

PROJECT PROFILE

ON

**SPRAY DRIED COCONUT
CREAM POWDER**

Month & Year
Aug 2010

**PREPARED BY
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SPRAY DRIED COCONUT CREAM POWDER

1. Introduction

Coconut milk powder is obtained by spray drying coconut milk or coconut cream and used in a variety of confectionery products and culinary preparations. These include biscuits, ice creams, chutneys and sambhar powder etc. Being easy to use, it finds preference to coconut itself. The coconut powder obtained by spray drying is water dispersible with a natural taste and hence finds additional use in confectionery products.

2. Market

The market for the product is both domestic and international.

3. Packaging

The product is packed in foil pouches in quantities of 500 grams and 1 kilogram.

4. Production capacity

- The plant will be in operation for two shifts a day.
- The plant will operate to a capacity of processing 25000 nuts per shift or 50000 nuts per day. The yield of various products from processing 50000 nuts per day is as follows:
 1. Coconut cream powder - 1100 kilograms
 2. Coconut oil (edible grade) - 3500 kilograms
 3. Coconut shell powder - 9500 kilograms
 4. Medium fat desiccated coconut powder - 3000 kilograms
 5. Animal feed - 500 kilograms.
- The total quantity of nuts processed per annum of 300 working days on full capacity utilisation would be 150 lakh nuts. The yield of various products are:

Coconut cream powder - 330 metric tonnes

Coconut oil (edible grade) - 1050 metric tonnes

Coconut shell powder - 2850 metric tonnes

Medium fat desiccated coconut powder - 900 metric tonnes

Animal feed - 150 metric tonnes.

- The time period required for achieving full capacity utilisation is one year.

5. Sales revenue

- The annual sales revenue on full capacity utilisation is as follows:
 1. Coconut cream powder @ Rs. 300 per kilogram - Rs. 990 lakhs
 2. Coconut oil @ Rs. 70 per kilogram - Rs. 735 lakhs
 3. Coconut shell powder @ Rs. 8.00 per kg - Rs. 228.00 lakhs
 4. Desiccated coconut powder @ Rs. 150 per kilogram - Rs. 1350 lakhs
 5. Animal feed @ Rs. 4 per kilogram - Rs.6. lakhs
 6. Total sales realisation - Rs. 3309.00 lakhs.

6. Production process outline.

The products available in the wet processing of coconuts include:

- Coconut water for standardization with electrolytes.
- Coconut oil
- Coconut milk and cream for conversion to coconut powder.
- Desiccated coconut powder for packing under an inert gas atmosphere.
- Coconut fibre for sale to coir manufacturing industries.
- Coconut shell for conversion to coconut shell powder.
- **Coconut milk, coconut cream and spray dried coconut cream powder:**

The kernel is detached from the shell and grated. The gratings are passed over a stainless steel vibratory sieve to remove fibrous material or traces of shell if any. The kernel gratings are steamed and pressed to remove milk. The milk is centrifuged to separate oil and then pumped to the pastueriser where it is sterilized. For manufacture of coconut cream, the coconut milk is taken to the vacuum concentrator and then evaporated to one third its volume. The cream is spray dried and packed in aluminum foil pouches.

- **Coconut oil:**
 - The oil is obtained by high speed centrifugation of the milk obtained after pressing the kernel. The oil being edible grade can be used for cooking directly.

Desiccated coconut powder:

Desiccated coconut powder is obtained by drying the kernel gratings after extraction of milk. The gratings are taken to the fluidized bed drier where it is dried under a blast of air at a low temperature. After drying the material is conveyed to the packing machine where it is packed in foil pouches under an inert atmosphere of nitrogen.

- ***Coconut fibre:***

The fibre obtained before halving the nuts is collected and sold to the coir industry manufacturers.

- ***Coconut shell powder:***

The shell is first broken into pieces by use of disintegrators and then ground to a fine powder. The powder is packed in HDPE bags.

7. *Quality specifications*

- The product should be free from any fermented odour.
- Moisture content shall not exceed 2%
- It shall test negative for coliforms, salmonella and streptococci bacteria.
- Mold and fungal growth should be absent.

8. *Pollution control measures*

Not necessary as there are no pollutants or effluents.

9. *Energy conservation measures*

Common measures will do.

10. Land and construction cost for the proposed unit

Land 5.0 acre - Rs.10.0 lakhs.

Processing area is 27200 square feet as detailed below.

SI	Description	Sq. feet
1	Raw material store	5000
2	Nut cracking area	1000
3	Processing section	10000
4	Packing section	1000
5	Spray drying area	2000
6	Spare parts store	500
7	Finished goods store	1000
8	Laboratory	1000
9	Boiler area	2000
10	Administration area	1000
11	Fibre storage area	500
12	Shell storage area	1000
13	Toilet space	500
14	Incenerator and waste disposable area	200
15	Security office	500
14	Total	27200

Cost of construction – Rs. 800 per square foot

Total cost of civil works – Rs. 217.60 lakhs

Total cost of land and civil works – Rs. 227.60 lakhs

11. Costing of machinery and equipment

- **Plant machinery**

- a) Nut cracking machine
- b) Grating and shredding machine.
- c) Milk extraction unit complete with pastueriser, vacuum concentrator, heat exchangers, stainless steel pipings etc..
- d) Refrigeration unit for collecting coconut water from mature coconuts.
- e) Fluidized bed dryers to dry desiccated coconut powder
- f) Steam boiler 5 ton capacity along with accessories.
- g) Spray drying unit complete with accessories such as heat exchangers, blowers, spray nozzles etc.
- h) Dehumidifying chamber and dehumidifiers for packing desiccated coconut powder.
- i) Form fill and seal packing machine with augur weighers and fillers.
- j) Couplings, unions, flanges, pipelines, valves etc., connecting boiler to machinery
- k) Working tools
- l) Incinerator and accessories
- m) **Total cost of machinery - Rs. 414 lakhs**

- **Testing equipment**

- n) Testing equipment comprising hot air oven, ashing oven, kjeldhal apparatus, soxhlet apparatus, centrifuge, vortex stirrer, pH meter, precision weighing scales, glassware and chemicals.
 - o) **Cost of testing equipment - Rs. 1.00 lakh.**
- **Total cost of processing and testing equipment inclusive of taxes and duties - Rs. 415.00 lakhs.**

12. Project cost

SI	Description	Rs. lakhs
1	Land	10.000
2	Civil works	217.600
3	Plant machinery	414.000
4	Laboratory equipment	1.000
5	Transport vehicle (4 LCV)	30.000
6	Pollution control equipment	0.000
7	500 KVA Generator	25.000
8	Cost of power connection	3.500
9	Cost of electrification	2.000
10	Erection and commissioning	20.700
11	Cost of machinery spares	5.000
12	Cost of office equipment	2.000
13	Deposits if any	0.000
14	Company formation expenses	0.250
15	Gestation period expenses	10.000
16	Sales tax registration expenses	0.100
17	Initial advertisement and publicity	50.000
18	Contingencies	5.000
19	Working capital margin money	98.920
20	Total	895.070

13. Working capital requirements per month

a. Salaries and wages

SI	Description	No of persons	Total salary / month (Rs. lakhs)
1	General Manager	1	0.800
2	Food Technologist	1	0.400
3	Maintenance Engineer (Civil)	1	0.400
4	Maintenance Engineer (Mech)	1	0.400
5	Maintenance Engineer (Elect)	1	0.400
6	Production Supervisors	2	0.500
7	Packing machine operators	2	0.150
8	Boiler operators	2	0.150
9	Generator foreman	2	0.150
10	Refrigeration mechanics	2	0.200
11	Storekeeper	1	0.100
12	Skilled workers	10	0.600
13	Unskilled workers	20	0.800
14	Sales staff	5	0.750
15	Administrative staff	4	1.000
16	Van drivers	4	0.300
17	Security staff	10	0.500
7	Total	69	7.600

b. Raw material requirement per month

SI	Description	Qty	Rate / unit (Rs)	Value (Rs. lakhs)
1	Mature coconuts	12,50,000 nos	8.00	100.00
2	Dextrose, Sucrose etc	5000 kgs	30.00	1.500
3	Total raw material	25000		101.500

c. Packaging material requirement per month

SI	Description	Qty	Rate / unit (Rs)	Value (Rs. lakhs)
1	Aluminum foil pouches	15,00000	5.00	75.000
2	Cartons and straps	62500 nos	40	25.000
3	Total			100.00

Total raw + packaging material = 201.500

d. Utilities per month

SI	Description	Rs. lakhs
1	Power 100,000 kwh @ Rs. 6.00 per unit	6.000
2	Water	0.250
3	Boiler fuel	3.000
4	Total utilities	9.250

e. Contingent expenses per month

SI	Description	Rs. lakhs
1	Rent for processing shed	0.000
2	Postage and stationery	0.050
3	Telephones, fax etc.	0.100
4	Consumable stores	0.250
5	Repairs and maintenance	1.037
6	Local transports, loading and unloading	0.600
7	Advertisement and publicity @ 2% of sales	5.364
8	Insurance	0.091
9	Sales expenses @ 1% of sales	2.682
10	Miscellaneous expenses @ 1% of sales	2.682
11	Trade incentives @ 2% of sales	5.365
12	Taxes @ 4%	10.730
13	Total contingent expenses	28.951

f. Total working capital requirement per month

SI	Description	Rs. lakhs
1	Salaries and wages	7.600
2	Raw material and packaging material	201.500
3	Utilities	9.250
4	Contingent expenses	28.951
5	Total	247.301

14. Means of finance

SI	Description	Rs. lakhs
1	Total Project Cost	895.070
2	Equity	295.373
3	Debt	599.697

4	Working capital margin money	98.920
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15. Financial analysis

SI	Description	Rs. lakhs
1	Total recurring cost per year	2967.612
2	Depreciation on land and building	22.760
3	Depreciation on machinery	41.300
4	Depreciation on furnaces	2.500
5	Depreciation on moulds and fixtures	1.000
6	Depreciation on office equipment	0.200
7	Interest on long term loan @ 14%	80.955
8	Interest on short term borrowings@ 14%	20.773
9	Total cost of production	3137.100

16. Turnover per year

SI	Item	Qty (MT)	Rate/kg (Rs)	Total Rs. lakhs
1	Coconut cream powder	330	300	990.00
2	Coconut oil	1050	70	735.00
3	Coconut shell powder	2850	8	228.00
4	Desiccated coconut powder	900	150	1350.00
5	Animal feed	150	4	6.00
6	Total	5280		3309.00

17. Viability analysis

SI	Description	Value
1	Net profit before income tax (Rs. lakhs)	171.900
2	Net profit ratio	8.8%
3	Internal rate of return	28.2%
4	Break even percentage	41%
5	Debt service coverage ratio	2.102

List of machinery suppliers for Spray Dried Coconut Cream Powder

1. F.M.C. Hongkong Limited, 2, Bhuvaneshwari Housing Society, Pashan Road, Pune 411008, Maharashtra. ; Tel: 020 - 25893700; Fax: 020 - 25983701
2. SSP Limited, 13 Mile Stone, Mathura Road, Faridabad, Haryana; Tel : 0129 - 25277442; Fax: 0129 - 25277441