

**Profile No.: 40**

**NIC Code: 20233**

## **LIQUID DETERGENT**

### **1. INTRODUCTION:**

Synthetic detergents have made rapid strides in India during the last decade. Liquid synthetic detergents are a consumable item and are used for cleaning of silk cloth, woolen clothes, utensils, machinery, and floor and in textile industry etc.

A detergent is a surfactant or a mixture of surfactants with cleaning properties in dilute solutions. These substances are usually alkyl benzene sulfonates, a family of compounds that are similar to soap but are more soluble in hard water, because the polar sulfonate (of detergents) is less likely than the polar carboxylate (of soap) to bind to calcium and other ions found in hard water.

In most household contexts, the term detergent by itself refers specifically to laundry detergent or dish detergent, as opposed to hand soap or other types of cleaning agents. Detergents are commonly available as powders or concentrated solutions. Detergents, like soaps, work because they are amphiphilic: partly hydrophilic (polar) and partly hydrophobic (non-polar). Their dual nature facilitates the mixture of hydrophobic compounds (like oil and grease) with water. Because air is not hydrophilic, detergents are also foaming agents to varying degrees.

### **2. PRODUCT & ITS APPLICATION:**

Detergents are classified into three broad groupings, depending on the electrical charge of the surfactants.

#### **Household cleaning**

One of the largest applications of detergents is for household cleaning including dish washing and washing laundry. The formulations are complex, reflecting the diverse demands of the application and the highly competitive consumer market.

### **Fuel additives**

Both carburetors and fuel injector components of Otto engines benefit from detergents in the fuels to prevent fouling. Concentrations are about 300 ppm. Typical detergents are long-chain amines and amides such as poly isobutene amine and poly isobutene amide.

### **Biological reagent**

Reagent grade detergents are employed for the isolation and purification of integral membrane proteins found in biological cells. Solubilization of cell membrane bilayers requires a detergent that can enter the inner membrane mono-layer.

## **3. DESIRED QUALIFICATIONS FOR PROMOTER:**

Graduate in chemical discipline.

## **4. MARKET POTENTIAL AND MARKETING ISSUES, IF ANY:**

According to India Detergent Market Outlook, 2021, the overall market for detergent is growing with a CAGR of 13.06% from the last five years. Detergents are available in three forms, namely powder detergent, bar detergent and liquid detergent. Powder detergents are widely accepted by Indian consumers and dominate the industry. Even though detergent bars are still used in rural areas, they are fast disappearing from the market because of ineffectiveness.

The detergent industry in India is mostly captured by organized players, but unorganized regional players have a significant hold on the rural areas. HUL, Rohit Surfactants, P&G, Nirma and Jyothy Laboratories are the major players in the organized market. They have

popular brands like Ghari, Surf Excel, Active Wheel, Rin, Tide, Nirma, Ariel, Mr. White and Henko in their product portfolio.

On the basis of pricing, the organized detergent market can be further divided into three categories, such as popular (economy), mid-range and premium. The popular category consists of brands like Ghari, Nirma and Wheel; the mid-range category consists of Tide, Rin and Mr. White; and the premium category includes Surf Excel, Henko and Ariel. Hindustan Unilever dominates the high-priced premium and mid-range category, whereas Ghari dominates the low-priced popular category. It is common consumer item and the demand for which is increasing. It is becoming popular both in rural and in urban areas. Therefore, marketing of this product may not be a problem.

## 5. RAW MATERIAL REQUIREMENTS:

### I. Raw Material (p.m.)

S. No	Description	Quantity	Value Rs.
1	Acid slurry	300 kg.	30,000
2	Caustic Soda	55 kg	4,000
3	Urea	120 kg	1,200
4	Perfume	1 kg.	1,000
5	Ph. strips	--	200
6	Testing agents	--	1,000
7	Packing materials	--	20,000
Total			57,400

### II. Utilities per month

Sr. No.	Description	Value in Rs.
1	Power	1000
2	Water	300
Total		1300

## 6. MANUFACTURING PROCESS:

The process of manufacture consists of neutralization of acid slurry. Measured quantity of acid slurry is taken in SS kettle and diluted with known quantity of water with continuous stirring. A solution of caustic soda is prepared by dissolving measured quantity of caustic soda in measured quantity of water. The acid slurry is neutralized by a slow addition of caustic soda solution till it is neutralized. The pH of the solution is maintained and acid slurry is taken in plastic containers. Then known quantity of urea is added and kept for settling. Small quantity of perfume is added to liquid detergent before packing.

## 7. MANPOWER REQUIREMENT:

The enterprise requires 6 employees as detailed below:

Sr. No.	Designation of Employees	Monthly Salary ₹	Number of employees required				
			Year-1	Year-2	Year-3	Year-4	Year-5
1	Machine Operators	12,000	1	1	1	1	1
2	Helpers	8,000	1	1	1	1	1
3	Production supervisor	15,000	1	1	1	1	1
4	Accounts/Sales Asset	12,500	2	2	3	3	3
5	Office Boy	9,000	1	1	1	1	2
	<b>Total</b>		6	6	7	7	7

## 8. IMPLEMENTATION SCHEDULE:

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

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

## 9. COST OF PROJECT:

The project shall cost ₹ 20 Lakhs as detailed below:

<b>Sr. No.</b>	<b>Particulars</b>	<b>₹ in Lacs</b>
1	Land 500 sq. Feet	5.00
2	Building 300 sq. feet	5.00
3	Plant & Machinery	3.00
4	Furniture, Electrical Installations	1.00
5	Other Assets including Preliminary / Pre-operative expenses	1.00
6	Margin for Working Capital	5.00
	<b>Total</b>	<b>20.00</b>

## 10. MEANS OF FINANCE:

Bank term loans are assumed @ 75 % of fixed assets. The proposed funding pattern is as under:

<b>Sr. No.</b>	<b>Particulars</b>	<b>₹ in Lacs</b>
1	Promoter's contribution	5.00
2	Bank Finance	15.00
	<b>Total</b>	<b>20.00</b>

## 11. WORKING CAPITAL CALCULATION:

The project requires working capital of ₹ 6.00 lacs as detailed below:

Sr. No.	Particulars	Gross Amt	Margin %	Margin Amt	Bank Finance
1	Inventories	2.00	25	0.50	1.50
2	Receivables	3.00	25	1.50	1.50
3	Overheads	1.00	100	1.00	0.00
4	Creditors	-		-	-
	<b>Total</b>	6.00		3.00	3.00

## 12. LIST OF MACHINERY REQUIRED:

A detail of important machinery is given below:

Sr. No.	Particulars	UOM	Qty	Rate (₹)	Value (₹ in Lacs)
	<b>Plant &amp; Machinery / equipments</b>				
<b>a)</b>	<b>Main Machinery</b>				
i.	Vessel with stirrer	Nos	1.00	50,000	0.50
ii.	Mixing Vessel	Nos	1.00	30000	0.30
iii.	Storage vessel	Nos.	2.00	20000	0.20
<b>b)</b>	<b>Ancillary machinery</b>				
I.	Weighing Balance	Nos	1.00	10000	0.10
ii.	Packing machine	LS	1.00	20000	0.20
	<i>sub-total Plant &amp; Machinery</i>				
	<b>Furniture / Electrical installations</b>				
a)	Office furniture	LS	1.00		1.00
b)	Stores /showcase	LS	1.00		0.70
c)	Computer & Printer	Nos	1.00	1,00,000	2.00
	<i>sub total</i>				<b>5.00</b>
	<b>Other Assets</b>				
a)	Rent Deposits				
	<i>sub-total Other Assets</i>				
	<b>Total</b>				<b>5.00</b>

### 13. PROFITABILITY CALCULATIONS:

*Sales: 100 liters per day and 30 kiloliters per annum @ Rs. 90 per liter*

*Turnover: Rs. 27.00 lakhs @ 100 % capacity.*

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	16.20	18.90	21.60	24.30	27.00
3	Raw Materials & Other direct inputs	₹. In Lacs	7.50	8.75	10.00	11.25	12.50
4	Gross Margin	₹. In Lacs	8.70	10.15	11.60	13.05	14.50
5	Overheads except interest	₹. In Lacs	8.00	8.00	9.00	10.00	11.00
6	Interest	₹. In Lacs	0.15	0.15	0.12	0.10	0.08
7	Depreciation	₹. In Lacs	1.5	1.5	1.5	1.5	1.5
8	<b>Net Profit before tax</b>	₹. In Lacs	<b>-0.95</b>	<b>0.50</b>	<b>0.98</b>	<b>1.45</b>	<b>1.92</b>

### 14. BREAKEVEN ANALYSIS:

The project shall reach cash break-even at 76.41 % of projected capacity as detailed below:

Sr. No.	Particulars	UOM	Value
1	Sales at full capacity	₹. In Lacs	27.00
2	Variable costs	₹. In Lacs	12.50
3	Fixed costs incl. interest	₹. In Lacs	11.08
4	$BEP = FC/(SR-VC) \times 100 =$	% of capacity	76.41