

PROJECT REPORT

Of

GRAPHITE CRUCIBLES

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **Graphite Crucibles**.

The objective of the pre-feasibility report is primarily to facilitate potential entrepreneurs in project identification for investment and in order to serve his objective; the document covers various aspects of the project concept development, start-up, marketing, finance and management.

[We can modify the project capacity and project cost as per your requirement. We can also prepare project report on any subject as per your requirement.]



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PROJECT AT A GLANCE

- 1 Name of the Entrepreneur : xxxxxxxx
- 2 Constitution (legal Status) : xxxxxxxx
- 3 Father / Spouse Name : xxxxxxxx
- 4 Unit Address : xxxxxxxxxxxxxxxxxxxxxxxx
- District : xxxxxx
- Pin: xxxxxxx State: xxxxxxxx
- Mobile xxxxxxx
- 5 Product and By Product : **GRAPHITE CRUCIBLES**
- 6 Name of the project / business activity proposed : **GRAPHITE CRUCIBLES UNIT**
- 7 Cost of Project : Rs.39.78 Lakhs
- 8 Means of Finance :
 Term Loan Rs.28.8 Lakhs
 Own Capital Rs.3.98 Lakhs
 Working capital Rs.7 Lakhs
- 9 Debt Service Coverage Ratio : 2.04
- 10 Pay Back Period : 5 Years
- 11 Project Implementation Period : 5-6 Months
- 12 Break Even Point : 29%
- 13 Employment : 9 Persons
- 14 Power Requirement : 40.00 HP
- 15 Major Raw materials : Graphite Powder,Crucible Grog,Silicon Carbide Granules,Fireclay & Plastic Clay,Fireclay Grog,Coke Dust/Granules, Other chemicals & consumables
- 16 Estimated Annual Sales Turnover (Max Capacity) : 201.04 Lakhs
- 17 Detailed Cost of Project & Means of Finance

COST OF PROJECT

(Rs. In Lakhs)

Particulars	Amount
Land	Own/Rented
Plant & Machinery	30.00
Furniture & Fixtures	2.00
Working Capital	7.78
Total	39.78

MEANS OF FINANCE

Particulars	Amount
Own Contribution	3.98
Working Capital(Finance)	7.00
Term Loan	28.80
Total	39.78

GRAPHITE CRUCIBLES

Introduction: Graphite Crucibles are refractory containers specially shaped for metallurgical operations. These are made of a mixture of Graphite, Refractory Clay, Grog and other additives. These crucibles are termed as clay bonded Graphite crucibles according to the raw materials used. The crucibles are available with or without spout. These crucibles are used for melting ferrous, non-ferrous metals alloys and noble metals.



Uses & Market Potential: Graphite Crucibles used in furnaces, direct heating and induction electric furnaces in a vacuum or protective atmosphere at temperatures upto 2500°C. Crucibles are recommended for use with melts of copper, aluminium, zinc, and other metals and their alloys.

The main market for the product is foundry industry. With the growing industrial sector the need for specialized metal and alloy castings is increasing day-by-day. With the advent of many multinational automobile industrial units, many auto spare are manufactured in large numbers in Haryana, Delhi, Punjab and Maharashtra States. There is a good demand in these States for

graphite crucibles. The use of Graphite Crucibles shall accordingly increase. There is a good scope of development of modern smallscale industries with the growing prospects of special casting metallurgical industry both for domestic and export market.

Raw Material: Major raw material requirements are as follows:

1. Graphite Powder
2. Crucible Grog
3. Silicon Carbide Granules
4. Fireclay & Plastic Clay
5. Fireclay Grog
6. Coke Dust/Granules
7. Other Chemical & consumables
8. Packing material

Machinery & Equipments: Major machineries & equipments are as follows:

S No.	Machine	Unit	Price
1.	Roller Crusher, Single roller size 350 x 300mm with a 7.5HP motor and accessories	1	150000
2.	Disintegrator 14" size with 5HP Motor	1	60000
3.	Pan Mixer, 0.5MT capacity with a 3 HP motor and other accessories	1	140000
4.	De airing pugmill, capacity 250 kg/hr. with a 5HP motor vacuum pump and other accessories	1	450000
5.	Hydraulic press with all accessories cap: 1MT/day	1	450000
6.	5 Tonne capacity oil fired down draft kiln with good thermal insulation (back-up) and with a 25 metres high chimney, thermocouples and other draft measuring equipment	1	1500000
7.	Other machinery & equipments	Ls	250000
	Total Amount		3000000

Manufacturing Process: The raw materials such as graphite, Refractory/plastic clay, grog and other additives are mixed in a pan mixer after taking proper batch proportions. The wet mass is then kept for ageing. The aged mix is then extruded in a de-airing pugmill and blanks are made. The crucibles are prepared from the blanks either by pressing in a hydraulic press or by jiggering. The shaped crucibles are then dried, glazed and fired in a kiln to develop strength and glaze.

Area:

The industrial setup requires space for Inventory, workshop or manufacturing area, space for power supply utilities and auxiliary like Generator setup. Also some of the area of building is required for office staff facilities, documentation, office furniture, etc. Thus, the approximate total area required for complete industrial setup is 2500 to 3000Sqft.

Power Requirement –The power consumption required to run all the machinery could be approximated as 40hp

Manpower Requirement– There are requirement of skilled machine operators to run the machine set. Experience quality engineers are required for desired quality control. Some helpers are also required to transfer the material from one work station to other. Office staffs are required to maintain the documentation. The approximate manpower required is 9 including 1 Supervisor, 2 Plant operator, 1 unskilled worker, 1 Helper and 1 Security guard. 3 Skilled worker including Accountant, Manager and Sales person.

Bank Term Loan: Rate of Interest is assumed to be at 11%

Depreciation: Depreciation has been calculated as per the Provisions of Income Tax Act, 1961

Approvals & Registration Requirement:

Basic registration required in this project:

- GST Registration
- Udyog Aadhar Registration (Optional)
- Choice of a Brand Name of the product and secure the name with Trademark if require
- NOC from State Pollution Control Board

Implementation Schedule:

S No.	Activity	Time required
1.	Acquisition of premises	1-2 Months
2.	Procurement & installation of Plant & Machinery	1-2 Months
3.	Arrangement of Finance	1.5-2 Months
4.	Requirement of required Manpower	1 Month
5.	Commercial Trial Runs	1 Month
	Total time Required (some activities shall run concurrently)	5-6 Months

FINANCIALS

PROJECTED CASH FLOW STATEMENT					
PARTICULARS	I	II	III	IV	V
<u>SOURCES OF FUND</u>					
Own Contribution	3.98	-			
Reserve & Surplus	5.82	7.47	12.47	15.32	19.74
Depriciation & Exp. W/off	4.70	4.01	3.41	2.91	2.48
Increase In Cash Credit	7.00				
Increase In Term Loan	28.80	-	-	-	-
Increase in Creditors	1.59	0.29	0.21	0.21	0.21
TOTAL :	51.89	11.76	16.09	18.44	22.43
<u>APPLICATION OF FUND</u>					
Increase in Fixed Assets	32.00	-	-	-	-
Increase in Stock	4.40	0.77	0.74	0.78	0.81
Increase in Debtors	5.57	1.16	1.05	1.11	1.17
Repayment of Term Loan	3.20	6.40	6.40	6.40	6.40
Taxation	0.58	0.75	1.87	3.06	3.95
Drawings	2.00	2.20	4.50	6.50	9.00
TOTAL :	47.75	11.27	14.56	17.85	21.33
Opening Cash & Bank Balance	-	4.14	4.63	6.15	6.74
Add : Surplus	4.14	0.49	1.52	0.59	1.10
Closing Cash & Bank Balance	4.14	4.63	6.15	6.74	7.84

PROJECTED BALANCE SHEET					
PARTICULARS	I	II	III	IV	V
SOURCES OF FUND					
Capital Account					
Opening Balance	-	7.21	11.74	17.83	23.59
Add: Additions	3.98	-	-	-	-
Add: Net Profit	5.24	6.72	10.60	12.26	15.79
Less: Drawings	2.00	2.20	4.50	6.50	9.00
Closing Balance	7.21	11.74	17.83	23.59	30.38
CC Limit	7.00	7.00	7.00	7.00	7.00
Term Loan	25.60	19.20	12.80	6.40	-
Sundry Creditors	1.59	1.88	2.09	2.30	2.51
TOTAL :	41.41	39.82	39.72	39.29	39.89
APPLICATION OF FUND					
Fixed Assets (Gross)	32.00	32.00	32.00	32.00	32.00
Gross Dep.	4.70	8.71	12.12	15.03	17.51
Net Fixed Assets	27.30	23.30	19.88	16.97	14.49
Current Assets					
Sundry Debtors	5.57	6.73	7.77	8.88	10.05
Stock in Hand	4.40	5.17	5.91	6.69	7.50
Cash and Bank	4.14	4.63	6.15	6.74	7.84
TOTAL :	41.41	39.82	39.72	39.29	39.89

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PROJECTED PROFITABILITY STATEMENT					
PARTICULARS	I	II	III	IV	V
A) SALES					
Gross Sale	111.36	134.50	155.48	177.66	201.04
Total (A)	111.36	134.50	155.48	177.66	201.04
B) COST OF SALES					
Raw Material Consumed	68.27	80.65	89.61	98.57	107.53
Electricity Expenses	2.36	2.66	2.95	3.25	3.55
Repair & Maintenance	11.14	13.45	15.55	17.77	20.10
Labour & Wages	9.32	11.19	13.43	16.11	19.33
Depreciation	4.70	4.01	3.41	2.91	2.48
Cost of Production	95.80	111.95	124.95	138.61	152.99
Add: Opening Stock /WIP	-	3.26	3.83	4.42	5.05
Less: Closing Stock /WIP	3.26	3.83	4.42	5.05	5.71
Cost of Sales (B)	92.53	111.39	124.35	137.98	152.33
C) GROSS PROFIT (A-B)	18.83	23.11	31.13	39.68	48.71
	16.91%	17.18%	20.02%	22.34%	24.23%
D) Bank Interest (Term Loan)	3.12	2.55	1.85	1.14	0.44
ii) Interest On Working Capital	0.77	0.77	0.77	0.77	0.77
E) Salary to Staff	4.66	5.59	6.71	8.06	9.67
F) Selling & Adm Expenses Exp.	4.45	6.73	9.33	14.39	18.09
TOTAL (D+E)	13.01	15.64	18.66	24.36	28.97
H) NET PROFIT	5.82	7.47	12.47	15.32	19.74
	5.2%	5.6%	8.0%	8.6%	9.8%
I) Taxation	0.58	0.75	1.87	3.06	3.95
J) PROFIT (After Tax)	5.24	6.72	10.60	12.26	15.79

COMPUTATION OF MAKING OF GRAPHITE CRUCIBLES			
Item to be Manufactured Graphite Crucibles			
Manufacturing Capacity per day		800	kg
No. of Working Hour		8	
No of Working Days per month		25	
No. of Working Day per annum		300	
Total Production per Annum		2,40,000	kg
Total Production per Annum		2,40,000	Kg
Year		Capacity	CRUCIBLES
		Utilisation	
I		40%	96,000.00
II		45%	1,08,000.00
III		50%	1,20,000.00
IV		55%	1,32,000.00
V		60%	1,44,000.00

COMPUTATION OF RAW MATERIAL

Item Name	Quantity of Raw Material	Unit	Unit Rate of	Total CostPer Annum (100%)
Graphite Powder	170.00	Tonne	75,000.00	1,27,50,000.00
Crucible Grog	24.00	Tonne	7,000.00	1,68,000.00
Silicon Carbide Granules	24.00	Tonne	70,000.00	16,80,000.00
Fireclay & Plastic Clay	500.00	Tonne	3,000.00	15,00,000.00
Fireclay Grog	40.00	Tonne	2,500.00	1,00,000.00
Coke Dust/Granules	120.00	Tonne	3,500.00	4,20,000.00
Other consumables & Packing material	Lumsum			4,50,000.00
Total				1,70,68,000.00
Total Raw material in Rs lacs				170.68

Raw Material Consumed	Capacity Utilisation	Amount (Rs.)	
I	40%	68.27	
II	45%	80.65	5% Increase in Cost
III	50%	89.61	5% Increase in Cost
IV	55%	98.57	5% Increase in Cost
V	60%	107.53	5% Increase in Cost

COMPUTATION OF SALE					
Particulars	I	II	III	IV	V
Op Stock	-	3,200.00	3,600.00	4,000.00	4,400.00
Production	96,000.00	1,08,000.00	1,20,000.00	1,32,000.00	1,44,000.00
	96,000.00	1,11,200.00	1,23,600.00	1,36,000.00	1,48,400.00
Less : Closing Stock(10 Days)	3,200.00	3,600.00	4,000.00	4,400.00	4,800.00
Net Sale	92,800.00	1,07,600.00	1,19,600.00	1,31,600.00	1,43,600.00
Sale Price per Kg	120.00	125.00	130.00	135.00	140.00
Sale (in Lacs)	111.36	134.50	155.48	177.66	201.04

COMPUTATION OF CLOSING STOCK & WORKING CAPITAL					
PARTICULARS	I	II	III	IV	V
Finished Goods					
(10 Days requirement)	3.26	3.83	4.42	5.05	5.71
Raw Material					
(5 Days requirement)	1.14	1.34	1.49	1.64	1.79
Closing Stock	4.40	5.17	5.91	6.69	7.50

COMPUTATION OF WORKING CAPITAL REQUIREMENT			
Particulars	Amount	Margin(10%)	Net Amount
Stock in Hand	4.40		
Less:			
Sundry Creditors	1.59		
Paid Stock	2.81	0.28	2.53
Sundry Debtors	5.57	0.56	5.01
Working Capital Requirement			7.54
Margin			0.84
MPBF			7.54
Working Capital Demand			7.00

BREAK UP OF LABOUR				
Particulars		Wages	No of	Total
		Per Month	Employees	Salary
Supervisor		20,000.00	1	20,000.00
Plant Operator		15,000.00	2	30,000.00
Unskilled Worker		10,000.00	1	10,000.00
Helper		8,000.00	1	8,000.00
Security Guard		6,000.00	1	6,000.00
				74,000.00
Add: 5% Fringe Benefit				3,700.00
Total Labour Cost Per Month				77,700.00
Total Labour Cost for the year (In Rs. Lakhs)			6	9.32

BREAK UP OF SALARY				
Particulars		Salary	No of	Total
		Per Month	Employees	Salary
Manager		15,000.00	1	15,000.00
Accountant cum store keeper		12,000.00	1	12,000.00
Sales		10,000.00	1	10,000.00
Total Salary Per Month				37,000.00
Add: 5% Fringe Benefit				1,850.00
Total Salary for the month				38,850.00
Total Salary for the year (In Rs. Lakhs)			3	4.66

COMPUTATION OF DEPRECIATION				
Description	Land	Plant & Machinery	Furniture	TOTAL
Rate of Depreciation		15.00%	10.00%	
Opening Balance	Leased	-	-	-
Addition	-	30.00	2.00	32.00
	-	30.00	2.00	32.00
		-	-	
TOTAL		30.00	2.00	32.00
Less : Depreciation	-	4.50	0.20	4.70
WDV at end of Ist year	-	25.50	1.80	27.30
Additions During The Year	-	-	-	-
	-	25.50	1.80	27.30
Less : Depreciation	-	3.83	0.18	4.01
WDV at end of IInd Year	-	21.68	1.62	23.30
Additions During The Year	-	-	-	-
	-	21.68	1.62	23.30
Less : Depreciation	-	3.25	0.16	3.41
WDV at end of IIIrd year	-	18.42	1.46	19.88
Additions During The Year	-	-	-	-
	-	18.42	1.46	19.88
Less : Depreciation	-	2.76	0.15	2.91
WDV at end of IV year	-	15.66	1.31	16.97
Additions During The Year	-	-	-	-
	-	15.66	1.31	16.97
Less : Depreciation	-	2.35	0.13	2.48
WDV at end of Vth year	-	13.31	1.18	14.49

REPAYMENT SCHEDULE OF TERM LOAN					11.0%		
Year	Particulars	Amount	Addition	Total	Interest	Repayment	CI Balance
I	Opening Balance						
	Ist Quarter	-	28.80	28.80	0.79	-	28.80
	IInd Quarter	28.80	-	28.80	0.79	-	28.80
	IIIRD Quarter	28.80	-	28.80	0.79	1.60	27.20
	Ivth Quarter	27.20	-	27.20	0.75	1.60	25.60
					3.12	3.20	
II	Opening Balance						
	Ist Quarter	25.60	-	25.60	0.70	1.60	24.00
	IInd Quarter	24.00	-	24.00	0.66	1.60	22.40
	IIIRD Quarter	22.40	-	22.40	0.62	1.60	20.80
	Ivth Quarter	20.80		20.80	0.57	1.60	19.20
					2.55	6.40	
III	Opening Balance						
	Ist Quarter	19.20	-	19.20	0.53	1.60	17.60
	IInd Quarter	17.60	-	17.60	0.48	1.60	16.00
	IIIRD Quarter	16.00	-	16.00	0.44	1.60	14.40
	Ivth Quarter	14.40		14.40	0.40	1.60	12.80
					1.85	6.40	
IV	Opening Balance						
	Ist Quarter	12.80	-	12.80	0.35	1.60	11.20
	IInd Quarter	11.20	-	11.20	0.31	1.60	9.60
	IIIRD Quarter	9.60	-	9.60	0.26	1.60	8.00
	Ivth Quarter	8.00		8.00	0.22	1.60	6.40
					1.14	6.40	
V	Opening Balance						
	Ist Quarter	6.40	-	6.40	0.18	1.60	4.80
	IInd Quarter	4.80	-	4.80	0.13	1.60	3.20
	IIIRD Quarter	3.20	-	3.20	0.09	1.60	1.60
	Ivth Quarter	1.60		1.60	0.04	1.60	0.00
					0.44	6.40	

Door to Door Period 60 Months
Moratorium Period 6 Months
Repayment Period 54 Months

CALCULATION OF D.S.C.R

PARTICULARS	I	II	III	IV	V
<u>CASH ACCRUALS</u>	9.94	10.73	14.01	15.17	18.27
Interest on Term Loan	3.12	2.55	1.85	1.14	0.44
Total	13.06	13.28	15.86	16.31	18.71
<u>REPAYMENT</u>					
Repayment of Term Loan	3.20	6.40	6.40	6.40	6.40
Interest on Term Loan	3.12	2.55	1.85	1.14	0.44
Total	6.32	8.95	8.25	7.54	6.84
DEBT SERVICE COVERAGE RATIO	2.07	1.48	1.92	2.16	2.74
AVERAGE D.S.C.R.			2.04		

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