

## PACKAGED DRINKING WATER/ MINERAL WATER

PRODUCT CODE	: 224103008
QUALITY AND STANDARDS	: ISI Specification for packaged drinking water is IS14543:1998 and for packaged natural mineral water is IS13428:1998.
PRODUCTION CAPACITY	: The Project is for processing and bottling of plain drinking and mineral water of 5000 bottles (one litre) per shift of 8 hrs. The total quantity of water processed and packed will be 15000 Litres/day in three shifts.
MONTH AND YEAR OF PREPARATION	: March, 2003
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### INTRODUCTION

It is needless to mention that water, a compound of Hydrogen and Oxygen is a precious natural gift which is very essential for survival of mankind including animals. The water used for potable purposes should be free from undesirable impurities. The water available from untreated sources such as Well, Boreholes and Spring is generally not hygienic and safe for drinking. Thus it is desirable and necessary to purify the water and supply under hygienic conditions for human drinking purpose.

As the name implies, the mineral water is the purified water fortified with requisite amounts of minerals such as Barium, Iron, Manganese, etc. which

can be absorbed by human body. It is either obtained from natural resources like spring and drilled wells or it is fortified artificially by blending and treating with mineral salts. The mineral water shall be manufactured and packed under hygienic conditions in properly washed and cleaned bottles in sterilised conditions.

### MARKET POTENTIAL

Unfortunately sufficient safe potable water is not available everywhere in the country, either harmful chemical substances are found in the layers of earth which enter into water or it may be contaminated due to pathogenic micro-organisms. If such water is consumed, the body suffers from water born diseases. Due to this, it has become

imperative to process and bottle safe potable water for the mankind in prevailing conditions.

The demand for purified water becomes more during summer season.

Although few companies have already entered in the bottling of safe potable water and mineralised water, but still huge gap is there in between demand and supply at all metropolitan-cities and towns. The product is widely accepted in offices, restaurants, railway stations, airport, bus stands, hospitals and to some extent even in rich house-holds. So there is good scope for establishing the units for processing and bottling plain and mineralised drinking water in different parts of the country.

### BASIS AND PRESUMPTIONS

This project has been drawn on the basis of following presumptions.

1	Working hours per shift	:	8
2	Number of shift/day	:	3
3	Number of Working days per annum	:	300
4	Total number of working hours	:	72
5	Working efficiency	:	75%
6	Total period for achieving maximum capacity utilisation	:	Third year from the date of commencement of production.
7	Margin money	:	25% of Capital Investment
8	Rate of Interest of Capital	:	15% per annum

9 Construction Cost of Building, Cost of Land, Labour Charges and Cost of Plant, Machinery and Equipment have been considered as per prevailing rates in the market.

10 Cost of Installation and Electrification of Machinery and Equipment has been taken at the rate of 10% of the cost of Plant and Machinery.

11 Operative period of the project has been considered as 7 years.

### IMPLEMENTATION SCHEDULE

It is expected that total time of about 9 months will be taken from the date of approval of the scheme for complete implementation. Break-up of the activities and relative time for each of them is shown below:

<i>Nature of Activity</i>	<i>Time Period (in months)</i>
1. Preparation of Project and its approval	0-1 month
2. SSI Provisional Registration	1-3 months
3. Sanction of Loan	2-5 months
4. Clearance from Pollution Control Board and taking permission from Municipal Health Authority/BIS etc.	2-5 months
5. Placement Order for machinery of equipment	4-6 months
6. Installation of machinery and equipment	6-8 months
7. Power connection arrangement from Electricity Board	2-6 months

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|---|------------------|
| 8. Appointment of staff etc.  | 5-8 months       |
| 9. Trial run  | 8-9 months       |
| 10. Commencement of Production and permanent registration/marketing | 9 months onwards |

## TECHNICAL ASPECTS

### Processing and Bottling

Raw water to be processed is collected in tanks. A known quantity is pumped into the above tank where the water is dozed with alum for coagulation with heavy metals or insoluble matters. The water after coagulation is allowed to settle for an hour. The impurities may be removed by Reverse Osmosis techniques also. The supernatant water is taken to the chlorination tank where primary disinfection is brought about by bubbling chlorine gas. The water is then passed through sand filters for trapping of undissolved impurities. The water after sand filtration is passed through Carbon filters for removal of odour, colour and also for dechlorination. It is then passed through series of micro fillers comprising 5 micron, 1 micron and 0.4 micron filter followed by ultraviolet disinfection system for terminal disinfection. Packing is done in PET bottles of 1 litre capacity through an automatic rinsing, filling, and capping machine fitted with an Ozone generator. The bottles after capping are shrink wrapped (Optional) and packed in corrugated boxes of one dozen each.

### Quality Control and Standards

The plain drinking water has to be bottled in pet bottle as per IS Specifications (IS:14543:1998: Packaged Drinking Water and

IS:13428:1998: Packaged Mineral Water). The details of the specification can be obtained from Bureau of Indian Standard, Manak Bhawan, 9, Bahadur Shah Zafar Marg, New Delhi 110002.

### Production Capacity

Quantity : 45 lakh Bottles per annum  
Value : Rs. 281.25 lakh.

Motive Power 50 H.P.

### Pollution Control

Although this unit will not affect the environment, but the entrepreneurs are advised to obtain, No Objection Certificate from competent authority of State Pollution Control Board. They should develop Kitchen Garden in the factory premises to utilise waste water from the plant.

### Energy Conservation

Suitable measures should be adopted to use appropriate amount of fuel and electricity. The promoters should arrange periodic auditing of electrical consumption, as the unit will be running in three shifts. Unnecessary operation of machines should be controlled to avoid excess consumption of electricity. Natural ventilation in production premises may be made available to avoid use of electrical power during day hours.

## FINANCIAL ASPECTS

### A. Fixed Capital

i) Land and Building	Amount (Rs. in lakh)
1. Land 0.5 Acres	1.00
2. Total covered area required for filtration, raw material storage, packaging material storage, machinery, Spare	26.00

Land and Building	Amount (Rs. in lakh)
parts, store, Finished goods, Office, Quality Control Lab, Toilets, Electrical Switch room and miscellaneous etc. 6500 Sq. ft. @ Rs 400 per Sq. ft.	
3. Boundary wall and Civil Works on gate etc.	3.00
<b>Total</b>	<b>30.00</b>

## ii) Plant and Machinery

Sl. No.	Particulars	Ind./ Qty. Imp	Total (Rs. in lakhs)
i)	Alum. Treatment tanks	Ind. 3	1.20
ii)	Reverse Osmosis Plant 2000 Lit/	-do- 1	3.20
iii)	Chlorination tanks made of S. Steel	-do- 2	0.80
iv)	Sand filter	-do- 1	0.50
v)	Activated Carbon filter	-do- -	0.60
vi)	Micron filters (5, 1 and 0.4 Mic)	- 3	0.40
vii)	Ultraviolet disinfectant system	- 1	0.32
viii)	Electronic doser for alum-	- 1	0.30
ix)	Electronic doser for Chlorine	- 2	0.30
x)	Ozone Generator	- 1	3.15
xi)	Raw and Purified water collection tanks with motor and accessories	- 4	1.60
xii)	Automatic rinsing filling and capping machine	- -	7.50
xiii)	Shrink wrapping machine for bottle	- -	0.15
xiv)	Miscellaneous tools equipments, pipeline etc. and Plastic crates etc.	- -	1.50
xv)	Laboratory testing and Quality Control, Micro-biological instruments etc.	- -	1.50
	<i>Electrification and Installation charges @ 10% of plant and Machinery</i>		2.30
	<b>Total</b>		<b>25.32</b>

iii) Other Fixed Assets	Total (Rs. in lakhs)
i) Cost of furniture, furnishing and Official accessories	0.88
ii) Cost of deep bore tubewell for water reservoir	1.30
iii) Security Deposit to Electricity Deptt. etc.	1.00
iv) Preliminary and Pre-operative Expenses including Company Formation, Project Preparation, Technical Consultancy, Travelling Expenses, Interest during construction period, Start-up Expenses etc.	1.50
v) Delivery van and contingency etc.	5
<b>Total</b>	<b>9.68</b>

iv) Total Fixed Cost	Total (Rs. in lakhs)
1. Land and Building	30.00
2. Plant & Machinery	25.32
3. Other fixed assets	9.68
<b>Total</b>	<b>65.00</b>

## B. Working Capital (per month)

i) Raw Material	Total (Rs. in lakhs)
1. PET/PVC bottle including cap labels etc. 1 lit. size @ 3.60 (3.75 lakh bottles)	13.50
2. Chemicals and Reagents etc. (L.S.)	0.50
3. Corrugated boxes, strip, tap etc.	3.10
<b>Total</b>	<b>17.10</b>

## ii) Salary and Wages

## a) Administrative and Supervisor

Sl. No.	Designation	No.	Salary	Amount (In Rs.)
1.	Factory Manager	1	6000	6,000
2.	Clerk-cum Typist	1	2500	2,500
3.	Store cum-Purchase Officer	1	2500	2,500
4.	Accountant-cum-Cashier	1	3000	3,000
5.	Sweeper (part time)	1	1000	1,000
	<b>Total</b>	<b>5</b>		<b>15,000</b>

## b) Technical Staff

Sl. No.	Designation	No.	Salary	Amount (In Rs.)
1	Production Manager-cum-Chief Chemist	1	6000	6,000
2	Lab. Assistant	1	2000	2,000
3	Production Supervisor	3	3000	9,000
4	Skilled Workers, including Electricians and Mechanic Driver	9	3000	27,000
5	Un-skilled Workers	3	2000	6,000
6	Chowkidar	3	2000	6,000
	<b>Total</b>	<b>20</b>		<b>56,000</b>
	<b>Total Salary and Wages</b>			<b>71,000</b>
	<b>Rs. 56,000 + Rs. 15,000</b>			
	<b>Perks and benefits @ 8.5% of salary and wages</b>			<b>6,000</b>
	<b>Total</b>			<b>77,000</b>
	<b>Say</b>			<b>0.77 lakh</b>

iii) Utilities	Total (Rs. in lakh)
i) Electricity $40 \times 0.746 \times 20 \times 25 \times 2.75$	0.41
ii) Fuels and other	0.04
<b>Total</b>	<b>0.45</b>

iv) Other Contingent Expenses	Amount (In Rs.)
1 Postage and Stationery	500
2 Telephone/Fax Charges	500
3 Consumable Stores	1000
4 Repairing and Maintenance	1000
5 Transport Charges	2500
6 Advertisement and Publicity	500
7 Insurance and Taxes	300
8 Sales Expenses	3200
9 Licence and other Fees	500
10 Miscellaneous Expenses	1000
<b>Total</b>	<b>11,000</b>
<b>Say</b>	<b>0.11 lakh</b>

v) Working Capital (per month)	Total (Rs. in lakhs)
1 Raw Materials/Packaging Materials	17.10
2 Salary and Wages	0.77
3 Utilities	0.45
4 Recurring Expenses	0.11
<b>Total</b>	<b>18.43</b>
<b>Working capital for 3 months</b>	
$18.43 \times 3 =$	<b>Rs 55.29 lakh</b>

## C. Total Capital Investment

	Total (Rs. in lakh)
i) Fixed Assets	65.00
ii) Working Capital (for 3 months)	55.29
<b>Total</b>	<b>120.29</b>

## FINANCIAL ANALYSIS

1) Cost of Production (per annum)	Total (Rs. in lakh)
i) Working Capital for One year	221.16
ii) Depreciation on Building @ 5% p.a.	1.45
iii) Depreciation on Plant and Machinery and Miscellaneous @ 10% p.a.	3.50
iv) Interest on Total Capital Investment @ 15%	18.04
<b>Total</b>	<b>244.15</b>

2) Turnover	Amount (Rs. in lakhs)
By sale of 45 lakh bottles (3.75 lakh crates of 12 bottles @ Rs 75 per crate (Factory premises))	281.25

## 3) Profit (per annum)

$$\begin{aligned} \text{Profit} &= \text{Turnover} - \text{Cost of Production} \\ &= 281.25 - 244.15 \\ &= \text{Rs } 37.10 \text{ lakh} \end{aligned}$$

## 4) Net Profit Ratio

$$= \frac{\text{Profit} \times 100}{\text{Sales Turn over}}$$

$$= \frac{37.10 \times 100}{281.25}$$

$$= 13.19\%$$

## 5) Rate of Return

$$= \frac{\text{Profit} \times 100}{\text{Total Investment}}$$

$$= \frac{3710}{120.29}$$

$$= 30.84\%$$

Say 31%

## 6) Break-even Point

i) Fixed Cost (per annum)	Amount(Rs. in lakh)
i) Total Depreciation	4.95
ii) Total Interest	18.04
iii) 40% Salary and Wages	3.70
iv) 40% Utilities and other expenses	2.64
v) Tax and Insurance fees etc.	0.10
Total	29.43

$$\text{B.E.P.} = \frac{\text{Fixed Cost} \times 100}{\text{Fixed cost} + \text{Annual Profit}}$$

$$= \frac{29.43 \times 100}{29.43 + 37.10}$$

$$= \frac{2943}{66.53}$$

$$= 44.24$$

Say 44%

## Addresses of Plant and Machinery Suppliers

1. M/s. Sonalifabs  
71, Biren Roy Road (West)  
Kolkata-61.
2. M/s. Enviro Tech Utility,  
32A, Main Patel Road,  
Opposite Wings Show Room,  
West Patel Nagar,  
New Delhi-110 008.
3. M/s. Watrion Water and Filter  
Engg. Pvt. Ltd.  
1 Harsivan Apartment, Ground  
Floor, (Behind Canara Bank),  
West J.P. Road, Andheri (West),  
P.B. No. 7372,  
Mumbai-700 059.
4. M/s. Rital Agencies  
55 III Main Road, Gandhi Nagar,  
Chennai-700 020.
5. M/s. Ion Exchange India Ltd.  
Ticcon House,  
Dr. E. Houses Road,  
Mahalaxmi,  
Mumbai-400 011.
6. M/s. Alpha Engineering  
158, Pocket-E-20, Sector-II,  
Rohini, Delhi-110 085.