

Acid Slurry (ALKYL Benzene Sulphonate)

PRODUCT CODE	: 314805001
QUALITY AND STANDARDS	: IS 8401:1987
PRODUCTION CAPACITY	: Qty. : 150 MT (per annum) Value : Rs. 75,00,000
MONTH AND YEAR OF PREPARATION	: January, 2003
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INTRODUCTION

Synthetic detergents had developed in the beginning of 20th century and started making inroads into the area earlier served by washing compounds i.e. soaps made traditionally from oils/fats and caustic soda. Since soaps have comparatively lesser washing characteristics in hard water than synthetic detergents, synthetic washing compounds have been able to occupy a significant market which was enjoyed by washing soaps earlier. The term detergents which originated from the Latin word *detergine* (i.e. to wipe off), is now a days applied to all synthetic washing compounds. Synthetic detergents are not only used as cleaning materials but also have industrial applications in textiles, pesticide industry as carriers, etc.

MARKET POTENTIAL

Marketing is an important area of management in an industrial enterprise. It is a comprehensive term and includes all resources and economic activities necessary to direct the flow of manufactured goods from producers to consumers. The old concept of marketing was product-oriented where as the new concept is customer oriented. Customers are the champions whose needs, tastes, purchasing power, etc. are the guiding factors for the sale of products.

Synthetic detergents, being a mass consumption item have shown a dramatic growth since its inception in 1957. Presently, detergents are available to the consumers in the form of powders and cakes/bars. Bulk of the production of these items is done in the small scale sector.

The present strategy employed for introducing a detergent in the market covers:

- i) Appointment of distributors in various regions
- ii) Selection of whole sellers/retailers/agents in the various cities/towns
- iii) Publicizing through the advertisements, press media like radio, television, cinema etc.
- iv) Introduction of sales promotion scheme etc.

BASIS AND PRESUMPTIONS

The profile is drawn on the basis of the following presumptions:

Working hours/shift	8 hours
No. of shift/day	1
Working days	300
Total no. of working hours	2400
Working efficiency	70%
Time period for achieving max. cap. Utilisation	3rd year from the date on which production will be started.
Labour charges	as per minimum wages act of State Govt.
Margin money	25% of capital investment
Rate of Interest on fixed and working Capital	14%
Operative period of the project	10 years

Value of machinery and equipment is estimated on the basis of the prevailing costs in the market.

IMPLEMENTATION SCHEDULE

Project implementation will take a period of 8 months from the date of the approval of the scheme. Break-up of activities with relative time for activity is shown below:

Nature of Activity	Period in Month (Estimated)
1. Scheme preparation and approval	0-1
2. SSI provisional registration	1-2
3. Sanction of loan	2-5
4. Clearance from pollution control board	3-4
5. Placement of order of delivery of m/c	4-5
6. Installation of m/c	6
7. Power connection	6-7
8. Trial run	7-8
9. Commencement of production.	9 onwards

TECHNICAL ASPECTS

Process of Manufacture

Acid Slurry

Acid slurry or alkyl benzene sulphonate is prepared by sulphonation of Linear Alkyl Benzene (LAB) with a suitable sulphonating agent.

Sulphonation can be done by the following processes:

- (i) Batch sulphonation with either diluted SO_2 gas or concentrated sulphuric acid or a mixture of 20% oleum and 98% sulphuric acid or oleum alone.
- (ii) Continuous sulphonation with 20% oleum.
- (iii) Continuous sulphonation with SO_3

(sulphur trioxide gas may be derived either from liquid SO_3 or from 65% oleum or from burning sulphur and converting SO_2 to SO_3).

Raw material consumption per tonne of 85-88% acid slurry is given below:

- (a) Linear alkyl benzene 700-750 Kg.
- (b) Sulphonating agent 20% oleum-800- 900 Kg.
- 98% sulphuric acid - 1100-1200 Kg.

Quality Control and Standards

As bulk of the detergent formulations consist mainly of acid slurry, soda ash, sodium tripoly phosphate, etc. to start with, it would be sufficient if testing facilities are installed for determining the purity of these ingredients. So far as finished formulation are concerned a list of the tests as prescribed in the respective standards of the BIS are given below:

Acid Slurry (IS 8401:1987)

1. Determination of alkyl benzene sulphonic acid
2. Free alkyl benzene content
3. Free sulphuric acid
4. Colour

Production Capacity

Acid slurry - $\frac{1}{2}$ MT per day/shift or 150 TPA.

FINANCIAL ASPECTS

A. Fixed Capital

(i) Capital Requirements	(Rs.)
(a) Land and building Land 1000 sq.m. Building -350 sq.m.	1,00,000
(b) Factory shed including laboratory/ water arrangements etc.	2,00,000

Capital Requirements	(Rs.)
(c) Store/Godown	
(d) Office	
Total	3,00,000

(ii) Plant and Machinery for Acid Slurry (Rs.)	
1. Sulphonator: Stainless steel verticle and cylindrical vessel fitted within agitator with MS jacket and complete with motor, Cap 1 m ³	2,00,000
2. Chilling plant	1,50,000
3. Settling tank- MS vertical dished bottom, Lead line with agitator and motor Cap 3.5m ³	1,00,000
4. LAB feed tank: vertical cylindrical tank, MS Cap 1.0 m ³	20,000
5. Oleum/Acid slurry feed tank vertical cylindrical Tank Cap 2.5m ³	20,000
6. LAB main storage tank horizontal cylindrical Tank Cap 2.5m ³	50,000
7. Oleum/acid storage tank ms-horizontal Cylindrical tank cap 5m ³	30,000
8. Pumps barrel type with motor	30,000
9. Misc. equipment including valvers pipelines, exhaust, weighing machines etc. and laboratory Equipment.	50,000
10. Furniture/fixtures	30,000
11. Installation/electrification	6,300
Total	6,86,300

Fixed Capital	
Rs. 3,00,000 + Rs. 6,36,300 =	Rs. 9,36,300
Recurring Expenditure/Month	

(iii) Raw Material/Month (for Acid Slurry 12.5 MT) (Rs.)	
(i) Linear alkyl benzene 9MT @ Rs. 40,000 PMT	3,60,000
(ii) Sulphuric acid 98% and oleum 14 MT @ Rs. 6,000 PMT	84,000
Total	444000

B. Working Capital

(i) Salary/Wages (per month)	(Rs.)
1. Manager/Chemist-1	5,000
2. Plant operator-2	5,000
3. Unskilled workers-2	3,000

Salary/Wages (per month)	(Rs.)
4. Clerk/typist-1	2,000
5. Watchman/peon-2	3,000
Total	18,000
<i>Perquisites 15%</i>	2,700
Total	20,700

(ii) Other Expenditure (per month)	(Rs.)
1. Transport	3,000
2. Postage/stationery	1,000
3. Insurance	1,000
4. Repair maintenance	500
5. Packing	3,500
6. Miscellaneous expenses	1,000
Total	10,000

(iii) Utilities	(Rs.)
Power/Water	10,000
Total Recurring Expenditure (per month)	
Rs. 4,44,000+20,700+ 10,000+10,000	= 4,84,700
say	4,85,000

C. Total Capital Investment

(i) Fixed Capital	Rs. 9,86,300
(ii) Working capital for 3 months	Rs. 14,54,100
Total	24,40,400

FINANCIAL ANALYSIS

1. Cost of Production (per year)	(Rs.)
Total recurring expenditure	58,20,000
Depreciation on building @ 5%	10,000
Depreciation on furniture @ 20%	6,000
Depreciation on plant and machinery @ 10%	65,630
Interest on total capital investment @ 14%	3,41,656
Total	62,43,286
or Say	62,43,000

2. Turnover (per year)

Item	Qty.	Rate (Rs.)	Value (Rs.)
Acid slurry	150MT	50,000 PMT	75,00,000

3. Net Profit (per year)

Turnover	Cost of Production	Profit
Rs.75,00,000	Rs. 62,43,000	Rs. 12,57,000

5. Net Profit Ratio

$$= \frac{\text{Net profit per year} \times 100}{\text{Turnover}}$$

$$= \frac{12,57,000 \times 100}{75,00,000}$$

$$= 16.76\%$$

6. Rate of Return

$$= \frac{\text{Net profit} \times 100}{\text{Total investment}}$$

$$= \frac{12,57,000 \times 100}{23,87,700}$$

$$= 52.64\%$$

7. Break-even Point (% of Total Production Envisaged)

(i) Fixed Cost	(Rs.)
a. Depreciation on machinery and equipment	65,000
b. Depreciation on office equipment	6,000
c. Depreciation on building	12,000
d. Interest on total capital investment @ 14%	3,41,656
e. Insurance	12,000
f. 40% of salary and wages	95,040
g. 40% of other contingent expenses	48,000
Total	5,77,696
Or say	5,78,000

(ii) Net Profit (per year)

$$\text{B.E.P.} = \frac{\text{F.C.} \times 100}{\text{F.C.} + \text{Profit}}$$

$$= \frac{5,78,000 \times 100}{5,78,000 + 12,57,000}$$

$$= \frac{5,78,000 \times 100}{18,35,000}$$

$$= 31.5\%$$

Addresses of Machinery and Equipment Suppliers

1. M/s. Mazzindia (P) Ltd.
C/o. K.S.Krishanan and Associates,
15, Community Centre,
East of Kailash,
New Delhi-110024
2. M/s. Pioneer Engg. Co.
57, Bombay Samachar Marg,
Fort, Mumbai-23
3. M/s. Precision Machanist
36 (D) Kandivli Indl. Estate,
Kandivli (W),
Mumbai-67
4. M/s. Sethi Engg. Works
31-A G.T. Road, Indl. Area,
Delhi-110033
5. M/s. Mechanico Engineers
15, Okhla Indl. Area,
New Delhi-110020
6. M/s. Precision Tanks and Vessels
(Pvt.) Ltd.
1311, Padma Towers,

Rajendra Place,
New Delhi-110008

7. M/s. Dolphen Engg. Enterprises
4311, GIDC Estate,
Ankleshwar- 393002
Dt. Bharuch, Gujarat

Addresses of Raw Material Suppliers

1. M/s. Indian Petrochemicals
Corpn. Ltd.
P.O. Petrochemicals,
Distt. Vadodara
Gujarat - 391346
2. M/s. Tamilnadu Petro Products
Ltd.
Manali, Tamilnadu
3. M/s. Reliance Industries Ltd.
Patalganga,
Maharashtra
4. M/s. Dharamsi Morarji Chemical
Limited
317/21, Dr. D. N. Road,
Fort, Mumbai-1.