

OLEORESINS & SPICE OIL



1.0 INTRODUCTION

Oleoresins are the flavour extracts obtained by the solvent extraction of the ground spices. They have aroma of spice and possess the attributes which contribute to the taste such as pungency. All the spices contain essential oils in varying proportions which can be extracted by steam distillation. India is one of the leading producers of spices and instead of exporting raw spices, it is advisable to export value-added products.

2.0 PRODUCT

2.1 Applications

The oleoresins and spice oils are preferred because of their microbiological advantages, uniformity in flavour and pungency, easy to store and transport. They have several applications like in the preparation of beverages, soup powders, confectionary, curries, noodles, sauces, canned meat etc.

2.2 Compliance and Quality Standards

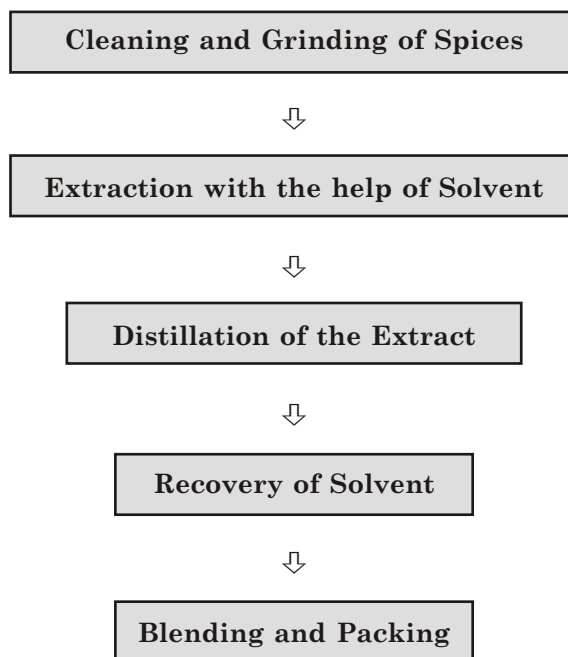
Compliance under the PFA Act is mandatory. ISI has specified quality standards vide IS 5832 & 7826 of 1975.

3.0 MARKET POTENTIAL

Oleoresins and spice oils have large domestic as well as export markets. They are consumed by a broad spectrum of manufacturers like confectionary, noodles, beverages, sauces, canned meat, soup powders, curries, poultry products and so on. Most of the end use industries are growing steadily and demand is bound to increase. With increasing preference for quality products, use of spices is rapidly replaced with oleoresins and spice oils. Exports of these processed products, instead of raw spices, would also result in considerable value addition.

4.0 MANUFACTURING PROCESS

To start with various raw spices are cleaned and then ground to the required mesh size. Then extraction is undertaken with the help of proper solvent. Solvents that can be used are hexane, acetone, ethylene dichloride or alcohol. Extraction is done by percolation of the solvents at room temperature through a bed of ground spice packed in a SS percolator. Then the dark viscous extract containing not less than 10% of total soluble solids are drawn off and distilled under reduced pressure to remove the excess of solvent. The essential oil is obtained by steam distillation. A typical flow chart is as under.



5.0 CAPITAL INPUTS

5.1 Land & Building

A plot of around 300 sq.mtrs. with constructed area of 150 sq.mtrs. would be adequate for the contemplated production capacity. Land may cost Rs. 90,000/- whereas the cost of civil work is assumed to be Rs. 3.75 lacs.

5.2 Machinery

For the contemplated installed capacity of 1500 kgs. of spice oil and 3000 kgs. of Oleoresins per year with 12 hours working per day and 300 working days every year, following equipments shall be needed.

(Rs. in lacs)

Particulars	Qty	Amount
Hammer type Disintegrators	2	1.00
SS Percolators of 200 kgs.capacity	2	0.80
Vacuum Distillation Still with 75/100 ltrs. capacity with vacuum pump and other accessories	1	10.50
SS Storage tanks of 50 kgs. capacity	2	0.70
Can sealer	1	0.40
Baby Boiler	1	0.80
Laboratory Equipments	--	0.50
	Total	14.70

5.3 Miscellaneous Assets

Other assets like weighing scales, furniture and fixtures, working tables, storage racks etc. would need around Rs. 1.00 lac.

5.4 Utilities

Power requirement shall be 15 HP whereas water requirement will not be more than 2000 ltrs every day. LDO or coal shall be required for boiler.

5.5 Raw and Packing Materials

Raw spices like black pepper, ginger, turmeric, cinnamon and cardamon seeds shall be the main raw materials. Appropriate solvent needs to be identified. Tin containers, lables, corrugated boxes and BOPP tape shall be the packing materials.

6.0 MANPOWER REQUIREMENTS

Particulars	No	Monthly Salary (Rs.)	Total Monthly Salary (Rs.)
Supervisor	1	3,500	3,500
Skilled Workers	2	2,500	5,000
Helpers	4	1,250	5,000
Salesman	1	2,500	2,500
		Total	16,000

7.0 PROJECT IMPLEMENTATION

Activity	Period (in months)
Application and sanction of loan	2
Site selection and commencement of civil work	1
Completion of civil work and placement of Orders for machinery	4
Erection, installation and trial runs	1

8.0 DETAILS OF THE PROPOSED PROJECT

8.1 Land and Building

(Rs. in lacs)

Particulars	Area (Sq.Mtrs)	Cost
Land	300	0.90
Building	150	3.75

8.2 Machinery

A provision of Rs. 14.70 lacs would take care of the required machinery.

8.3 Miscellaneous Assets

An amount of Rs. 1.00 lac is adequate towards other support assets.

8.4 Preliminary and Pre-Operative Expenses

An amount of Rs. 1.50 lacs would take care of pre-production expenses like establishment and registration charges, travelling, administrative expenses, interest during implementation, trial runs etc.

8.5 Working Capital Requirement

At 60% capacity utilisation in the first year, the working capital needs shall be as under.

(Rs. in lacs)

Particulars	Period	Margin	Total	Bank	Promoters
Stock of Raw and Packing Materials)	1 Month	30%	2.40	1.70	0.70
Stock of Finished Goods	½ Month	25%	1.40	1.05	0.35
Receivables	1 Month	25%	4.40	3.30	1.10
Working Expenses	1 Month	100%	0.50	--	0.50
		Total	8.70	6.05	2.65

8.6 Cost of the Project and Means of Financing

(Rs. in lacs)

Items	Amount
Land and Buildings	4.65
Machinery	14.70
Miscellaneous Assets	1.00
Preliminary and Pre-operative Expenses	1.50
Contingencies @ 10% on land and building and machinery	1.95
Working Capital Margin	2.65
Total	26.45
Means of Finance	
Promoter's Contribution	7.15
Term Loan from Bank/FI	19.30
Total	26.45
Debt Equity Ratio	2.70 : 1
Promoters' Contribution	27%

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 and Build-up

As against the rated capacity, actual utilisation in the first year is assumed to be 60% and thereafter, it is restricted to 75%.

9.2 Sales Revenue at 100%

(Rs. in lacs)

Product	Selling Price (Rs.)	Value
Spice Oil	Rs.2800 per kg	42.00
Oleoresins	Rs.1500/Kg.	45.00
	Total	87.00

9.3 Raw and Packing Materials Required at 100%

(Rs. in lacs)

Item	Qty.	Rate (Rs.)	Value
Spices	70 Tonnes	60,000/Ton	42.00
Alcohol/Acetone	--	--	5.50
Packing Material @ Rs.10/Kg	--	--	0.45
		Total	47.95

9.4 Utilities

Annual expenditure on utilities at 100% activity level is expected to be Rs. 1.50 lacs.

9.5 Selling Expenses

A provision of 15% of sales every year would take care of transportation, commission etc. as this is an industrial product.

9.6 Interest

Interest on term loan of Rs. 19.30 lacs is calculated @ 12% per annum assuming complete repayment in 5 years including a moratorium period of 1 year whereas on working capital from bank, it is computed @ 14% per annum.

9.7 Depreciation

It is computed on WDV basis and rates assumed are 10% on building and 20% on machinery and miscellaneous assets.

10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

No	Particulars	1st Year	2nd Year
A	Installed Capacity	--- 4500 Kgs ---	
	Capacity Utilisation	60%	75%
	Sales Income	52.20	65.25
B.	Cost of Production		
	Raw and Packing Materials	28.80	36.00
	Utilities	0.90	1.12
	Salaries	1.92	2.25
	Stores and Spares	0.36	0.48
	Repairs and Maintenance	0.48	0.60
	Adm. Expenses	0.75	1.00
	Selling Expenses @ 15%	7.83	9.79
	Total	41.04	51.24
C.	Profit Before Interest & Depreciation	11.16	14.01
	Interest on Term Loan	2.32	1.97
	Interest on Working Capital	0.85	1.05
	Depreciation	3.52	2.85
	Profit before Tax	4.47	8.14
	Income Tax @ 20%	0.89	1.63
	Profit after Tax	3.58	6.51
	Cash Accrual	7.10	9.36
	Repayment of Term Loan	--	4.85

11.0 BREAK-EVEN POINT ANALYSIS

(Rs. in lacs)

No.	Particulars	Amount	
A	Sales		65.25
B	Variable Cost		
	Raw and Packing Materials	36.00	
	Utilities (70%)	0.78	
	Salaries (70%)	1.58	
	Repairs and Maintenance	0.60	
	Selling Expenses (70%)	6.85	
	Administrative Expenses (50%)	0.50	
	Interest on working capital	1.05	47.36
C	Contribution (A-B)		17.89
D.	Fixed Cost		9.75
E.	Break-Even Point (D ÷ C)		54%

12.0 [A] LEVERAGES

Financial leverage

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

$$= 14.68 \div 4.47$$

$$= 3.28$$

Operating Leverage

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

$$= 17.89 \div 4.47$$

$$= 4.00$$

Degree of Total Leverage

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

$$= 3.28 \div 4.00$$

$$= 0.82$$

[B] Debt Service Coverage Ratio

(Rs. in lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr	5th Yr
Cash Accruals	7.10	9.36	10.08	10.72	11.28
Interest on Term Loan	2.32	1.97	1.58	1.04	0.58
Total (A)	9.42	11.33	11.66	11.76	11.86
Interest on Term Loan	2.32	1.97	1.58	1.04	0.58
Repayment of Term Loan	--	4.85	4.85	4.85	4.75
Total (B)	2.32	6.82	6.43	5.89	5.33
DSCR (A) ÷ (B)	4.06	1.66	1.81	1.99	2.22
Average	----- 2.35 -----				

[C] Internal Rate of Return (IRR)

Cost of the project is Rs. 26.45 lacs

(Rs. in lacs)

Year	Cash Accruals	20%	24%	28%	32%
1	7.10	5.91	5.72	5.55	5.38
2	9.36	6.50	6.08	5.71	5.37
3	10.08	5.84	5.28	4.81	4.38
4	10.72	5.17	4.53	4.00	3.53
5	11.28	4.53	3.85	3.28	2.82
	48.54	27.95	25.46	23.35	21.48

The IRR is around 23%.

Some of the machinery suppliers are

1. Flour Tech Engineers Pvt Ltd, 16/5, Mathura Road, Faridabad 121 002
Tel. No.: 2263017, 2291556, Fax: 2291556
2. Flavourite Foods & Services Pvt. Ltd, 208 Manas Bhavan, 11, RNT Marg, Indore 452 008
Tel. No. : 2527644, 5046509, Fax: 5040953
3. FMC Technologies Hong Kong Ltd, 2 Bhuvaneshwar Housing Soc,
Pashan Road, Pune 411 008 Tel. No. : 5893700, Fax: 5893701
4. SS Engineering, B-24, Khanpur Extension, New Delhi 110 062, Ph: 26081475, 9810217935
5. Sahyog Steel Fabrication, 28 Bhojrajpara, Gondal 360 311
Tel. No. : 224075, Fax: 231375
6. Cowel Can Ltd, Industrial area, Post Barotiwala, Dist. Solan (HP)