign buyers. Peanut butter is very popular in the USA, the UK, Holland, Australia, New Zealand, South Africa, South East Asian and Gulf countries. These are all very large and growing markets and can be tapped as majority of them import substantial quantity. There must be very strict quality control. Around 80% of sale has to be by way of exports and the promoters may like to have registration as an Export Oriented Unit (EOU).

#### **4.0 MANUFACTURING PROCESS**

It is possible to buy raw peanuts instead of shelled peanuts or peanut pods. But it is advisable to install groundnut shelling plant to ensure quality of the all-important input which determines the ultimate quality of butter. The manufacturing process is briefly described hereunder.

##### **1) Groundnut Pre-cleaning & Shelling**

Good quality groundnut pods are sorted out and destoned before shelling them in openers.

##### **2) Peanut Grading**

Shelled peanuts are graded according to sizes to ensure only big or bold peanuts are taken up for process.

##### **3) Peanut Roasting & Blanching**

This is a critical stage. Roasting is done at around 160° C for 40-60 minutes depending upon the moisture contents. Roasting reduces water contents to around 1% which increases the shelf life of peanuts and helps develop flavour. After roasting, peanuts are cooled and then blanched (removal of outer red skin). After blanching each peanut is inspected to remove discoloured (grey or black) nuts.

##### **4) Grinding**

Peanuts are then ground in peanut butter mill in two stages to produce fine and creamy butter. The outlet temperature is around 65-75° C. All ingredients like salt, sugar and stabilisers are added during this process.

##### **5) De-aeration**

Air is incorporated into peanut butter during milling and subsequently it is removed in a vacuum.

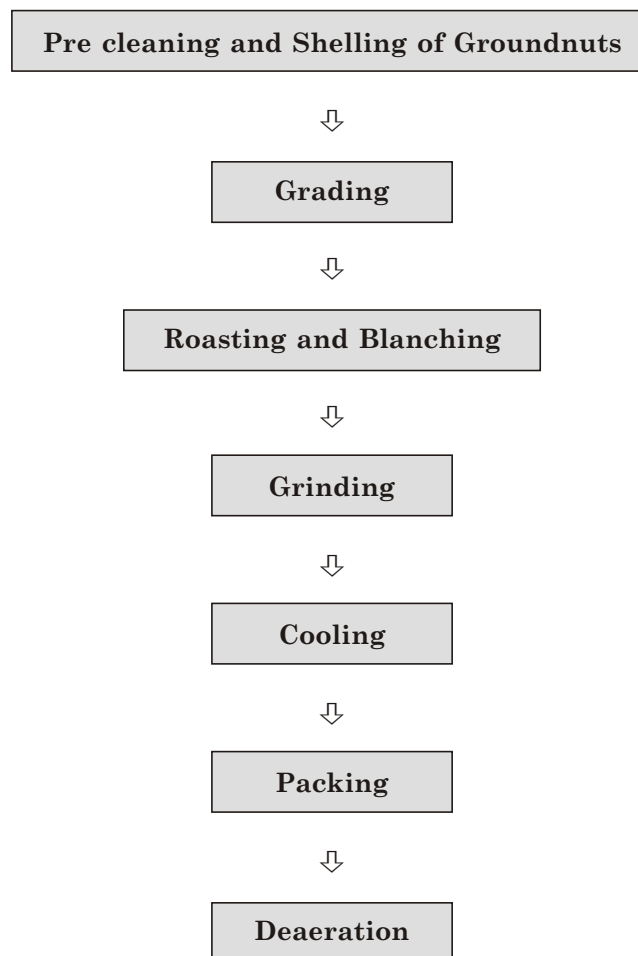
##### **6) Cooling**

A scraped surface heat exchanger is used for cooling. The outlet temperature depends upon the type of stabiliser used.

### 7) Filling and Packing

Peanut butter is filled in Pet Jars or metal drums as per the instructions of the buyer. Immediately after filling, the jars are vibrated to remove any remaining air bubbles. After keeping jars or drums for around 35-40 hours at around 20° C, the peanut butter sets completely and can be despatched.

Recovery from groundnut shells or pods is 55% HPS groundnuts, 22% husk and balance 23% are splits or kapchi. Roasting of peanuts and removal of discoloured peanuts results in further waste/loss of 5%. The process flow chart is as under:



## 5.0 CAPITAL INPUTS

### 5.1 Land and Building

Land of around 2,000 sq.mtrs. with built-up area of 1000 sq.mtrs. could accommodate main production area, storage, packing, utility room, office along with testing laboratory, toilet blocks and security cabin. Half of the building should have height of 25' so that elevators can be taken at a desirable height and bags of groundnut shells can be stacked. Asbestos sheet roofing would reduce the overall cost. Land may cost Rs. 7.00 lacs whereas construction cost is assumed to be Rs. 30.00 lacs.

## 5.2 Plant and Machinery

Since the products are to be exported, the production capacity has to be commensurate. The plant would operate for 8 months and hence actual working would be about 200 days. Hence, it is advisable to install groundnut shelling capacity of 10 tonnes per shift, blanching and roasting capacity of 5 tonnes per shifts, blanching and roasting capacity of 5 tonnes per shift and peanut making capacity of 5 tonnes per shift. This would require following sets of equipments:

Item	Qty.	Price (Rs.)
Elevator	2	70,000
Pre-cleaner	1	4,68,000
Destoner	1	3,15,000
Vibrating Sieve	1	30,000
Opener	1	45,000
Slotting Screen	1	30,000
Picking/Sorting Tables	4	5,00,000
MS Hopper	1	50,000
Vibrating Screen	1	40,000
Radiant Ray Roaster	2	24,00,000
Cooling Sieve	2	1,00,000
Whole Nut Blancher	1	5,00,000
Chamberless Vacuum Packing Machine	1	1,50,000
Air-compressor	1	35,000
Split Nut Blancher	1	5,00,000
Primary Peanut Butter Mill	1	5,00,000
SS Holding Tank with Stirrer and Butter Pump	2	4,50,000
Secondary Peanut Butter Mill	1	5,00,000
Stabilisers Feeder	1	1,00,000
Ingredient Feeder	1	1,00,000
Ribbon Blender	1	1,50,000
Scrap Surface Heat Exchanger	1	30,00,000
Ammonia Plant	1	10,00,000
SS Piping Kit	--	1,00,000
Piston Feeler for Butter Packing	1	3,00,000
<b>Total</b>		<b>1,14,33,000</b>
Taxes, transportation, electrification, erection and installation		30,67,000
<b>Total</b>		<b>1,50,00,000</b>

Scrap surface heat exchanger need to be imported and one of the reputed manufacturers is Cherry Burrel, USA.

Reportedly, M/s. Shreeji Nut co. has successfully developed technical know-how as well and the prospective entrepreneurs may like to contact them.

### 5.3 Miscellaneous Assets

A provision of Rs. 4.00 lacs would take care of other assets like furniture and fixtures, office equipments, telephones, electricals, window ACs, weighing scales etc.

### 5.4 Utilities

The total power requirement shall be 75 HP. Water shall be required basically for potable and sanitation purposes and the daily requirement shall be around 3,500 ltrs. Roaster would require industrial grade LPG and one ton of roasting would cost Rs. 500/-. Annual expenditure on utilities at 100% utilisation would be Rs. 4.00 lacs.

### 5.5 Raw and Packing Materials

The all-important raw material will be good quality groundnuts in shell. Gujarat produces more than 1 million tonnes with summer and winter crops. Saurashtra region is famous all over the world for good quality groundnuts and is considered to be groundnut bowl. Thus, availability would not be a problem. But the promoters should always be in touch with the market and should buy directly from the farmers.

Packing is always specified by the buyers. Bulk packing is in 235 kgs. capacity metal drums whereas consumer packing is in Pet jars of 8-12-18-24-40 oz. New unit would receive orders in bulk packs at least for first couple of years.

## 6.0 MANPOWER REQUIREMENTS

Particulars	Nos.	Monthly Salary (Rs.)	Total Monthly Salary (Rs.)
Works Manager	1	10,000	10,000
Supervisors	2	3,500	7,000
Machine Operators	4	3,000	12,000
Skilled Workers	4	2,250	9,000
Semi-skilled Workers	4	1,750	7,000
Helpers	15	1,250	18,750
Personnel Manager	1	6,000	6,000
Accountant	1	5,000	5,000
Clerks	3	2,500	7,500
Peons	3	1,250	3,750
		<b>Total</b>	<b>86,000</b>

Helpers shall be employed for only 8 months.

## 7.0 TENTATIVE IMPLEMENTATION SCHEDULE

Activity	Period (in months)
Application and sanction of loan	2
Site selection and commencement of civil work	2
Completion of civil work and placement of orders for machinery	6
Erection, installation and trial runs:	2

## 8.0 DETAILS OF THE PROPOSED PROJECT

### 8.1 Land and Building

Particulars	Area (Sq.Mtrs)	Cost (Rs.)
Land	2000	7,00,000
Building	1000	30,00,000
	<b>Total</b>	<b>37,00,000</b>

### 8.2 Plant and Machinery

The total cost of plant and machinery is estimated to be Rs. 150.00 lacs as explained earlier.

### 8.3 Miscellaneous Assets

Total expenditure under this head is likely to be Rs. 4.00 lacs as explained before.

### 8.4 Preliminary & Pre-operative Expenses

An amount of Rs. 25.00 lacs is provided towards pre-production expenses like establishment, registration and legal charges, administrative and travelling expenses, expenses on consultants, scrutiny fees, interest during implementation, trial run expenses etc.

### 8.5 Working Capital Requirements

Capacity utilisation in the first year is limited to 60%. Since the unit would be EOU, it would need following capital by way of Export Packing Credit (EPC) in the first year:

(Rs. in lacs)

Particulars	Period	Margin	Total	Bank	Promoters
Stock of Raw and Packing Material	½ Month	20%	8.70	7.00	1.70
Stock of Finished Goods	½ Month	25%	11.90	9.50	2.40
Receivables	½ Month	25%	13.30	10.60	2.70
Other Expenses	1 Month	100%	3.00	--	3.00
		<b>Total</b>	<b>36.90</b>	<b>27.10</b>	<b>9.80</b>

**8.6 Cost of the Project & Means of Financing** (Rs. in lacs)

<b>Item</b>	<b>Amount</b>
Land and Building	37.00
Machinery	150.00
Miscellaneous Assets	4.00
P&P Expenses	25.00
Contingencies @ 10% on Land and Building & Plant & Machinery	18.70
Working Capital Margin	9.80
<b>Total</b>	<b>244.50</b>
<b>Means of Finance</b>	
Promoters' Contribution	73.50
Term Loan from Bank/FI	171.00
<b>Total</b>	<b>244.50</b>
Debt Equity Ratio	2.32: 1
Promoters' Contribution	30%

Financial assistance in the form of grant is available from the Ministry of Food Processing Industries, Govt. of India, towards expenditure on technical civil works and plant and machinery for eligible projects subject to certain terms and conditions.

**9.0 PROFITABILITY CALCULATIONS**

**9.1 Production Capacity & Build-up**

As against the butter making capacity of 5 tonnes a day, actual utilisation is expected to be 60% in the first year and 75% thereafter.

**9.2 Sales Revenue at 100%**

It is assumed that exports will be in bulk packing. The FOB price is around US \$ 1050 per ton. But for the sake of profitability, it is taken as 1,000 per ton or Rs. 44,500/- per ton.

(Rs. in lacs)

<b>Product</b>	<b>Qty. (Tonnes)</b>	<b>Price/Ton (Rs.)</b>	<b>Sales Value</b>
Peanut Butter	1,000	46,450	445.00
Husk	440	4,000	17.60
Splits	460	15,000	69.00
		<b>Total</b>	<b>531.60</b>

**9.3 Raw and Packing Materials Required at 100%**

(Rs. in lacs)

<b>Product</b>	<b>Qty. (Tonnes)</b>	<b>Price/Ton (Rs.)</b>	<b>Value</b>
Groundnut in Shell	2,000	15,000	300.00
Sugar	30	18,000	5.40
Salt	20	4,000	0.80
Packing Materails	@ Rs.4000 per Ton	--	40.00
		<b>Total</b>	<b>349.20</b>

**9.4 Utilities**

The total annual expenditure on utilities at 100% capacity utilisation would be Rs. 4.00 lacs.

**9.5 Interest**

Interest on term loan of Rs.171.00 lacs is calculated @ 14% per annum assuming complete repayment in 6 years including a moratorium period of 1 year. Interest on EPC from bank is computed @ 10% per annum.

**9.7 Depreciation**

It is computed on WDV basis @ 10% on building and plant & machinery and miscellaneous assets.



## 10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

No.	Particulars	1st Year	2nd Year
<b>A</b>	<b>Installed Capacity</b>	--- 1000 Tonnes ---	
	Capacity Utilisation	60%	75%
	Sales Realisation	319.00	399.00
<b>B</b>	<b>Cost of Production</b>		
	Raw and Packing Materials	209.50	261.90
	Utilities	2.40	3.00
	Salaries	11.20	14.00
	Stores and Spares	6.00	7.20
	Repairs & Maintenance	9.50	11.50
	Selling & Admn Expenses @ 5%	15.95	20.00
	<b>Total</b>	<b>254.55</b>	<b>317.60</b>
<b>C</b>	<b>Profit before Interest &amp; Depreciation</b>	<b>64.45</b>	<b>81.40</b>
	Interest on Term Loan	21.63	18.37
	Interest on Working Capital	2.71	3.39
	Depreciation	19.10	17.20
	Profit before Tax	21.01	42.44
	Income-tax @ 20%	4.21	8.49
	Profit after Tax	16.80	33.95
	Cash Accruals	35.90	51.15
	Repayment of Term Loan	--	31.00

## 11.0 BREAK-EVEN ANALYSIS

(Rs. in lacs)

No	Particulars	Amount	
<b>[A]</b>	<b>Sales</b>		<b>399.00</b>
<b>[B]</b>	<b>Variable Costs</b>		
	Raw and Packing Materials	261.90	
	Utilities (70%)	2.10	
	Salaries (70%)	9.80	
	Stores & Spares	7.20	
	Selling Admn Expenses (50%)	10.00	
	Interest on WC	3.39	<b>294.39</b>
<b>[C]</b>	<b>Contribution [A] - [B]</b>		<b>104.61</b>
<b>[D]</b>	<b>Fixed Cost</b>		<b>52.17</b>
<b>[E]</b>	<b>Break-Even Point [D] ÷ [C]</b>		<b>50%</b>

**12.0 [A] LEVERAGES****Financial Leverage**

$$= \text{EBIT/EBT}$$

$$= 45.35 \div 21.01$$

$$= 2.16$$

**Operating Leverage**

$$= \text{Contribution/EBT}$$

$$= 80.11 \div 21.01$$

$$= 3.81$$

**Degree of Total Leverage**

$$= \text{FL/OL}$$

$$= 2.16 \div 3.81$$

$$= 0.57$$

**[B] Debt Service Coverage Ratio (DSCR)**

(Rs. in lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr	5th Yr	6th Yr
Cash Accruals	35.90	51.15	52.62	56.83	63.98	73.28
Interest on TL	21.63	18.37	14.03	9.69	5.35	2.00
<b>Total [A]</b>	<b>57.53</b>	<b>69.52</b>	<b>66.65</b>	<b>66.52</b>	<b>69.33</b>	<b>75.28</b>
Interest on TL	21.63	18.37	14.03	9.69	5.35	2.00
Repayment of TL	--	34.20	34.20	34.20	34.20	34.20
<b>Total [B]</b>	<b>21.63</b>	<b>52.57</b>	<b>48.23</b>	<b>43.89</b>	<b>39.55</b>	<b>36.20</b>
<b>DSCR [A] ÷ [B]</b>	<b>2.66</b>	<b>1.32</b>	<b>1.39</b>	<b>1.52</b>	<b>1.76</b>	<b>2.07</b>
<b>Average DSCR</b>	----- 1.80 -----					

**[C] Internal Rate of Return (IRR)**

Cost of the project is Rs. 244.50 lacs.

(Rs. in lacs)

<b>Year</b>	<b>Cash Accruals</b>	<b>16%</b>	<b>18%</b>	<b>20%</b>
1	35.90	30.95	30.41	29.90
2	51.15	38.00	36.73	35.50
3	52.62	33.73	32.05	30.47
4	56.83	31.37	29.32	27.39
5	63.98	30.45	27.96	25.72
6	73.28	30.04	27.11	24.55
7	81.43	28.83	25.57	22.72
8	92.03	28.07	24.48	21.44
	<b>507.22</b>	<b>251.44</b>	<b>233.63</b>	<b>217.69</b>

The IRR is around 17%.

**Some of the machinery suppliers are**

1. Shreeji Nut Co, Jam Kandorna 360 405
2. Parmar Engg. Co, Jasdan, Gujarat
3. John Fowler & Co Ltd, Bangalore
4. Forsberg Agritech (I) Ltd, Makarpura, Vadodara
5. Brimco Engg. Works, M24/1, Street No 9, Anand Parbat Indl. Area,  
New Delhi 110 005, Phone: 25726347, 6178 Fax:22145040
6. Osaw Agro Inds. Pvt. Ltd., PO Bag No 5, Osaw Complex, Jagadbri Road,  
Ambala Cantonment - 133 001. Phone: 2699167, 354, 547, Fax No 2699018
7. Fowler Westrup India (P) Ltd., Plot No 250, Bommasandra Indl. Est, Ph-3,  
Bangalore 562 158. Ph: 2783299, Fax: 27832990
8. Harvest Sortmac Shosha Pvt Ltd, Nutech Vikas, No.6, 1st Avenue, 100 Feet Road,  
Ashoknagar, Chennai 600 083. Ph: 24717588, Fax: 24717688