

HOT WATER BAGS OR ICE BAGS

1. INTRODUCTION:

A hot water bottle is a container filled with hot water and sealed with a stopper, used to provide warmth, typically while in bed, but also for the application of heat to a specific part of the body. Hot water bags, Ice water bags are widely used in various therapeutic / medical applications. Besides this, these health care products are also useful as general household items. All these health care products are carefully manufactured in an ultra-hygienic condition - as per the international norms.

2. PRODUCT & ITS APPLICATION:

Hot water or Ice bags are used as a Natural Body Warmer and also for Heat Therapy Treatment. They are useful In Case Of – Joint Pains, Muscular Cramps, Menstrual Pains, Muscle Pull, Stomach and Back Aches, Arthritic and Rheumatic Pains, Bed Warmer, Sports Aches and Pains, Soothing Children and Elders.

3. DESIRED QUALIFICATIONS FOR PROMOTER:

Graduate in any graduate.

4. INDUSTRY LOOK OUT AND TRENDS

The Global Hot Water Bags market consists of different international, regional, and local vendors. The market competition is foreseen to grow higher with the rise in technological innovation and M&A activities in the future. Moreover, many local and regional vendors are offering specific application products for varied

end-users. The new vendor entrants in the market are finding it hard to compete with the international vendors based on quality, reliability, and innovations in technology.

5. MARKET POTENTIAL AND MARKETING ISSUES, IF ANY:

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.

6. RAW MATERIAL REQUIREMENTS:

Hot water bottles are meant to contain very hot fluids and also supposed to be in contact with human skin. It is therefore of the utmost importance to ensure, mainly through standards and regulations, that the closing and welding is stable enough to prevent burns, but also to make sure that the bottle's chemical components are not dangerous for human health. More generally, it is crucial to certify and assure that hot water bottles, whether manufactured, sold or imported, are safe. For instance, the United Kingdom defined British Standards for hot water bottles to regulate their manufacture and sale as well as to ensure their compliance with all safety standards. The British Standards BS 1970 and BS 1970:2012 (updated version) define, for instance, the bottles' filling characteristics, safety instructions, allowed materials and components as well as testing methods such as tensile tests. Most regulations applied to a country are

generally harmonized in order to be applied and applicable in a larger area, such as a trade zone.

However, the major raw materials and consumables required per month for production of hot water bags & ice bags for our project 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. Vulcanite F: 15 kg.
10. Vulcacit thiuram: 2 kg.
11. Sulphur: 15 kg.
12. Color: 6 kg.
13. Mould releasing agents' silicon: 1 kg.
14. Emulsions etc.
14. Packing materials viz bags and Paper cartons.

7. MANUFACTURING PROCESS:

The above raw materials are taken for curing at 150 degree C for 10 minutes. The major process steps involved are as follows. Smoked sheet and Renacit 7 are masticated on mixing mill and left for maturation for a period of 24 hours. Zinc oxide and stearic acid are then mixed to the above compound mix. Then Precipitated Calcium Carbonate, Paraffin oil HSL beads and Paraffin Wax are mixed. Vulcacit F and thiuram are mixed with the compound mix.

Lastly sulphur and color are added and the mass is left to mature for 8 hours. 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.

8. MANPOWER REQUIREMENT:

The enterprise requires 8 employees as detailed below:

Sr. No.	Designation of Employees	Salary Per Person	Monthly Salary ₹	Number of employees required				
				Year-1	Year-2	Year-3	Year-4	Year-5
1	Machine Operators	12,000	12000.00	1	1	1	1	1
2	Helpers	8,000	24000.00	3	3	3	4	4
3	Production supervisor	15,000	15000.00	1	1	1	1	1
4	Accounts/Stores Asst	12,500	12500.00	1	1	1	1	1
5	Office Boy	9,000	9000.00	1	1	1	1	1
	Total		72500.00	7	7	7	8	8

9. IMPLEMENTATION SCHEDULE:

The project can be implemented in 3 months' time as detailed below:

Sr. No.	Activity	Time Required (in months)
1	Acquisition of premises	1.00
2	Construction (if applicable)	1.00
3	Procurement & installation of Plant & Machinery	1.00
4	Arrangement of Finance	2.00
5	Recruitment of required manpower	1.00
	Total time required (some activities shall run concurrently)	3.00

10. COST OF PROJECT:

The project shall cost ₹ 32.58 lacs as detailed below:

Sr. No.	Particulars	₹ in Lacs
1	Land	0.00
2	Building	0.00

3	Plant & Machinery	18.35
4	Furniture, Electrical Installations	1.00
5	Other Assets including Preliminary / Pre-operative expenses	4.59
6	Working Capital	8.64
	Total	32.58

11. MEANS OF FINANCE:

Bank term loans are assumed @ 75 % of fixed assets.

Sr. No.	Particulars	₹ in Lacs
1	Promoter's contribution	8.14
2	Bank Finance	24.43
	Total	32.58

12. WORKING CAPITAL CALCULATION:

The project requires working capital of ₹ 8.64 lacs as detailed below:

Sr. No.	Particulars	Gross Amt	Margin %	Margin Amt	Bank Finance
1	Inventories		0.25	1.08	3.24
2	Receivables	2.16	0.25	0.54	1.62
3	Overheads	2.16	100%	2.16	0.00
4	Creditors	-		0.00	0.00
	Total	8.64		3.78	4.86

13. LIST OF MACHINERY REQUIRED:

A detail of important machinery is given below: Power Requirement: 50 HP

Sr. No.	Particulars	UOM	Qty	Rate (₹)	Value (₹ in Lacs)
	Plant & Machinery / equipments				
a)	Main Machinery				
i.	Rubber mixing mill	NOS.	1	25000 0	2.50
ii.	Hydraulic press 17" x 17"	Nos	1	70000 0	7.00
iii.	Hydraulic press 14" x 14"	Nos	2	62000 0	6.20
b)					
i.	Steam heated press	Nos	1	145,00 0	1.45
ii.	Boiler, weighing machine, etc.	NOS.	1	21000	1.20
	<i>sub-total Plant & Machinery</i>				18.35
	Furniture / Electrical installations				
a)	Office furniture	LS	1	10000	0.10
b)	Stores Almirah	LS	1	5,000	0.05
c)	Computer & Printer	L. S.	1	10000	0.85
	<i>sub total</i>				1.00
	Other Assets				
a)	preliminary and preoperative				4.59
	<i>sub-total Other Assets</i>				4.59
	Total				23.94

All the machines and equipment are available from local manufacturers. The entrepreneur needs to ensure proper selection of product mix and proper type of machines and tooling to have modern and flexible designs. It may be worthwhile to look at reconditioned imported machines, dies and tooling. Some of the machinery and dies and tooling suppliers are listed here below:

- Kamdhenu Agro Machinery

Plot No. 6, Near Power House,
Wathoda Road, Wathoda
Nagpur - 440035
Maharashtra, India

- Future Industries Private Limited
Shed No. 15, Ambica Estate,
Corporation Municipal Plot,
Opposite Sadvichar Hospital,
Naroda, Ahmedabad - 382330,
Gujarat, India

- The Global Pharma Equipments
Star Industrial Estate,
D-32, Naik Pada,
Near Hanuman Mandir,
Opposite Dwarka Industrial Estate,
Vasai East, Vasai - 401208,
Maharashtra, India

14. PROFITABILITY CALCULATIONS:

Sr. No.	Particulars	UOM	Year-1	Year-2	Year-3	Year-4	Year-5
1	Capacity Utilization	%	60%	70%	80%	90%	100%
2	Sales	₹. In Lacs	25.92	30.24	34.56	38.88	43.20
3	Raw Materials & Other direct inputs	₹. In Lacs	15.04	17.55	20.06	22.56	25.07
4	Gross Margin	₹. In Lacs	10.88	12.69	14.50	16.32	18.13
5	Overheads except interest	₹. In Lacs	6.38	6.78	7.58	7.82	7.98
6	Interest	₹. In Lacs	2.44	2.44	1.63	1.22	0.98

		Lacs					
7	Depreciation	₹. In Lacs	12.85	9.18	6.42	4.59	4.13
8	Net Profit before tax	₹. In Lacs	-10.79	-5.71	-1.13	2.69	5.04

The basis of profitability calculation:

The growth of selling capacity will be increased 10% per year. (This is assumed by various analysis and study; it can be increased according to the selling strategy.)

Energy Costs are considered at Rs 7 per Kwh and fuel cost is considered at Rs. 65 per litre. The depreciation of plant is taken at 10-12 % and Interest costs are taken at 14 -15 % depending on type of industry.

15. BREAKEVEN ANALYSIS:

The project shall reach cash break-even at 49.41 % of projected capacity as detailed below:

Sr. No.	Particulars	UOM	Value
1	Sales at full capacity	₹. In Lacs	43.20
2	Variable costs	₹. In Lacs	25.07
3	Fixed costs incl. interest	₹. In Lacs	8.96
4	$BEP = FC/(SR-VC) \times 100$ =	% of capacity	49.41%

16. STATUTORY / GOVERNMENT APPROVALS

As per the allocation of business rules under the Constitution, labour is in the concurrent list of subjects. It is dealt with by the MOLE at the Central and Departments of Labour under State Governments in respective States / UTs. The MOLE has enacted workplace safety and health statutes concerning workers in the manufacturing sector, mines, ports and docks and in construction sectors.

Further, other Ministries of the Government of India have also enacted certain statutes relating to safety aspects of substances, equipment, operations etc. Some of the statutes applicable in the manufacturing sector are discussed below:

The Static and Mobile Pressure Vessels (Unfired) Rules, 1981

These (SMPV) Rules are notified under the Explosives Act, 1884. These rules regulate storage, handling and transport of compressed gases. These rules stipulate requirements regarding construction and fitments, periodic testing, location, fire protection, loading and unloading facilities, transfer operations etc. in respect of pressure vessels whose water capacity exceeds one thousand litres. These rules are enforced by the Chief Controller of Explosives under the Ministry of Industry and Commerce, Govt. of India (PESO).

The Manufacture, Storage and Import of Hazardous Chemicals Rules (MSIHC), 1989

These MSIHC Rules are notified under the Environment (Protection) Act, 1986. These rules are aimed at regulating and handling of certain specified hazardous chemicals. The rules stipulate requirements regarding notification of site, identification of major hazards, taking necessary steps to control major accident, notification of major accident, preparation of safety report and on-site emergency plan; prevention and control of major accident, dissemination of information etc. These rules are notified by the Ministry of Environment and Forests (MOEF) but enforced by the Inspectorates of Factories of respective States / UTs in the manufacturing sector.

The Factories Act, 1948 and State Factories Rules

The Factories Act, 1948 is very comprehensive legislation dealing with the matters of safety, health and welfare of workers in factories. The Act places duties on the occupier to ensure safety, health and welfare of workers at work. Some of the salient provisions of the Act include:

- Guarding of machinery
- Hoists and Lifts; Lifting Machines and Appliances
- Revolving Machinery
- Pressure Plant
- Excessive Weight
- Protection of Eyes
- Precautions against dangerous fumes, gases etc.
- Explosive or inflammable dust, gas etc.
- Precautions in case of fire
- Safety of buildings and machinery
- Permissible limits of exposure of chemical and toxic substances
- Entrepreneur may contact State Pollution Control Board where ever it is applicable.

17. BACKWARD AND FORWARD INTEGRATIONS

Chemical companies often become integrated and undergo other activities outside the chemical industry. Increased competition prompts many companies to reduce supply chain costs by looking outside the chemical sector at suppliers and customers. While most companies within the chemicals sector primarily produce chemicals, some companies also conduct other manufacturing activities. The exact proportion of chemicals sector companies that are integrated with other sector activities is unknown, but many companies actively seek vertical integration. Many manufacturers pursue vertical integration to secure suppliers and customers for their products.

Mergers and acquisitions are a common way for companies to undertake new chemical ventures. By purchasing their chemical suppliers, some manufacturers secure future chemical feedstock for their products or other chemicals that they

use in manufacturing. The company making the purchase obtains valuable expertise and equipment. Some mining and petrochemical production is more cost-effective when integrated within a chemical company.

Energy and feedstock costs are often a significant expense for chemical companies. Integrating chemical production with activities that secure supplies of chemical feedstock and energy is relatively common as chemical companies grow. Chemical companies are located near mines, oil fields, ammonia factories and water supplies. This reduces transportation costs and increases the reliability of supplies by reducing the distance between feedstock and the factory.

Some companies, such as Sino-Coking Coal and Coke Chemical Industries Incorporated, own their mines. BHP Billiton operates a broad range of mines and is primarily a mining company. It does, however, also produce petrochemical feedstock for the chemical industry and therefore operates within the chemical industry as well. These companies technically operate within both the chemical and mining industries in their normal business operations.

Integrating a chemical company with other activities provides several direct benefits for the company and is becoming increasingly common. High energy costs necessitate greater control of energy resources and minimal reliance on expensive transportation. Chemical companies experience volatile profitability due to fluctuations in feedstock and energy expenses. Some companies control this volatility through careful supply chain management and by charging supply surcharges. Actively researching and developing alternative feedstock and energy supplies helps the company reduce costs.

Vertical integration supports these activities by eliminating redundant activities at multiple companies and increasing efficiency. By consolidating activity among

multiple, similar operations, chemical companies achieve cost savings that contribute to higher profitability. End products are often very profitable, and some chemical companies purchase their former customers to take advantage of the marked-up prices of products further along in the supply chain.

Integration may become more common for many chemical companies as competition strengthens and traditional feedstock becomes more expensive. Market demand for chemical feedstock increases as emerging market economies grow and result in increased consumer spending around the world.

18. TRAINING CENTERS AND COURSES

There is no such training required to start this business but, basic chemical bachelor's degree is plus point for enterpriser. Promoter may train their employees in such specialized institutions to grow up the business. There are few specialised Institutes provide degree certification in chemical Technology, few most famous and authenticate Institutions are as follows:

1. Department of chemical LD college of engineering

No.120, Circular Road, University Area, Navrangpura,
Opposite Gujarat University, Ahmedabad, Gujarat 380015

2. MIT College of chemical Engineering, **Pune**
Gate.No.140, Raj Baugh Educational Complex,
Pune Solapur Highway,
Loni Kalbhor, Pune - 412201
Maharashtra, India

Udyamimitra portal (link : www.udyamimitra.in) can also be accessed for handholding services viz. application filling / project report preparation, EDP, financial Training, Skill Development, mentoring etc.

Entrepreneurship program helps to run business successfully is also available from Institutes like Entrepreneurship Development Institute of India (EDII) and its affiliates.

Disclaimer:

Only few machine manufacturers are mentioned in the profile, although many machine manufacturers are available in the market. The addresses given for machinery manufacturers have been taken from reliable sources, to the best of knowledge and contacts. However, no responsibility is admitted, in case any inadvertent error or incorrectness is noticed therein. Further the same have been given by way of information only and do not carry any recommendation.

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