

## HOT WATER BAGS / ICE BAGS

### Introduction:

Rubber moulded products find wide usage both in industrial applications and also as consumer items. Hot water bags and ice bags are the consumer items required in every day life. The raw materials are available indigenously. The BIS specification for hot water bags is IS -1867-1975 and that of ice bags is IS-3867-1966.

### Market Potential:

At present health sector in the country has been experiencing speedy development. With more and more emphasis on medicine and opening of hospitals/clinics both in urban as well as rural areas, the demand for hot water bags and ice bags is increasing many folds. In addition to the hospital/clinic requirements these items have become essential households' items as a safe guard to diseases that may occur. However, the market for hot water bags and ice bags is quality conscious and "Duck Bags" and "Hicks" are the reputed national brands producing these items. Therefore, it is important that the new units producing hot water bags and ice bags should immediately acquire quality trade mark for these items to enable them make healthy competition in the market.

### Plant Capacity:

The production basis for a typical tiny unit would be as under:

Working hours/day	: 8 (1 shift)
Working days in a year	: 300
Annual Production capacity	: Hot water bags: 40,000 Nos. Ice bags: 40,000 Nos.

The unit has been assumed to operate at 70%, 80% and 90% of its installed capacity in the first, second and third year and onwards of its operation.

### Raw Material:

The major raw materials and consumables required per month for production of hot water bags & ice bags are as follows. The procurement costs of these materials are to be considered at the prevailing market price.

1. Smoked sheet	:	1,200 kg.
2. Renacit 7	:	6 kg.
3. Precipitated calcium carbonate	:	1,000 kg.
4. Zinc oxide	:	125 kg.
5. Paraffin oil	:	35 kg.
6. Stearic acid	:	12 kg.
7. HSL Beads	:	20 kg.
8. Paraffin wax	:	12 kg.
9. Vulcavit F	:	15 kg.
10. Vulcavit thiuram	:	2 kg.
11. Sulphur	:	15 kg.
12. Colour	:	6 kg.
13. Mould releasing agents silicon emulsions etc.	:	1 kg.
14. Packing materials viz bags and Paper cartons.	:	L.S.

### Process:

A typical composition of rubber compound used for the manufacture of hot water bags/ice bags is as given below:

- |                                    |   |           |  |
|------------------------------------|---|-----------|--|
| 15. Smoked sheet                   | : | 100.0 kg. |  |
| 16. Renacit 7                      | : | 0.5 kg.   |  |
| 17. Precipitated calcium carbonate | : | 80.0 kg.  |  |
| 18. Zinc oxide                     | : | 10.0 kg.  |  |
| 19. Paraffin oil                   | : | 3.0 kg.   |  |
| 20. Stearic acid                   | : | 1.0 kg.   |  |
| 21. HSL Beads                      | : | 1.5 kg.   |  |
| 22. Paraffin wax                   | : | 1.0 kg.   |  |
| 23. Vulcacit F                     | : | 1.2 kg.   |  |
| 24. Vulcacit thiuram               | : | 0.12 kg.  |  |
| 25. Sulphur                        | : | 1.2 kg.   |  |
| 26. Colour                         | : | 0.5 kg.   |  |
27. Curing at 150°C for 10 minutes
28. The major process steps involved are as follows:
29. Smoked sheet and Renacit 7 are masticated on mixing mill and left for maturation for a period of 24 hours.
30. Zinc oxide and stearic acid are then mixed to the above compound mix.
31. Then Precipitated Calcium Carbonate, Paraffin oil HSL beads and Paraffin Wax are mixed.
32. Vulcacit F and thiuram are mixed with the compound mix.
33. Lastly sulphur and colour are added and the mass is left to mature for 8 hours.
34. The rubber compound sheets are then prepared and transferred to working table. According to pre-determined size bags, pieces are cut from the sheet with the help of pattern. The two sides of the bags are joined together and cured in a hydraulic press.
- 35. Machinery:**
36. The major equipment required by the unit for producing hot water bags and ice bags are as follows:
- |  |       |        |
|--|-------|--------|
| 37. Rubber mixing mill with chilled cast iron rolls, 12" x 30" fitted with 30 HP motor reduction gear box, complete with all accessories             | 38. : | 1 No.  |
| 39. Hydraulic press 17" x 17" 4 day light, steam heated 30 tonnes max. pressing power, ram stroke 11' hydraulic arrangement operated with 1 HP motor | 40. : | 2 Nos. |
| 41. Hydraulic press 14" x 14" 4 day light, steam heated 20 tonnes max. pressing power, hydraulic arrangement with 1 HP motor                         | 42. : | 1 No.  |
| 43. Steam heated press, hand operated size 14" x 14"   | 44. : | 1 No.  |
| 45. Boiler cross-tube, vertical capacity 300 lbs. per hour   | 46. : | 1 No.  |
| 47. Weighing machine   | 48. : | 1 No.  |
| 49. Testing & quality control equipment  | 50. : | 1 Set  |
| 51. Moulds and hand tools  | 52.   |        |

**Location:**

The suitable locations for the project may be –

- Guwahati in Assam.
- Agartala in Tripura

**Infrastructure:**

The basic infrastructure required are:

Land	:	2,500 sq.ft.
Building	:	1,200 sq.ft.
Power	:	110 Kwh/day
Water	:	2,000 KL. Per day.
Manpower	:	12 Nos. (Administrative (4), Factory Staff (8),

**Total Capital Requirement:**

The total capital requirement including fixed capital and working capital is estimated at Rs 26.70 lakhs as follows. Of this, the project cost comprising fixed capital and margin money on working capital is Rs 23.60 lakhs.

<b>A. Fixed Capital:</b>		<b>(Rs in lakh)</b>
Land		Rented
Building		Rented
Machinery		15.00
Miscellaneous fixed assets		5.00
Preliminary and pre-operative expenses		<u>1.50</u>
	<b>Total (A)</b>	<b>21.50</b>
		=====
<b>B. Working Capital:</b>		
Raw materials & Consumables	1 month	1.40
Finished goods	2 weeks	1.00
Working expenses	1 month	0.80
Receivables	2 weeks	<u>2.00</u>
	<b>Total (B)</b>	<b>5.20</b>
		=====
	<b>Total (A)+(B)</b>	<b>26.70</b>

Note: Working capital may be financed as:

Bank Finance	.....	Rs 3.10 lakhs
Margin Money	.....	<u>Rs 2.10 lakhs</u>
		<b>Rs 5.20 lakhs</b>
		=====

**Means of Finance:**

The project cost of Rs 23.60 lakhs including margin money for working capital may be financed as under:

Promoter's contribution (35%)	....	Rs 8.30 lakhs
Term Loan (65%)	....	<u>Rs 15.30 lakhs</u>
		<b>Rs 23.60 lakhs</b>
		=====

**Operating Expenses:**

The annual operating expenses are estimated at Rs 30.60 lakhs (100% capacity utilization) as given below:

		<b>(Rs in lakhs)</b>
1.	Raw materials & consumable	15.00
2.	Utilities	0.90
3.	Wages & Salaries	7.00
4.	Overheads	1.20
5.	Selling expenses @ 5% on annual sales	2.50
6.	Interest on term loan (13.50%)	2.10
7.	Interest on Bank Finance for working capital (12.75%)	0.40
8.	Depreciation @10%	<u>1.50</u>
		<b>30.60</b>
		=====

**Sales Realisation:**

The basis on which average ex-factory sales realization from the sale of hot water bags and ice bags at 100% capacity utilization is as follows:

Items	Qty./ annum (Nos.)	Unit Sales Price (Rs)	Total Sales Per annum (Rs)
Hot water bags	40,000	50/bag	20,00,000
Ice bags	40,000	40/kg	16,00,000
<b>TOTAL</b>			<b>36,00,000</b>

**Profitability :**

Based on the sales realization and the operating expenses, the profit would be Rs 5.40 lakhs per year (100% capacity utilization). This works out to a return on investment of 25%. The plant will break even at 60% of the rated capacity.

**Highlight:**

The major highlights of the project are as follows:

Total capital requirement	:	Rs 26.70 lakhs
Promoter's contribution	:	Rs 8.30 lakhs
Annual sales realization (100% cap.)	:	Rs 36.00 lakhs
Annual operating expenses (100% cap.)	:	Rs 30.60 lakhs
Annual profit (pre-tax)	:	Rs 5.40 lakhs
Pre-tax Return on Sales	:	17%
Break Even Point	:	60%
No.of persons employed	:	12

**List of Machinery Suppliers:**

1. M/S Indian Expeller Works,  
A- Naroda Industrial Estate,  
Naroda,  
Ahmedabad -2
2. M/s West Coast Industries,  
Karithimanahalli,  
Mysore Road, Cross,  
Bangalore- 26
3. M/s Santosh Industries,  
A-1, Sone Udyog.  
Parsi Panchayat Marg,  
Andheri (East)  
Mumbai – 69
4. M/s Modern Engineering Works,  
310, Jogani Industrial Estate,  
541, Senapti Bapat Marg,  
Dadar,  
Mumbai – 28

**List of Support Organization:**

1. M/s ICI India Pvt. Ltd.  
P.O Box No. 310, Crescent House,  
Ballard Este,  
Mumbai
2. M/s Kamani Metallic Oxide Pvt. Ltd.  
Nicols Road, Kamani Chambers,  
Mumbai -1.