PROJECT PROFILE

ON

FEVICOL TYPE ADHESIVE

MONTH & YEAR
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FEVICOL TYPE ADHESIVE

INTRODUCTION

If we want to joint similar or dissimilar surface together we want a paste to joint that surface. Now days we have Fevicol type of gum which are used to joint the surfaces. The Fevicol types of gums are based on synthetic resins which are made from polyvinyl acetate resins. Polyvinyl acetate in solid state is a clear, odourless, tasteless, non-toxic, thermoplastic resin. They do not melt, but soften over a temperature range. The resin is unaffected by sunlight, ultraviolet light and air. Further more, it will absorb a small of water. Polyvinyl acetated is neutral and non-corrosive. The resin is not appreciable soluble in the following solvents viz., animal fats, linseed oil, turpentine, naphtha, vegetable oils and waxes.

The characteristics of this type of adhesives are:

(a) They use to joint the similar or dissimilar surface.

(b) The components joined maintain the structural integrity.

(c) Provide liquid and vapour tight joints.

MARKET

The plastics product manufacturing and processing business, which employs over 3.6 million people directly in India, is considered as one of the most sought after industries among the entrepreneurs and start ups in India. The industry is growing at an annual rate of over 15 per cent and the emerging segments include agro-based as well as consumer based.

The proposed investment of Rs 1.5 lakh crore ($37 billion) in upstream industry to set up 11 petrochemical complexes in India is expected to provide impetus for growth of polymer consumption to 15 million tonnes by 2015 according to Mr Ashok Goel, President, Plastindia Foundation.

The Indian plastics industry, he said, has seen a consistent growth of over 15 per cent over the past five years, and the per-person consumption has doubled over the last four years to eight kg in 2010. This is expected to increase to 10 kg by 2012 and to be on par with the global consumption, 27 kg, by 2020 because of the increasing consumption across sectors like packaging, infrastructure, agriculture, automotives, healthcare and FMCG.

In agriculture alone, around 17 million hectares are to be brought under drip irrigation according to the Union Ministry of Agriculture over the next three-four years. This leads to a tremendous potential for use of plastics in irrigation and plastic pipes, Mr Goel said.

INDIA- one of the fastest growing economies of the world, is all set to attain the premier status along with China. India is a favoured destination for overseas investors and offers the advantages of an open economy, increasing liberalization, a stable democratic political scenario, highly skilled work force with fluency in English.

After liberalization of the economy in 1992, the Government of India has been quite supportive of industry in general, taking many steps over the years for the conducive growth of business. These measures favouring economic growth, are being continuously taken by the Indian Government, irrespective of the change in power. The Government of India is endeavouring to achieve GDP growth of more than 7% in the next 10 years. It is quite possible that plastics could grow at 14%, based on historical performance.

The Indian plastics industry, with more than 4 million tons consumption in 2003 is well spread all over India. While it is estimated to be fragmented across more than 30,000 processors, the large processors are less than 100. These 100 have about 35% share of the plastics processing industry.

The historical growth of the plastics industry over the last few decades is at an impressive 12-14%, which is twice the GDP growth. The major driver of this growth is the increased standard of living of people in India (housing the second

largest population in the world). It is estimated that almost 35% of the 1.2 billion population has a purchasing power equivalent to that in European countries.

The plastics industry seems to be going through a major change as the processing units shift focus from traditional packaging to newer segments such as equipment manufacturing for automobiles, agriculture, poultry farming, agriculture and blown films.

The plastics product manufacturing and processing business, which employs over 3.6 million people directly in India, is considered as one of the most sought after industries among the entrepreneurs and start ups in India. The industry is growing at an annual rate of over 15 per cent and the emerging segments include agro-based as well as consumer based.

With the growth in consumption, plastic production in India is likely to grow by 60 per cent to touch 12.75 million tonne by 2012, according to a industry body.

"Plastic is an integral part of our life and its consumption is growing every year. We are expecting the production to grow by 60 per cent in line with the consumption which will be around 12.75 million tonne by FY 12," according to All India Plastics Manufacturers' Association (AIPMA) .

At present, the plastic production as well as the consumption is about eight million tonne.

The consumption has grown significantly over the last two decades and India is projected to be number three in plastic usage by 2015.

India's plastics processing sector will grow from 69,000 machines to 150,000 machines by the year 2020.

India's demand for plastics in irrigation alone is pegged to cross 2.5 million tonnes by 2015.

Indian automobile industry is growing at more than 18% p.a. and is hungry for plastics.

The plastics processing industry is a source of great potential for global

businesses.

There is tremendous scope for innovative technological upgradations.

INSTALLED CAPACITY

Product	Installed capacity per hour	No of working hours per day	Capacity per day	Capacity per annum 300 days per annum
Fevicol type adhesive (Polyvinyl acetate adhesive)	25 kgs	8	200 kg	60 MT

PLANT AND MACHINERY

Sl. No	**Description**	**Qty**	**Price**
1.	Reaction Kettle of stainless steel construction, M.S. Jacketed, with variable speed agitator and steam heating and water cooling arrangement. (350 Litres Capacity)		245000
2.	Reflux type Condenser	1	42000
3.	M.S. tank for Monomer (250 Litres Capacity)	1	56000
4.	S.S. Tank 250 litres Capacity	1	105000
5.	Oil fired steam mini Boiler	1	119000
6.	Motors & Pumps		42000
7.	Testing Equipments and Misc. equipments like Weighing Scale, Chemical Balance etc.		91000
	Total		**700000**

MANAFACTURING PROCESS

The manufacture of adhesive from synthetic resin is simple and can be started with very little investment.

The process consists of:

1. Dispersion
2. Polymerisation
3. Addition of other ingredients
4. Packing

The main equipment consists of a Mixing Kettle made of Stainless steel with an Agitator, M.S. Jacket, and Temperature controllers etc. The kettle is heated by passing steam through the jacket. A bottom outlet is provided for draining the water from steam condensate. The various steps in the manufacturing process are described below:

1. Dispersion

The monomers or polymers are added to the water in the kettle and small amount of soap is added to the mixture and the stirring started. The quantities added are adjusted in such a way as to get an emulsion of 55% solids.

2. Polymerisation

This step is necessary only when a monomer is used. A catalyst (like Benzyl Peroxide) is added and no heating is started. With the thermostat set at some suitable temperature, the stirring is started when the required temperature has been reached. Further heating is then stopped and the excess heat of reaction is removed by the circulation of cooling water through the jacket till the whole reaction is complete.

3. Addition of other ingredients

While the emulsion is still quite hot, other ingredients as required depending on the type of Adhesive being manufactured are added and stirred well.

Some of these Ingredients are:

1. O-Phenyl Phenol (Preservative)
2. Formaldehyde (40%)
3. Ammonia
4. Calcium Carbonate
5. Bleach solution
6. Colouring Agents

4. Packing

The adhesive is finally cooled and taken out from the bottom opening valve.

Next the adhesive is packed in plastic containers of 1/2, 1, 2, 5, 10, 25, 50 kgs capacity as per customer's requirements and stored in a cool place before despatch.

A Typical Formulation (For Wood Adhesive)

RAW MATERIALS

For MTS 60

	Qty-MTs	Rate/MT	Value Rs lakhs
Vinyl acetate monomer	24	88000	21.12
Poly vinyl alcohol	1.80	139000	2.50
Dibutyl Pthalate	0.30	109000	0.33
Octanol	0.30	126000	0.38
Maleic Anhydride	1.50	98000	1.47
Calcium Carbonate	1.20	21000	0.25

ButylAcrylate	1.20	102000	1.22
Ethyl acetate	0.30	65000	0.20
Emulsifier	0.24	135000	0.32
TOTAL			27.79
Packing materials	60	1200	0.72

LOCATION LAND AND BUILDING

Built up area-Sq.ft	1000
Rent p.m.-Rs per .10 per sq.ft	10000
Advance-10 months .Rs	100000

UTILITIES

Power

Three phase-	KW	15.00
Power charges Rs.lakhs p.a		1.98
Water- For process-Litres per day		5000
For human consumption-litres/day		200

MANPOWER

		Monthly wages	Total
Supervisor	1	9000	9000
Skilled	2	7000	14000
Unskilled	3	5000	15000
Accounts Assistant	1	6000	6000
Sales Executive	1	7000	7000
Security	2	5000	10000
sub total			61000
Add benefits		20%	12200
Total per month			73200
TOTAL PER ANNUM-Rs. lakhs			8.78

COST OF PRODUCTION AND PROFITABILTY

Assumptions

Installed capacity	60 MT of Adhesive per annum
Capacity utilisation	Year-1 -60% Year -2 -70% Year-3 onwards- 80%
Selling price	Rs.95.00 per kg
Raw materials	As per the details given above
Packing materials	As per details given above
Power	Rs1.98. lakh per annum at 100%
Wages and salaries	Rs. 9.78 lakhs with increase 5% every year.
Repairs and Maintenance	Rs.0.60 lakh per annum
Depreciation	Written down value method -15 % on

	machinery
Selling general and administrative expenses	Rs.30000 per month
Interest on Term loan	14% per annum
Interest on working capital	14% per annum
Income tax	34% on profits

MACHINERY SUPPLIERS

1. M/s.Dry Conn Engg(P) Ltd., B-4, SIDCO Industrial Estate, Chennai - 600 049.
2. M/s.Avijo Polymer Industries, 32-B, Mounaswamymadam Street, Chennai - 600 053.
3. M/s.Chemfab, Team House, G.S.T. Road, Chennai - 600 048.
4. M/s. Marvel Machines Pvt. Ltd,140, Anna Salai, Chennai - 600 015.
5 Windsor India Ltd, 2 J, Century Plaza, Teynampet, Chennai – 600 018.
6. Europack Machines India Pvt Ltd, 52 Bindal Industrial Estate, Sakinaka, Andhari East, Mumbai – 500 072.
7. Ambica Engineering & Wire Products, L 45, GIDC Estate, Odher, Ahmedabad – 382415,
8. Hind Hydraulics & Engineers, Faridabad, Plot No. 13, Sector 74, Faridabad – 121005.
9. Prasad Groups & Companies, Plot No. 14 – 16 GIDC Industrial Estate, Phase 1 Valva, Ahmedabad – 382445
10 HMT International Ltd, 59 HMT Bhavan, Bellary Road, Bangalore – 560032.

RAW MATERIALS

Polyvinyl Acetate Monomers & Polymers :

1. M/s. Vam Organic Chemicals Ltd, "Skyline House", 85 Nehru Place, New Delhi-110 019.

2. M/s. Polychem Ltd, Oriental House, JN Tata Road, Churchgate, Bombay - 400 020.

3. M/s. Asco Plastics,17-B, Muthusa Maistry Street, Seven Wells, Chennai - 600 001.

Miscellaneous Chemicals & Additives :

1. M/s. Rajshree Petrochemicals,156 Mint Street,1st Floor Kanchan Plaza, Chennai - 600 079.

2. M/s. Kannan & Company,127, Nyniappa Naicken Street, Chennai - 600 003.

3. M/s. Gaj Chemicals, 23, Nyniappa Naicken Street, Chennai - 600 003.

4. M/s. Paragon Chemicals,19-A, Pandaram Street, Puraswalkam, Chennai - 600 007

FINANCIAL ASPECTS

1. COST OF PROJECT

	[Rs.lakhs]
Land & Building (Advance)	1.00
Plant & Machinery	7.00
Other Misc. assets	0.50
Pre-Operative expenses	1.50
Margin for WC	0.94
	10.94

2. MEANS OF FINANCE

Capital	5.69
Term Loan	5.25
	10.94

3. COST OF PRODUCTION & PROFITABILITY STATEMENT

[Rs.lakhs]

Years	1	2	3	4	5
Installed Capacity-MTs	60	60	60	60	60

Utilisation	60%	70%	80%	80%	80%
Production/Sales-MTs	36	42	48	48	48
Selling Price per MT-Rs.	0.95	lakhs			
Sales Value (Rs.lakhs)	**34.20**	**39.90**	**45.60**	**45.60**	**45.60**
Raw Materials	16.68	19.45	22.23	22.23	22.23
Packing Materials	0.43	0.50	0.58	0.58	0.58
Power	1.19	1.39	1.58	1.58	1.58
Wages & Salaries	8.78	9.22	9.68	10.16	10.67
Repairs & Maintenance	0.60	0.66	0.73	0.80	0.88
Depreciation	1.05	0.89	0.76	0.64	0.55
Cost of Production	28.73	32.11	35.56	35.99	36.49
Selling, Admin, & General exp	3.60	3.78	3.97	4.17	4.38
Interest on Term Loan	0.74	0.64	0.46	0.28	0.09
Interest on Working Capital	0.39	0.39	0.39	0.39	0.39
Total	33.46	36.92	40.38	40.83	41.35
Profit Before Tax	0.74	2.98	5.22	4.77	4.25
Provision for tax	0.25	1.01	1.78	1.62	1.45
Profit After Tax	**0.49**	**1.97**	**3.44**	**3.15**	**2.80**
Add: Depreciation	1.05	0.89	0.76	0.64	0.55
Cash Accruals	1.54	2.86	4.20	3.79	3.35
Repayment of Term loan	0.00	1.31	1.31	1.31	1.32

4. WORKING CAPITAL:

	Months Consumptions	Values	% Margin	Amount	Bank Finance
Raw Materials	0.50	0.70	25%	0.18	0.52
Consumables	2.00	0.07	25%	0.02	0.05
Finished goods	0.50	1.20	25%	0.30	0.90

Debtors	0.50	1.43	10%	0.14	1.29
Expenses	1.00	0.30	100%	0.30	0.00
		3.70		0.94	2.76

5. PROFITABILITY RATIOS BASED ON 80% UTILISATION

Profit after Tax / Sales	=	3.44 / 45.60	8%
Profit before Interest and Tax / Total Investment	=	6.07 / 13.70	44%
Profit after Tax / Promoters Capital	=	3.44 / 5.69	60%

6. BREAK EVEN LEVEL

Fixed Cost (FC):

	[Rs.lakhs]
Wages & Salaries	9.68
Repairs & Maintenance	0.73
Depreciation	0.76
Admin. & General expenses	3.97
Interest on TL	0.46
	15.60

Profit Before Tax (P) 5.22

$$BEL = \frac{FC}{FC + P} \times 100 = \frac{15.60}{20.82} \times \frac{80}{100} \times 100$$

60% of installed capacity