

COPPER INGOTS FROM SCRAP

PRODUCT CODE : 72114

QUALITY & STANDARDS : As per BIS standard

PRODUCTION CAPACITY : 42 MT per year

MONTH AND YEAR OF PREPARATION : March, 2012

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Nagpur – 6.

1. INTRODUCTION:

Copper ingots are generally required by the Non-ferrous casting units which are engaged in the casting of different engineering components of brass, gun metal, bronze etc., the agricultural machinery, automobile industries and railway components.

2. MARKET POTENTIAL:

These ingots are also required for manufacturing of rods, tubes, strips, wires etc. The copper ingots manufactured from copper scrap are generally known as commercial quality ingots & do not come under the group of electrolytic copper as these are secondary quality ingots.

Copper scrap is available from electric Power Supply deptt./ Thermal power station where scraps like tubes, strips, pipes, flats, wires etc. generate almost regularly. The scrap can also be available from electrical repairing shops where servicing of electric motors, pumps, transformers of all kinds, generators, battery testers & many other items is done regularly.

3. BASIS AND PRESUMPTIONS:

The project profile is drawn on the basis of following presumptions.

Working hours per shift	: 8 Hours.
No. of shift per day	: 1 shift
Working days	: 300 days
Total number of working hours	: 2400
Working efficiency	: 75%
Time period for achieving maximum capacity Utilization.	: 3 rd year from the date on which production is started
Labour charges	: As per minimum Wages Act of State Govt.
Rate of bank interest	: 12%
Operative period of the project	: 10 years.
Melting loss has been estimated at 8-10%.	

4. IMPLEMENTATION SCHEDULE:

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

<u>Sl.No.</u>	<u>Nature of activities</u>	<u>Time period in months (estimated)</u>
1.	Scheme preparation and approval	0-1
2.	SSI provisional registration	1-2 day
3.	Sanction of loan	2-5
4.	Clearance from Pollution control Board	3-4
5.	Placement of order for delivery of machinery	4-5
6.	Installation of machines	6-7
7.	Power connection	6-7
8.	Trial run	7-8
9.	Commencement of production	9 months

5. TECHNICAL ASPECTS:

A. Production details and Process of Manufacture:

Before the process of melting, the copper scraps are required to be pickled in an acid tank to eliminate dry oxide, dust, oils, mud etc. In the pickling process, sulphuric acid is normally used 3 to 5% with cold water in a stainless steel tank specially fabricated for this purpose according to the requirement of day-to-day production. The holding time of scraps in the sulphuric tank is determined for one hour or more per batch

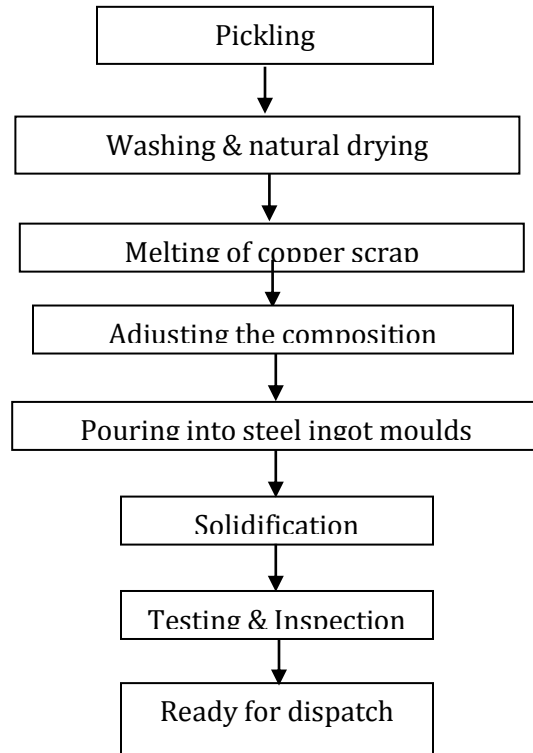
& the care must be taken to see that the acid does not affect the surface of the metal. The pitting action should not be there on the metal surface & time may be adjusted to avoid the same. The scraps are then allowed for washing & natural drying.

Melting of copper scraps is to be followed in oil fired crucible furnace. The furnace temperature during melting must be controlled between 1083°C and 1100°C. The molten metal is then poured into steel ingot moulds of 2 kgs capacity with the help of ladle for solidification. The product is then ready for marketing.

B. Quality Specification:

Copper ingots should be manufactured adhering to relevant BIS specification.

6. Process Flow Chart:



7. Production Capacity:

Quantity : 37.80 tones per annum.

Value : Rs. 2,32,47,000/-

8. Motive power : 5 HP.

9. Pollution Control Measures:

While heating provision for smoke emitting equipment be made with chimney to pass through flue gases.

10. Energy Conservation:

Energy audit is an essential part for energy conservation. The following factors should be taken care of with regard to fuel economy in industrial furnace.

Proper heat distribution.

Complete combustion with minimum excess air.

Operating at the desired temperature.

Reducing heat losses from openings, Minimizing wall losses

Waste heat recovery from fuel gases, Control of chimney draught.

11 Financial Aspects

A. Fixed Capital

i) Land & Building, 2000 Sq. Ft. (rented) per month

5000

ii) Machinery & Equipments:

S.No.	Description of Machines	Quantity	Price (Rs)
1	Oil fired crucible furnace (50 Kg capacity) with 2HP motorised blower, burner, overhead oil reservoir tank & accessories etc.	1	100000
2	Moulding Ingots (cap.of molten metal-2Kgs wt. each)	10	30000
3	Stainless Steel Tank 6'L x 3'W x 3'H.	1	20000
4	Silicon Carbide crucibles (molten metal cap. 50 Kgs each)	3	15000
5	Laddles, Pokers, Wire net, Buckets etc.	L.S.	12000
6	Initial Filling of Sulphuric acid	300 ltrs	20000
7	Platform type weighing machine 150 Kg. Cap	1	10000
8	Bench Grinder, 1HP	1	10000
		TOTAL	217000
9	Electrification & installation @ 10% of above cost		21700
10	Office equipments like furniture, fan, typewriter etc.	L.S.	50000
11	Pre-operative expenses		40000
		TOTAL	328700

12 Working capital (Per month):

A: Staff & Labour:

S.No.	Description	Nos.	Salary	Total
1	Manager	1	8000	8000
2	Salesman	2	3500	7000
3	Melter	1	7000	7000
4	Accountant/Clerk	1	5000	5000
5	Skilled Worker	2	3000	6000
6	Semi-Skilled Worker	2	2500	5000
7	Unskilled worker	4	2200	8800
8	Peon	1	3000	3000
9	Watchman	1	3000	3000
			Total	52800
10	Add perquisite @15% of salary			7920
			Total	60720

B. Raw Material (Per month)

S.No.	Particulars	Qty.	Rate(Rs.)	Value
1	Copper Scrap, Kgs	3500	450	1575000
			Total	1575000

C. Utilities (Per month)

1	Electricity	15000
2	Sulphuric Acid, 100 ltrs @Rs. 90/ltr.	9000
3	Furnace Oil, 1500 ltrs @Rs. 35/ltr.	52500
	Total	76500

D. Other Contingent Expenses (Per month)

1	Rent	10000
2	Postage & Stationery	5000
3	Telephone	5000
4	Insurance	8000
5	Repairs & maintenance	10000
6	Consumable Stores	10000
7	Misc. Expenses	7000
8	Transport allowances	10000
	Total	65000

13 Total Working Capital (Per month) 1777220

14 Total Capital Investment

i)	Fixed Capital	328700
ii)	Working Capital	5331660
	Total	5660360

15 Financial Analysis**a. Cost of Production (Per Year)**

i)	Total recurring cost	21326640
ii)	Depn. on machinery & equipment @ 10%	38370
iii)	Depn. on furnaces @ 20%	20000
iv)	Depn. On office equipments @ 20%	10000
v)	Interest on Total capital investment @12%	679243
	Total	22074253

b. Turnover (Per Annum)

Copper Ingots, 37800 Kgs @ Rs. 605/- per kg = **23247000**

c. Net Profit per year

Turnover per year - Cost of production = **1172747**

d. Net Profit Ratio

(Net profit per year/ Turnover per year) X 100= **5.04 %**

e. Rate of Return

(Net profit per year/ Total investment) X 100= **20.72 %**

f. Break-even Point

Fixed Cost

i) Rent	120000
ii) Depn. on machinery & equipment @ 10%	38370
iii) Depn. on furnaces @ 20%	20000
iv) Depn. On office equipments @ 20%	10000
v) Interest on Total capital investment @14%	679243
vi) Insurance	96000
vii) 40% of salary & wages	291456
viii) 40% of other contingent expenses excluding rent & insurance	225600

Total 1480669

Break- Even Point (B.E.P.)

[Fixed Cost/ (Fixed cost + Profit)] X 100= **55.80 %**

NAMES & ADDRESSES OF MACHINERY AND RAW MATERIAL SUPPLIERS :

1. M/s. Hannu Metallurgical,
B-22, Girikunj Industrial Estate, Chakala, Mahakali Caves Road,
Andheri (East), Mumbai – 93 Ph.no. (022)-26875545.
2. M/s. Mahavir Engineering Corpn.,
1, Ambica Estate, B/h. Agarwal I.E.,
off S.V. Road, Jogeshwari West,
Mumbai – 102. Ph.no. (022)-56992785
3. M/s. Divecha Electricals,
Balaji Indl. Complex,
Gala No. ½, Navaghar , Bhayandar (E), Distt. Thane.
4. M/s. Nisha Engrs. & Consultants
Nisha Enclave, Plot No. 95,
Sector 23, Cidco Indl. Area, Turbhe, Distt. Thane. Ph.no. (022)-27684697
5. M/s. Combustion Equipments & Instruments,
Jer Mahal, Dhobi Talaw, 1st Floor, Mumbai –2. Ph.no. (022)-27690171/27600842.
6. M/s. AIMIL Ltd.,
Malhotra House, Opp. G.P.O.,
Walchand Hirachand Marg, Mumbai – 1. Ph.no. (022)- 22642435
7. M/s. Electroil Super Thermal Engineers,
151, Small Factory Area, Lakadganj, Nagpur – 8. Ph.no. (0712)-2286284
8. M/s. G.R.C.
1, Taratala Road,
Kolkata-700024.
9. M/s. Standard Electricals
282, B.B. Chatterjee Road,
Kolkata-700042. Ph no. (033)- 24422063
10. M/s. Associated Engineers
32, G.C. Avenue,
Kolkata-13. Ph. No. (033)-40066117, 22126477, 24731518
11. M/s. Machine Tools Impex
75, S.C. Avenue,
Kolkata-700013. Ph no. (033)- 22377569, 65481114
12. M/s. Rana Udyog (P) Ltd.
NH-6, Vill.: Sulati, Dhulgarh,
Howrah -711303. Ph.no. (033)- 26617891

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