

Mosquito Repellent Mat

PRODUCT CODE	: N.A.
QUALITY AND STANDARDS	: As per requirement of the market.
PRODUCTION CAPACITY	: Qty.: (per annum)108000 boxes of 30 Nos. mats in each. Value : Rs. 7776000
MONTH AND YEAR OF PREPARATION	: January, 2003
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INTRODUCTION

Insecticides are used either for killing or controlling of harmful insects. The insecticides which are applied for repelling insects are termed as "Repellent". Mosquito is one of the most harmful insects for mankind. To destroy them many preparations are available in the market in various recipes like pest killer spray, soap, oil, powder, repellent etc. Out of these, mosquito repellent is the most popular as it has germicidal and disinfectant properties and is able to repel mosquitoes and is convenient to use.

Now-a-days repellents are applied by heating impregnated mat over an electrical device, under low temperature which is known as mosquito repellent mats. Simple type of repellent mats are prepared by soaking mats of paper pulp in repellent chemical compound and proper drying. Mats are packed in a

suitable polypack. Essential oil such as citronella camphor, cedar, palmrosa, pyrethrum etc. are generally used in repellent chemicals.

MARKET POTENTIAL

The mosquito repellent is used for warding off mosquitoes which is the most harmful insect. Now a days mosquito repellent is used for controlling mosquito and is replacing other mosquito destroyers gradually.

With the rise in the standard of living, increasing urbanization and population, the demand of mosquito repellent mat is constantly increasing particularly in tropical places of this country. It is a convenient method for protection against mosquito, so it has a tremendous market potential. Thus there is a very good scope for development of such units in the country.

BASIS AND PRESUMPTIONS

1. The scheme is based on single shift 8 hour per day and 300 working days in a year.
2. Basis for calculation of the production capacity is on 75% efficiency.
3. The factory shed is taken on rental basis.
4. 5% wastage of raw material is taken into account.
5. The rate of interest on total investment is taken @ 14%.
6. The costs of the plant and machinery, raw materials etc. are generally taken as those which are prevailing at the time of preparation of the scheme.
7. The wages of the staff and labour have been taken considering the local market.
8. The operative period of the project is taken as 10 years.
9. The time period for achieving envisaged full capacity is taken one year after trial run.

IMPLEMENTATION SCHEDULE

	Period (in months)
1. Preparation of project profile/report	1
2. Selection of the Site	1
3. Registration with District Industry Centre	1
3. Sanction and availability of the finance/loan	3
4. Procurement of machinery and equipment	3

5. Erection and electrification of the machinery and equipment 1
6. Trial run 15 days
7. Recruitment of the personnel 1.

TECHNICAL ASPECTS

Process of Manufacture

- i) Absorbant paper sheets are coloured and cut into pieces of desired dimensions.
- ii) The paper sheets are soaked in chemical mixture and vacuum dried.
- iii) The mats after drying are stored in closed containers.
- iv) The mats are packed in plastic packs.

Quality Control and Standards

So far no Indian standard for these types of repellent is available, however, quality of the product is established by its active repellent action without any harmful effect.

Production Capacity (per annum)

Quantity: 108000 boxes of 30 Nos. mats in each.

Value : Rs. 7776000.

Motive Power

10 kW.

Pollution Control

For manufacturing of mosquito repellent mat, no pollution is involved. As such it may not require pollution control measures.

FINANCIAL ANALYSIS

A. Fixed Capital

(i) Land and Building

Rented	(Rs.)
Covered area including office, stores (for raw Material and finished goods) working shed 1000 sq.ft.	5000 p.m.

(ii) Machinery and Equipments

Sl. Item No.	Nos.	Value (Rs.)
a. Tablet punching machine (cap.30 T)	1	85,000
b. Shearing Machine	1	10,000
c. Mechanical formulation and storage unit	1	30,000
d. Weighing Machine (Cap. 100 Kg)	1	10,000
e. Hand Pump (Mechanical to transfer Chemical from drum)	1	15,000
f. Precision (physical) balance (electronic or mechanical)	1	1,25,000
g. Strapping machine	1	45,000
h. Hand tools pincers tool kit	1 dozen assorted	3,500 2,000
i) Stainless steel funnels (for transfer of Chemical/formulation)	3	3,000
j. Miscellaneous - Tables, Chairs, airconditioner, office furniture etc.		1,25,000
k. Laboratory—GLC/Printer		2,30,000
l. Other miscellaneous		25,000
m. Automatic impregnation/ ceiling unit		4,00,000
n. Installation/Electrification		1,11,000
Total		12,19,500

B. Working Capital (per month)

(i) Personnel

Sl. Designation No.	No.	Salary (Rs.)	Total (Rs.)
1. Manager cum Chemist	1	3000	3000
2. Supervisor	1	2500	2500

Sl. No.	Designation	No.	Salary (Rs.)	Total (Rs.)
3.	Accountant cum Clerk	1	2000	2000
4.	Skilled Workers	3	1500	4500
5.	Semi-skilled workers	2	1200	2400
6.	Helpers	3	1000	3000
7.	Delivery men	2	1000	2000
8.	Sales men	1	2000	2000
9.	Watchman	1	1000	1000
	Total			22400
	<i>Perquisite @ 15%</i>			3360
	Total			25760

(ii) Raw Material (per month)

Sl. No.	Item	Qty. Kg.	Rate (Rs./kg.)	Value (Rs.)
1.	PBO (piperonyl butoxide)	30	725	21,750
2.	Synthetic pyrethrium/alluthrin Tech.Grade	50	6650	3,32,500
3.	Perfume	8	1500	12,000
4.	Dye	2	650	1,300
5.	Cellulose material blue in colour/pulp tablets absorbing paper sheets (hand made)	1000	70	70,000
6.	Printed polythene sheet for packing 9000 boxes			8,500
7.	Laminated board cartons for packaging			31,500
	Total			4,77,550

(iii) Utilities (per month) (Rs.)

Power and Water	5000
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(iv) Other Contingent Expenses (per month) (Rs.)

1. Rent	5000
2. Postage and stationery	1000
3. Telephone	1000
4. Consumable stores	2000
5. Repair and Maintenance	1500
6. Transport Charges	3500
7. Advertisement and publicity	5000

8. Insurance	1000
9. Sales Expenses	3000
10. Miscellaneous Expenses	2500
Total	25,500

(v) Total Recurring Expenditure (per month) (Rs.)

1. Staff and labour	25,760
2. Raw materials	4,77,550
3. Utilities	5,000
4. Other contingent expenses	25,500
Total	5,33,810

(vi) Total Working Capital for 3 Months (Rs.)

$5,33,810 \times 3$	16,01,430
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C. Total Capital Investment

i) Fixed Capital	Rs. 12,19,500
ii) Working Capital	Rs. 16,01,430
Total	Rs. 28,20,930

Machinery Utilisation

Sealing of the repellent mat is the bottle neck operation and the scheme prepared is based on 75% utilization of this machine.

FINANCIAL ANALYSIS**(1) Cost of Production (per year) (Rs.)**

Total recurring cost	64,05,720
Depreciation on machinery and Equipment @ 10%	12,19,50
Dep. On office equipment and Furniture @ 20%	25,000
Interest on total capital Investment @ 14%	3,94,930
Total	69,47,600

(2) Turnover (per year)

Item	Qty.	Rate (Rs.)	Value (Rs.)
Mosquito repellent Mat (in 30 Nos. in Board Carton)	1,08,000	72 per packet	77,76,000

(3) Net Profit (per year) Before Income Tax

$$\begin{aligned}
 &= \text{Turnover} - \text{Cost of Production} \\
 &= \text{Rs. } 77,76,000 - 69,47,600 \\
 &= \text{Rs. } 8,28,400
 \end{aligned}$$

(4) Net Profit Ratio

$$\begin{aligned}
 &= \frac{\text{Net Profit per year} \times 100}{\text{Turnover per year}} \\
 &= \frac{8,28,400 \times 100}{77,76,000} \\
 &= 10.65\%
 \end{aligned}$$

(5) Rate of Return

$$\begin{aligned}
 &= \frac{\text{Net profit per year} \times 100}{\text{Total investment}} \\
 &= \frac{8,28,400 \times 100}{28,20,930} \\
 &= 29.4\%
 \end{aligned}$$

(6) Break-even Point**(i) Fixed Cost (Rs.)**

a) Depreciation (on machinery and equipment furniture and office equipment)	1,21,950
b) Rent	60,000
c) Interest on Total investment	3,94,930
d) Insurance	12,000
e) 40% of salary and wages	1,23,648
f) 40% of other contingent expenses excluding rent and insurance	93,600
Total	8,06,128

(ii) Net Profit (per year) Rs. 8,28,400

$$\begin{aligned}
 \text{B.E.P.} &= \frac{\text{Fixed cost} \times 100}{\text{Fixed cost} + \text{Profit}} \\
 &= \frac{8,06,128 \times 100}{8,06,128 + 8,28,400} \\
 &= \frac{8,06,128 \times 100}{16,34,528} \\
 &= 49.3\%
 \end{aligned}$$

Addresses of Machinery and Equipment Suppliers

1. M/s. The United Engineers
61, Shimla Road,
Kolkata-6.
2. M/s. A.P.V. Engineers
Jessor Road,
Kolkata-28
3. M/s. Millard and Co.
B.L. Shaha Road,
Kolkata-53
4. M/s. Batliboi and Co. P. Ltd.
Batliboi House,
35, Aremenian St.,
Chennai-600001
5. M/s. Binny's Engineering Co.
Meenam Bakkam,
Chennai-27.
6. M/s. Anup Engg. Ltd.
Anil Road, P. B. No. 1164,
Ahmedabad - 25.

Addresses of Raw Material Suppliers

Essential Oils

1. M/s. Flavour and Essence (P) Ltd.
Merera Road,
Mysore-5
2. M/s. Mohanlal Satyanarayan
Essential Oils
113, Sri Arabind Road.,
Howrah.
3. M/s. Meghalaya Essential Oils and
Chemicals Ltd.
Shillong.

4. M/s. Mankapur Chemical P. Ltd.
17, Qaiserbagh,
Lucknow.
5. M/s. A. K. K. Enterprises
201, Ashish Indl. Estate,
Mumbai-25.

Packing Material

1. M/s. P.K.Chaudhary and Sons
Kalapahar, CITC Indl. Complex
Guwahati-16.
2. M/s. Assam Packers
Industrial Estate, Bamunimaidan,
Guwahati-21.

Paper Pulp

1. M/s. India Paper Pulp Co. Ltd.
8, Clive Row,
Kolkata-1.
2. M/s. Rohit Pulp and Paper Mills
Ltd.
Rohit Chamber, Ghoga Street,
Mumbai-400001.
3. M/s. paper and Pulp Conversions
Ltd.
1183, Shivajinagar, Fergusson
College Road, Pune.
4. M/s. Chemopulp Tissue
A-4, Sect., CXII, Meerut Road,
Ghaziabad.
5. M/s. Central Pulp Mills Ltd.
For Sonagarh, Distt.
Surat.
6. M/s. Tribeni Tissue Ltd.
3, Middleton St.
Kolkata-1.