

GRAPHITE THIN LEAD STICK

1. Product : Graphite Thin Lead Stick
2. NIC Code : 3699
3. Product Code : 95214
4. Production Capacity : 600 Lakhs Boxes with 15 nos.
thin Graphite stick per annum.
5. Month & year of Preparation : Feb.2011
6. Prepared by : Export Division,
MSME-DI,Kolkata

INTRODUCTION :

Pencil Lead is a thin round stick used a core item of a pencil, which is used for writing notes, rough works and drawings. This lead is made out of Graphite and clay where clay acts as a binder. Graphite is a form of Carbon so it is black in colour and greasy to touch and solves the purpose of writing. Graphite pencils were invented by Nicholas Conte in 1795 AD but till today same old concept i.e. use after mending it by sharpener is being continued.

Now a part of our population do not like to mend their pencil but strongly desire to use a pencil which could be functioned without sharpening. This project thus aims at providing the users a readymade pencil stick, which will help them to get a cooked food. i.e. just insert the lead stick into a ball pen type cover and operate the movement of the lead stick by pressing top switch fitted on the top of the pencil cover with a rubber optional. It's smoothness in writing and fine delible black mark on paper pencil is still satisfying the need of the people. Pencils are used by artists, Engineers, Students of drawing, writing notes, rough works etc. pencils with sticks of different colours are showing a positive demand over ball pen, because of its long durability and economic in price. Day-by-day writing papers are becoming dearer. Rough work by ball pen leads in user a wastage of paper whereas due to the unique erasable property of the pencil-writing by rubber, the user can use the same paper several times for rough work and thus can save the excess expenditure over paper. Looking into the need and economic use of the people-manufacturing of this graphite lead stick of various grades could user a new horizon to the entrepreneurs.

MARKET POTENTIAL :

At present the market demand of West Bengal is being met by the supply from a few manufacturers from Mumbai and also from a few local Small Scale manufacturers e.g. M/s. Camlin Ltd., Mumbai and M/s. Hindustan Pencils Ltd., 510, Himalaya House, Mumbai. As per market survey the demand of this type of lead stick of 60 mm length and 0.5mm dia has been estimated based on total no. of population in West Bengal.

Available market demand 80% of the potential market demand 96 lakhs i.e. 76 lakhs pkts each of 15 no. lead stick. At present at least 25% of the available market has been penetrated by the leading manufacturers as stated above. However, there is huge demand still exists in the available market of Jharkhand. Considering this demand gap entrepreneurs of West Bengal can easily take up a Graphite thin lead stick plant with installed capacity 5 lakhs pkts. Per month i.e. 5% of the available market demand.

BASIS & PRESUMPTIONS :

1. Labour wages are taken at minimum applicable.
2. Interest rate on capital investment has been considered @ 15% per annum.
3. One month inventory of Raw Material has been considered.
4. The unit will work for 300 days in a year in single shift only. The efficiency of men and machinery were considered as 80% for achieving full capacity production.
5. Cost of machinery and equipment, raw materials and consumables, other expenses etc. indicated in the profile are based on the price prevailing at the time of project profile preparation.
6. Depreciation on plant and machinery @ 10% and General fixed asset @ 10% & building will depreciate @ 10% per annum.
7. Product mix only one variety e.g. length 60mm and 0.5mm dia graphite thin lead stick.
8. While calculating fixed cost 40% of salary expenses has been considered as fixed expenses where as for other contingent expenses and power expenses 20% and 25% have been considered as fixed expenses respectively.
9. The power bill has been estimated on the basis of present tariff rate of State Electricity Board.

IMPLEMENTATION SCHEDULE :

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|----|--|----------|
| 1. | Submission of Project Report and Loan Application | 1 Month |
| 2. | Processing of loan application and sanction of loan | 2 Months |
| 3. | Disbursement of loan 1 st Installment | 1 month |
| 4. | Building construction | 3 Month |
| 5. | Machinery selection & placement of order | 1 Month |
| 6. | Order processing by suppliers and receipt of machinery at site. | 5 Months |
| 7. | Formalities in the electricity board & connection of power line. | 4 Months |
| 8. | Procurement of raw materials & packing material | 1 Month |
| 9. | Erection of machinery, trial run comprising of operator's training idle running of machineries trial production etc. | 1 Month |

TECHNICAL ASPECTS :

1. Process of Manufacturing :

Finely divided Graphite and clay (lime free stoneware clay) are wet grinded in a ball mill to get a required fineness of the mix. After grinding, the sludge passes to filter press. Excess water is removed by hydraulic dewatering press, then the plastic mass is compressed gradually by the extruder at an extrusion pressure 800 to 2000 PSI and finally it is forced through die of the diameter of the finished lead into a continuous string.

The die head is mounted on a toggle joint so that the string is coiled as it comes out of the die and is caught in a shallow metal dish or on a carrying board. The lead is uncoiled by hand and pinched off into lengths each equal to 60mm length. The extruded leads are laid between boards and allowed to air dry. The dried leads are arranged in bundles in Graphite boxes for firing in a kiln at a temperature of 80-100°C at a slow controlled rate of heating. The hot products are cooled out of contact with air. The cooled leads are immersed in boiling wax to remove grittiness and to increase strength and smoothness. The leads coming out from the boiling wax bath are packet 15 nos. in a rectangular plastic container 65 x 15 x 5mm. Twenty nos. of such plastic containers are packed together in a 3mm thick cardboard flexible container to facilitate distribution activities.

2. Quality Standard :

It should conform ASTM D 4236.

3. Production Capacity [Per Annum] :

Quantity : 600 Lakhs plastic container each of with 15 nos.
thin Graphite stick per annum.

Value : 128 Lakhs

4. Motive Power : 120 HP

FINANCIAL ASPECTS :

1. Fixed Capital :

Land	3650 sq.ft	Rs.1,82,000/-
Building		
Work shed	17'x42'	Rs.1,40,000/-
Raw material stores	16' x 10'	Rs.28,000/-
Finished goods	16' x 10'	Rs.28,000/-
Office	16' x 10'	Rs.72,000/-
Water position and supply lining arrangement	L.S.	Rs.20,000/-
Boundary wall		Rs.75,000/-
	TOTAL :	Rs.3,65,000/-

Machinery & Equipments :

Sl.No	Description	Qty.	Price [Rs.]
1.	Ball mill 500 Kg. Cap. With accessories and motor	1 no.	20,000/-
2.	Agitator Plastic Tank, Capacity 500 ltr. With accessories and motor.	1 no.	15,000/-
3.	Filter press & pump 1 dia, 5 plates	1 no.	20,000/-
4.	Extruder barrel diameter 100mm pressure 60 bar volumetric output 0.5 m/h, power requirement 30 KW approx.	1 no.	50,000/-
5.	Corrugated wooden plates (2'x2')	50 nos.	20,000/-
6.	Dryer (700 x 1050 x 240mm)	2 nos.	40,000/-
7.	Furnace 1100°C (700x1050x240mm) with automatic programme controller	1 no.	1,00,000/-
8.	Copper wax bath connected with heater (1050x1050x300mm)	2 nos.	30,000/-
9.	Sorting machine with counter & belt conveyor 10'	1 no.	20,000/-

	Add : Sales Tax and Excise Duty @24%	:	75,600/-
General Fixed Assets :			
	<u>POLLUTION CONTROL</u>		
10.	Pollution control equipment complete with ducts, blowers and filter bag system	1 no.	50,000/-
11.	Laboratory equipment	L.S.	50,000/-
	Add. Installation & erection @ 15% of Sl.No. 1 to 11	L.S.	50,000/-
12.	Scooter (for marketing)	---	35,000/-
13.	Office furniture & Equipment	L.S.	25,000/-
14.	Fire fighting equipment	L.S.	5,000/-
15.	Generator 5 KVA		30,000/-
16.	Weighing Scale		5,000/-
17.	Show room cum distributor center at prime area	2 nos.	3,00,000/-
	TOTAL	:	Rs.5,50,000/- -

Pre-operative Expenses :

1.	Preliminary expenses, such as preparation of project report, registration fee, legal fee, processing fee with different institution	Rs.20,000/-
2.	Traveling & negotiation	Rs.5,000/-
3.	Trial run expenses, salary of staff during construction period.	Rs.20,000/-
4.	Security deposited JSEB	Rs.15,000/-
	TOTAL :	Rs.60,000/-

Total Fixed Capital :

1.	Land	Rs.1,82,000/-
2.	Building	Rs.3,65,000/-
3.	Machinery Equipment	Rs.3,90,600/-
4.	Other general fixed assets	Rs.5,50,000/-
5.	Pre-operative expenses	Rs.60,000/-
	TOTAL :	Rs.15,47,600/-

WORKING CAPITAL [PER MONTH]:

I. Personnel :

A. Administration :

Sl.No	Description	No.	Total (Rs.)
1.	General Manager	1	10,000/-
2.	Clerk cum typist	1	3,000/-
3.	Peon	1	1,200/-
4.	Watchman	2	2,400/-
5.	Sweeper	1	1,200/-
	TOTAL	:	Rs.17,800/-
	15% for service benefits	:	Rs.2,670/-
	TOTAL	:	Rs.20,470/-

B. Production :

Sl.No	Description	No.	Total (Rs.)
1.	Supervisor	1	5,000/-
2.	Ball mill operator	2	6,000/-
3.	Semi skilled labour for mixing area	4	4,800/-
4.	Semi skilled labour for extrusion area	2	2,400/-
5.	Semi skilled labour for drying	2	2,400/-
6.	Skilled labour for firing articles	1	3,000/-
7.	Semi skilled labour for wax bath operation and sorting area	2	2,400/-
	TOTAL	:	Rs.26,000/-
	15% for service benefits	:	Rs.3,900/-
	TOTAL	:	Rs.29,900/-

C. Selling & Distribution :

Sl.No	Description	No.	Total (Rs.)
1.	Sales Manager	1	9,000/-
2.	Sales Representative	2	10,000/-
3.	Sales Clerk	1	3,000/-
	TOTAL	:	Rs.22,000/-
	15% for service benefits	:	Rs.3,300
	TOTAL	:	Rs.25,300/-

Total wage bill per month : (A+B+C)

A.	Administration		Rs.20,470/-
B.	Production		Rs.29,900/-
C.	Selling & Distribution		Rs.25,300/-
	TOTAL	:	Rs.75,670/-

II. Raw Material & Consumables :

Sl.No	Description	Qty. per annum/ Kg.	Rate [Rs.]/unit	Value [Rs.]
1.	Graphite	2200	173/Kg.	3,80,600/-
2.	Clay	2000	3/Kg.	6,000/-
3.	Grey Antimony sulphide	500	400/Kg.	2,00,000/-
4.	Lamp black	150	20/Kg.	3,000/-
5.	Wax	40 Kg.	20/Kg.	8,000/-
			TOTAL	Rs.5,97,600/-
			:	
6.	Plastic container with lid	60,00,000	Rs. 1 per Pc.	60,00,000/-
7.	Packing material for distribution	3,00,000	Rs. 3/- Pkt.	9,00,000/-
			TOTAL	Rs.74,97,600/-
			:	
	Raw materials & consumables for one month			Rs.3,74,880/-

III. Utilities [Per Month] :

1.	Extruder	30 KW x 6 Hrs.	180 units
2.	Furnace	47 KW x 25 Hrs.	1175 units
3.	Other	10 KW x 10 Hrs.	100 units
		TOTAL	: 1455 units

1455 unit x 25 days = 36,375 unit per month

Power	36,375 @ 5/- per unit	Rs.1,81,875/-
Diesel	157 ltr @ 20/- per liter	Rs.3,673/-
Water	L.S.	Rs.200/-
	TOTAL	: Rs.1,85,748/-

IV. Other Contingent Expenses [Per Month]:

Sl.No.	Description	Cost [Rs.]
1.	Printing & Stationery	200/-
2.	Telephone & Postal	800/-
3.	Repair & Maintenances	2,000/-
4.	Lubricating oil	450/-
5.	Consumable Stores	2,500/-
6.	Cotton waste	150/-
7.	Small tool for general purpose	400/-
8.	First Aid expenses	450/-
9.	Insurance of office building & showroom	700/-
10.	Lighting and General Cleaning of office building	600/-
11.	Legal fee	800/-
12.	Audit fee	800/-
13.	Traveling allowance	4,000/-
14.	Advertisement expenses	3,000/-
15.	Advances	2,100/-
	TOTAL	Rs.18,950/-

V. Total Recurring Expenditure [Per Month]:

1.	Personnel	Rs.75,670/-
2.	Raw materials for 30 days	Rs.7,49,760/-
3.	Utilities	Rs.1,85,748/-
4.	Other expenses	Rs.18,950/-
	TOTAL	Rs.10,30,128/-

Total Capital Investment :

i.	Fixed Capital	Rs.15,47,600/-
ii.	Working Capital	Rs.10,30,128/-
	TOTAL	Rs.25,77,728/-

FINANCIAL ANALYSIS :**1. Cost of Production**

i.	Total recurring cost	Rs.1,23,61,536/ -
ii.	Depreciation on machinery @ 10%	Rs.39,060/-
iii.	Depreciation on General fixed assets @ 10%	Rs.55,000/-
vii.	Depreciation on building @ 10%	Rs.36,500/-
v.	Interest on capital investment @ 15%	Rs.3,86,659/-
	TOTAL	Rs.1,28,78,755/ -

2. Turn Over (Per annum)

By sale of 1000 x 20x 300 x 2.33 : **Rs.1,39,80,000/-**

3. Profit (Per annum) = Rs.11,01,245/-

4. Net Profit = Rs.5,52,122/-

5. Net Profit Ratio = 3.95%

6. Rate Of Return : = 43%

7. Fixed Cost :

Depreciation on plant & machinery	Rs.39,060/-
Depreciation on General fixed assets	Rs.55,000/-
Depreciation on building	Rs.36,500/-
Interest on capital investment	Rs.3,86,659/-
40% of salary	Rs.3,63,216/-
20% of other expenses	Rs.45,480/-
25% of power expenses	Rs.5,45,625/-
TOTAL	: Rs.14,71,540/-

Break-Even-Point :

$$\frac{\text{Fixed Cost} \times 100}{\text{Fixed Cost} + \text{Profit}} = \frac{14,71,540 \times 100}{14,71,540 + 11,01,245} = 57\%$$

ADDRESS OF MACHINERIES & EQUIPMENT SUPPLIERS

1.	M/s. Oriental Minerals, C-8 Brick Bunder Sewree, Mumbai	For Amorphous Graphite
	M/s. Nandlal Deora & Sons, 50 Esaji Street, Mumbai – 3	
	M/s. Universal Graphite & Mineral Products, K.D. Jaland Road, Kolkata.	
2.	M/s. Honey Plastic Industries, C/o Plasto Traders 2, Bharucha Compound, 1 st floor, 30 pais Street, Byculla (N), Mumbai.	For Plastic Container
	M/s. Sterling Engineering Works, 11, Satyam Industrial Estate, Station Road, Govandi, Mumbai.	
	Hind Plastic Works Pvt. Ltd., Belur, Hawrah.	
3.	M/s. Paramount Chemical Corpn., Tribhuvan Market, Station Road, Ahmedabad.	For Antimony Sulphide
4.	M/s. Carbon Industries Pvt. Ltd., Kurla Andheri Road, Marol Village, Mumbai.	For Carbon black or Lamp black
5.	M/s. Baysakh & Co., Kolkata.	For Furnace and Dryer.

RAW MATERIAL

1. M/s. Hindustan Steel Ltd., Central Sale organization, 2 Fairlie, Kolkata.
2. Local Market.
