

PROJECT REPORT

Of

MOSQUITO REPELLENT MOULDS

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **Mosquito Repellent Moulds**.

The objective of the pre-feasibility report is primarily to facilitate potential entrepreneurs in project identification for investment and in order to serve his objective; the document covers various aspects of the project concept development, start-up, marketing, finance and management.

[We can modify the project capacity and project cost as per your requirement. We can also prepare project report on any subject as per your requirement.]



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MOSQUITO REPELLENT MOULDS



Introduction

Mosquito repellents are substances that are designed to make surfaces unpleasant or unattractive to mosquitos. They typically contain an active ingredient that repels mosquitos as well as secondary ingredients, which aid in delivery and cosmetic appeal. They are available in many forms, from creams to lotions to oils, but are most often sold as aerosol products.

Mosquito control manages the population of mosquitoes to reduce their damage to human health, economies, and enjoyment. Mosquito control is a vital public-health practice throughout the world and especially in the tropics because mosquitoes spread many diseases, such as malaria and the Zika virus.

Mode of Action

Most repellent chemicals work by interfering with the mosquito's homing system. This homing system, located on the antennae, is made up of a number of chemical receptors. Research has shown that these chemical receptors are activated by lactic acid, which naturally evaporates from the skin of warm-blooded animals. The mosquitos have the innate ability to follow the lactic acid emissions to their source. However, when a repellent ingredient such as DEET is applied to the skin, it also evaporates. It is thought that the chemical inhibits the binding of the lactic acid to the mosquito's chemical receptors. This essentially "hides" the protected person from the mosquito. Since the active ingredient must evaporate from the surface to work, the repellent activity lasts for a limited time.

Ingredients

some of the important ingredients of Mosquito Repellent include – Polypropylene, glass filled nylon.

Description of Mosquito Repellent Machine

Main Machinery for Mosquito Repellent includes the following:

- Injection Moulding Machine
- Packaging machine (Automatic/ Normal)

These Machines are used to produce Mosquito repellent from different types of raw material. With the help of this machine the work of mixing, formulation & packaging completes in a very short span.

Mosquito Repellent Market Analysis

Mosquito Repellent Market is expected to garner \$4.8 billion by 2022, registering a CAGR of 7.7 % during the forecast period 2016 - 2022.

Wide variety of chemical and natural ingredient based mosquito repellents are being used to keep the mosquitoes away and prevent mosquito-borne diseases such as malaria, dengue, chikungunya, yellow fever, Zika virus, and others.

Popularly used chemical ingredients in the preparation of mosquito repellents include diethyl carbonate, ethyl hexane diol, N-diethyl-3-methylbenzamide (DEET), and diethyl phthalate. Moreover, natural substances such as Lemon Eucalyptus Oil, Lavender, Cinnamon Oil, Soybean Oil and others are used in herbal repellents. Adoption of such natural ingredients based mosquito repellents is increasing to avoid problems such as skin rashes, allergies and others.

The world mosquito repellent market is expected to register notable growth in the near future attributed to rise in incidence of mosquito-borne diseases and global warming, which facilitates breeding of mosquitoes. Other factors that drive the market are rising health awareness, government initiatives for mosquito control, and affordable cost of repellents. However, presence of toxic chemicals, such as DEET, in various mosquito repellent products causes ill

effects on health, which is likely to restrain the growth of this market. Huge opportunities prevail for the world mosquito repellent market owed to rising demand for plant based repellents and increasing penetration in untapped markets of rural regions.

Mosquito Repellent Manufacturing Process

- Take the different types of plastic granules.
- Put the granules in the moulding machine with liquid chemicals.
- After that the mould gets heated up and the plastic converts into the desired shapes.
- Now, they are cooled down from the mould and kept separately.
- Packaging & transportation of goods.

Machinery & Equipment's required:

Name	Cost
Injection Moulding Machine	12,00,000
Packaging machine	2,00,000
Total	14,00,000

❖ Cost of the machine is exclusive of GST & value of the machine varies with the change in batch size.

Land & Building required:

Land required 800-1200 Square Feet (approx.)

Approximate rent for the same is Rs. 20000- 24000 per month.

Labour Requirement:

3-4 Manpower is required for the Mosquito Repellent unit.

Includes:

1 skilled Labour

2-3 Unskilled Labour

Raw Material Requirement of Mosquito Repellent Moulding

❖ Polypropylene

❖ Glass Filled Nylon

Average raw material cost per KG: Rs. 93-100

Mosquito Repellent License & registration

For Proprietor:

- Obtain the GST registration.
- Fire/ Pollution Registration as required.
- Choice of a Brand Name of the product and secure the name with Trademark if required.

Implementation Schedule

S.N.	Activity	Time Required (in Months)
1	Acquisition Of premises	1
2	Construction (if Applicable)	1- 2 Months
3	Procurement & installation of Plant & Machinery	1
4	Arrangement of Finance	1
5	Requirement of required Manpower	1
	Total time Required (some activities shall run concurrently)	2-3 Months

PROJECT AT A GLANCE

- 1** Name of the Entrepreneur **XX**
Constitution (legal Status)
- 2** : **XX**
- 3** Father's/Spouce's Name **XX**
- 4** Unit Address :
- Taluk/Block: **XX**
District : **XX**
Pin:
E-Mail : **XX**
Mobile **XX**
- 5** Product and By Product : Mosquito Repellent Moulds
Name of the project / business
- 6** activity proposed :
- 7** Cost of Project : **Rs.** 17.52
- 8 Means of Finance**
- Term Loan **Rs.** 15.77 Lacs
25% of 17.52 Lacs
- KVIC Margin Money **Rs.** (4.38 Lacs)
- Own Capital **Rs.** 2.25 Lacs
- 9** Debt Service Coverage Ratio :
- 10** Pay Back Period : 5 years
- 11** Project Implementation Period : 6 months
- 12** Employment :
- 13** Power Requirement : 20 KW connection
- 14** Major Raw materials : polypropylene, Glass
Field Nylon
- 15** Estimated Annual Sales Turnover : 44 Lacs (at 50% capacity)
- 16** Detailed Cost of Project & Means of Finance

COST OF PROJECT

(Rs. In Lacs)

Particulars	Amount
Land Building & Civil Work	-
Plant & Machinery	16.52

MEANS OF FINANCE

Furniture & Fixtures	1.00
Pre-operative Expenses	
Contingencies	
Working Capital Requirement	5.00
Total	22.52

Particulars	Amount
Own Contribution	2.25
Bank Finance	15.77
working capital from bank	4.50
Total	22.52

FINANCIAL ASSISTANCE REQUIRED

Term Loan of Rs. 15.77 Lacs and Working Capital limit of Rs. 4.5 Lacs

COST OF PROJECT

PARTICULARS	AMOUNT	AMOUNT	AMOUNT
Building Civil Work		10.00%	90.00%
Plant & Machinery	16.52	1.65	14.87
Furniture & Fixtures and Other Assets	1.00	0.10	0.90
Working capital	5.00	0.50	4.50
Total	22.52	2.35	20.27

MEANS OF FINANCE

PARTICULARS	AMOUNT
Own Contribution	2.25
Bank Loan	15.77
Working capital Limit	4.50
Total	22.52

COMPUTATION OF PRODUCTION OF Mosquito Repellent Moulds

Items to be Manufactured

Mosquito Repellent Moulds

machine capacity	200 Piece per hour
machine capacity per day	1600 Piece
machine capacity per annum	384000 Piece

1 piece of repellent consists	30.00 grams
total raw materaila required	11,520 KG
wastage	5.00%
Final Raw material requirement	12,126.32 KG

Production of Mosquito Repellent Moulds

Production	Capacity	Pieces
1st year	50%	192,000
2nd year	53%	203,520
3rd year	55%	211,200
4th year	58%	222,720
5th year	60%	230,400

Raw Material Cost			
Year	Capacity Utilisation	KG	Amount (Rs. in lacs)
1st year	50%	100.00	6.06
2nd year	53%	101.00	6.49
3rd year	55%	102.00	6.80
4th year	58%	103.00	7.24
5th year	60%	104.00	7.57

<u>COMPUTATION OF SALE</u>					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Op Stock	-	16,000	16,960	17,600	18,560
Production	192,000	203,520	211,200	222,720	230,400
Less : Closing Stock	16,000	16,960	17,600	18,560	19,200
Net Sale	176,000	202,560	210,560	221,760	229,760
sale price per piece	25.00	25.00	25.50	26.00	26.50
Sales (in Lacs)	44.00	50.64	53.69	57.66	60.89

BREAK UP OF LABOUR CHARGES

Particulars	Wages	No of	Total
	Per Month	Employees	Salary
Skilled	18000	1	18000
Unskilled	15000	3	45000
Total Salary Per Month			63000
Total Annual Labour Charges	(in Lacs)		7.56

BREAK UP OF STAFF Charges

Particulars	Wages	No of	Total
	Per Month	Employees	Salary
Accountant	20000	1	20000
Supervisor	18000	1	18000
Helper	8000	1	8000
Total Salary Per Month			46000
Total Annual Labour Charges	(in Lacs)		5.52

Utility Charges at 100% capacity (per month)

Particulars	value	Description
Power connection required	20	KWH
consumption per day	160	units
Consumption per month	3200	units
Rate per Unit	7	Rs.
power Bill per month	22400	Rs.

PROJECTED PROFITABILITY STATEMENT					
	-	-	-		
PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation %	50%	53%	55%	58%	60%
<u>SALES</u>					
Gross Sale					
Laundry soap	44.00	50.64	53.69	57.66	60.89
Total	44.00	50.64	53.69	57.66	60.89
<u>COST OF SALES</u>					
Raw Mateiral Consumed	6.06	6.49	6.80	7.24	7.57
Elecricity Expenses	2.69	2.96	3.25	3.58	3.94
Depriciation	2.58	2.20	1.87	1.59	1.36
Consumables	1.76	2.03	2.15	2.31	2.44
Repair & maintenace	1.98	2.28	2.42	2.59	2.74
other direct expenses	2.42	2.79	2.95	3.17	3.35
Packaging Charges	2.64	3.04	3.22	3.46	3.65
Labour	7.56	8.32	9.15	10.06	11.07
Cost of Production	27.69	30.09	31.81	34.01	36.11
Add: Opening Stock /WIP	-	2.31	2.51	2.65	2.83
Less: Closing Stock /WIP	2.31	2.51	2.65	2.83	3.01
Cost of Sales	25.38	29.89	31.67	33.83	35.93
GROSS PROFIT	18.62	20.75	22.02	23.83	24.95
salary to staff	5.52	6.07	6.68	7.35	7.71
Interest on Term Loan	1.56	1.47	1.19	0.91	0.13
Interest on working Capital	0.50	0.50	0.50	0.50	0.50
Rent	2.88	3.17	3.48	3.83	4.22
Selling & adm Exp	3.08	3.54	3.76	4.04	4.26

TOTAL	13.54	14.75	15.61	16.63	16.82
NET PROFIT	5.08	6.00	6.41	7.20	8.13
Taxation	0.02	0.21	0.29	0.46	0.65
PROFIT (After Tax)	5.07	5.79	6.12	6.75	7.48

PROJECTED BALANCE SHEET

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
<u>Liabilities</u>					
Capital					
opening balance		3.57	5.36	7.38	9.93
<i>Add:- Own Capital</i>	2.25				
Add:- Retained Profit	5.07	5.79	6.12	6.75	7.48
Less:- Drawings	3.75	4.00	4.10	4.20	5.25
Closing Blance	3.57	5.36	7.38	9.93	12.16
Subsidy Reserve	4.38	4.38	4.38	-	-
Term Loan	14.51	11.99	9.47	2.57	-
Working Capital Limit	4.50	4.50	4.50	4.50	4.50
Sundry Creditors	0.25	0.27	0.28	0.45	0.47
Provisions & Other Liab	0.30	0.40	0.55	0.66	0.83
TOTAL :	27.51	26.90	26.56	18.11	17.96
<u>Assets</u>					
Fixed Assets (Gross)	17.52	17.52	17.52	17.52	17.52
Gross Dep.	2.58	4.77	6.65	8.24	9.60
Net Fixed Assets	14.94	12.75	10.87	9.28	7.92
FD of Subsidy	4.38	4.38	4.38		
Current Assets					
Sundry Debtors	2.75	4.64	5.59	3.60	3.81
Stock in Hand	3.07	3.59	3.78	4.04	4.27
Cash and Bank	2.37	1.54	1.93	1.18	1.96
TOTAL :	27.51	26.90	26.56	18.11	17.96

PROJECTED CASH FLOW STATEMENT

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
<u>SOURCES OF FUND</u>					
Own Margin	2.25				
Net Profit	5.08	6.00	6.41	7.20	8.13
Depreciation & Exp. W/off	2.58	2.20	1.87	1.59	1.36
Increase in Cash Credit	4.50	-	-	-	-
Increase In Term Loan	15.77	-	-	-	-
Increase in Creditors	0.25	0.02	0.01	0.17	0.02
Increase in Provisions & Oth lib	0.30	0.10	0.15	0.11	0.17
increase in subsidy	4.38				
TOTAL :	35.11	8.32	8.45	9.08	9.68
<u>APPLICATION OF FUND</u>					
Increase in Fixed Assets	17.52				
Increase in Stock	3.07	0.52	0.20	0.26	0.23
Increase in Debtors	2.75	1.89	0.95 -	1.99	0.20
Repayment of Term Loan	1.26	2.52	2.52	6.90	2.57
Increase in FD	4.38	-	-		
Drawings	3.75	4.00	4.10	4.20	5.25
Taxation	0.02	0.21	0.29	0.46	0.65
TOTAL :	32.74	9.14	8.06	9.83	8.90
Opening Cash & Bank Balance	-	2.37	1.54	1.93	1.18
Add : Surplus	2.37 -	0.83	0.39 -	0.75	0.78
Closing Cash & Bank Balance	2.37	1.54	1.93	1.18	1.96

COMPUTATION OF CLOSING STOCK & WORKING CAPITAL

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
<u>Finished Goods</u>					
	2.31	2.51	2.65	2.83	3.01
<u>Raw Material</u>					
	0.76	1.08	1.13	1.21	1.26
Closing Stock	3.07	3.59	3.78	4.04	4.27

COMPUTATION OF WORKING CAPITAL REQUIREMENT

TRADITIONAL METHOD					
Particulars	Amount	Own Margin		Bank Finance	
Finished Goods & Raw Material	3.07				
Less : Creditors	0.25				
Paid stock	2.81	10%	0.28	90%	2.53
Sundry Debtors	2.75	10%	0.28	90%	2.48
	5.56		0.56		5.01
WORKING CAPITAL LIMIT DEMAND (from Bank)				4.50	

2nd Method		
PARTICULARS	1st year	2nd year
Total Current Assets	8.19	9.77
Other Current Liabilities	0.55	0.67
Working Capital Gap	7.63	9.10
Min Working Capital		
25% of WCG	1.91	2.28
Actual NWC	3.13	4.60
item III - IV	5.72	6.83
item III - V	4.50	4.50
MPBF (Lower of VI & VII)	4.50	4.50

3rd Method		
PARTICULARS	1st year	2nd year
Total Current Assets	8.19	9.77
Other Current Liabilities	0.55	0.67
Working Capital Gap	7.63	9.10
Min Working Capital		
25% of Current Assets	2.05	2.44
Actual NWC	3.13	4.60
item III - IV	5.59	6.66
item III - V	4.50	4.50
MPBF (Lower of VI & VII)	4.50	4.50

COMPUTATION OF DEPRECIATION

Description	Plant & Machinery	Furniture	TOTAL
Rate of Depreciation	15.00%	10.00%	
Opening Balance	-	-	-
Addition	16.52	1.00	17.52
Total	16.52	1.00	17.52
Less : Depreciation	2.48	0.10	2.58
WDV at end of Year	14.04	0.90	14.94
Additions During The Year	-	-	-
Total	14.04	0.90	14.94
Less : Depreciation	2.11	0.09	2.20
WDV at end of Year	11.94	0.81	12.75
Additions During The Year	-	-	-
Total	11.94	0.81	12.75
Less : Depreciation	1.79	0.08	1.87
WDV at end of Year	10.15	0.73	10.87
Additions During The Year	-	-	-
Total	10.15	0.73	10.87
Less : Depreciation	1.52	0.07	1.59
WDV at end of Year	8.62	0.66	9.28
Additions During The Year	-	-	-
Total	8.62	0.66	9.28
Less : Depreciation	1.29	0.07	1.36
WDV at end of Year	7.33	0.59	7.92
s	-	-	-
Total	7.33	0.59	7.92

Less : Depreciation	1.10	0.06	1.16
WDV at end of Year	6.23	0.53	6.76
Less : Depreciation	0.93	0.05	0.99
WDV at end of Year	5.30	0.48	5.77
Less : Depreciation	0.79	0.05	0.84
WDV at end of Year	4.50	0.43	4.93

CALCULATION OF D.S.C.R

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
CASH ACCRUALS	7.64	7.99	7.99	8.34	8.84
Interest on Term Loan	1.56	1.47	1.19	0.91	0.13
Total	9.20	9.46	9.18	9.25	8.97
<u>REPAYMENT</u>					
Instalment of Term Loan	1.26	2.52	2.52	6.90	2.57
Interest on Term Loan	1.56	1.47	1.19	0.91	0.13
Total	2.82	3.99	3.71	7.81	2.70
DEBT SERVICE COVERAGE RATIO	3.26	2.37	2.47	1.18	3.32
AVERAGE D.S.C.R.	2.52				

REPAYMENT SCHEDULE OF TERM LOAN

Interest 11.00%

Year	Particulars	Amount	Addition	Total	Interest	Repayment	Closing Balance
1st	Opening Balance						
	1st month	-	15.77	15.77	-	-	15.77
	2nd month	15.77	-	15.77	0.14	-	15.77
	3rd month	15.77	-	15.77	0.14	-	15.77
	4th month	15.77	-	15.77	0.14	-	15.77
	5th month	15.77	-	15.77	0.14	-	15.77
	6th month	15.77	-	15.77	0.14	-	15.77
	7th month	15.77	-	15.77	0.14	0.210	15.56
	8th month	15.56	-	15.56	0.14	0.210	15.35
	9th month	15.35	-	15.35	0.14	0.210	15.14
	10th month	15.14	-	15.14	0.14	0.210	14.93
	11th month	14.93	-	14.93	0.14	0.210	14.72
	12th month	14.72	-	14.72	0.13	0.210	14.51
					1.56	1.260	
2nd	Opening Balance						
	1st month	14.51	-	14.51	0.13	0.210	14.30
	2nd month	14.30	-	14.30	0.13	0.210	14.09
	3rd month	14.09	-	14.09	0.13	0.210	13.88
	4th month	13.88	-	13.88	0.13	0.210	13.67
	5th month	13.67	-	13.67	0.13	0.210	13.46
	6th month	13.46	-	13.46	0.12	0.210	13.25
	7th month	13.25	-	13.25	0.12	0.210	13.04
	8th month	13.04	-	13.04	0.12	0.210	12.83
	9th month	12.83	-	12.83	0.12	0.210	12.62
	10th month	12.62	-	12.62	0.12	0.210	12.41
	11th month	12.41	-	12.41	0.11	0.210	12.20
	12th month	12.20	-	12.20	0.11	0.210	11.99

				1.47	2.520	
3rd	Opening Balance					
	1st month	11.99	-	11.99	0.11	11.78
	2nd month	11.78	-	11.78	0.11	11.57
	3rd month	11.57	-	11.57	0.11	11.36
	4th month	11.36	-	11.36	0.10	11.15
	5th month	11.15	-	11.15	0.10	10.94
	6th month	10.94	-	10.94	0.10	10.73
	7th month	10.73	-	10.73	0.10	10.52
	8th month	10.52	-	10.52	0.10	10.31
	9th month	10.31	-	10.31	0.09	10.10
	10th month	10.10	-	10.10	0.09	9.89
	11th month	9.89	-	9.89	0.09	9.68
	12th month	9.68	-	9.68	0.09	9.47
				1.19	2.520	
4th	Opening Balance					
	1st month	9.47	-	9.47	0.09	9.26
	2nd month	9.26	-	9.26	0.08	9.05
	3rd month	9.05	-	9.05	0.08	8.84
	4th month	8.84	-	8.84	0.08	8.63
	5th month	8.63	-	8.63	0.08	8.42
	6th month	8.42	-	8.42	0.08	8.21
	7th month	8.21	-	8.21	0.08	8.00
	8th month	8.00	-	8.00	0.07	7.79
	9th month	7.79	-	7.79	0.07	7.58
	10th month	7.58	-	7.58	0.07	7.37
	11th month	7.37	-	7.37	0.07	7.16
	12th month(Subsidy adjusted)	7.16	-	7.16	0.07	2.57
				0.91	6.900	
5th	Opening Balance					
	1st month	2.57	-	2.57	0.02	2.36

2nd month	2.36	-	2.36	0.02	0.210	2.15
3rd month	2.15	-	2.15	0.02	0.210	1.94
4th month	1.94	-	1.94	0.02	0.210	1.73
5th month	1.73	-	1.73	0.02	0.210	1.52
6th month	1.52	-	1.52	0.01	0.210	1.31
7th month	1.31	-	1.31	0.01	0.210	1.10
8th month	1.10	-	1.10	0.01	0.210	0.89
9th month	0.89	-	0.89	0.01	0.210	0.68
10th month	0.68	-	0.68	0.01	0.210	0.47
11th month	0.47	-	0.47	0.00	0.210	0.26
12th month	0.26	-	0.26	0.00	0.258	-
				0.13	2.57	
DOOR TO DOOR		60	MONTHS			
MORATORIUM PERIOD		6	MONTHS			
REPAYMENT PERIOD		54	MONTHS			

Supplier Details:

HIKON H.K. Industries	Address: 3/23 kirti Nagar, industrial area, New Delhi- 110015.
Kanika Enterprises	Address: D-163, Flatted Factory Complex, Okhla, New Delhi – 1100020

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