4

Eco-Friendly Shoe Upper Leather

PRODUCT CODE	:	N.A.
QUALITY AND STANDARDS	:	BIS Specification/Customer's Specification
PRODUCTION CAPACITY	:	60,000 Pcs. of Cow Hides (per annum)
MONTH AND YEAR OF PREPARATION	:	February, 2003
PREPARED BY	:	Small Industries Service Institute 111-112, B.T. Road, Kolkata

Introduction

Eco-Friendly shoe upper Leather is generally manufactured from raw-hides and skins by using eco-friendly chemicals and by reducing polluting materials during its manufacturing process. It is used for the manufacturing of Leather Footwear. Footwear made out of eco-friendly upper leather are exported to different countries to fulfil the demand of global market as well as the demand of local market. Apart from footwear this leather is also used for the manufacturing of sports goods items such as sports shoes, travelling kits etc. which are also exported to different countries. Products made out of eco-friendly leather are evergreen and there is good demand for these items by every category of the people.

Market Potential

There are number of footwear manufacturing unit in tiny, SSI, Medium and Large Scale Sector throughout the country which consume shoe upper leather for manufacturing quality footwear. The footwear manufactured by eco-friendly shoe upper leather are popular among the people of all countries, all ages and income group. There is a good demand for the footwear and other leather products from the foreign countries. Leather footwear, leather sports goods, leather goods and other leather manufacturing industries are one of the main industry, earning the major share of foreign exchange for our country. The eco-friendly shoe upper leather is in great demand both within the country and from abroad.

Basis and Presumptions

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

i)	Working hours/shift	8 hours
ii)	No. of shift/day	1
iii)	Working days/ year	300

iv)	Total no. of working hours	2400
v)	Working efficiency	75%
vi)	Time period for achieving max. cap. Utilisation	3rd year from the date on which production will be started
vii)	Labour charges	As per Min. Wage Act of State Govt.
viii)	Margin Money	25% of capital investment
ix)	Rate of interest on fixed and working capital	15%
x)	Operative period of the Project	10 years

Value of the machinery and equipment is estimated on the basis of prevailing cost of the market. It is proposed to utilise the facility of leather splitting and pressing as leather in hydraulic machine from the market as these facilities are available easily.

IMPLEMENTATION SCHEDULE

Sl. No.	*Activity*	*Period*
1.	Registration and other formalities	0 – 3 months
2.	Land acquisition and ceiling of quotations	1 – 3 months
3.	Construction process	6 – 12 months
4.	Machinery for purchasing and Installation and power connection	6 – 12 months
5.	Trial production	3 months

TECHNICAL ASPECTS

Process of Manufacture

Raw-materials: Wet salted cow hides lower quality ave.

Wt. = 15 kg. each.

De-salting: Remove the salt by mechanical method to Reduce the pollution.

Soaking: The hides are soaked in pits containing 1 to 2% lime 100% water.

Soaked well washed and soaked wt. is noted.

Liming: Paddle liming

Water: 200%

Clarizyme: 0.5%

Sodium sulphide: 2%
On soaked wt.

Lime: 10%
Time 18 to 20 hours.

Unhairing, fleshing and fleshed wt. is to be noted.

Deliming: (Drum Process) – 1st wash with water

Water: 100% Run 30 to 45 minutes.

Ammonium sulphate: 1% to 1.5%
and check *p*H.

Drain and wash well

Pickling: Water 50 to 100%

Salt 5% Run for 20 minutes.

Add: Sulphuric acid = 1% (Dilute with 10% water)

Formic Acid = 25% (on Acid wt.)

Run for 1 hr. and get the cross section *p*H equal to solution of drum.

Left over night. Run for 30 minutes and check *p*H = 2.8 to 3.0

Drain 50% of pickle bath and add.

Chrome powder = 4%

Run for = 1 hr. and add.

Chrome powder = 4%

Run for 1 hr. check penetration, add water 100% and basified with.

Sodium formate

Or

Ammonium bicarb= 0.5%

Sodium bi-carbonate= 1%

Feed in 4 to 6 feed after de-solving in water.

Run for 1 hr. check *p*H = 3.8 to 4

Drain the chrome bath and collect it for chrome recovery.

Preserve the pelt in separate bath with suitable eco-friendly preservative, pile the stock for 1 to 2 days. Then samming and conditioning, splitting shaving operation is done and shaved wet is noted.

Wet back with working the hides with 200% water and pile for over night.

Rechroming:

Water = 50%

Basic chrome powder = 4%

Run for 1 hr. add water = 50%

Run for 30 minutes.

Add: Sodi-bi-carb. = 1%

Sodi-formate = .5%

Run for 1 hr.,check

*p*H 3-8 to 4 Pile O/N

Neutralisation:

Water = 100%

Sodi-formate = 1% Run for 30 minutes to

Vernaten EKM 2% 45 minutes check *p*H – 4.8 to 5.8

Drain, Wash well

Dyeing and Fat Liquoring and Retanning:

Hot water = 10%

Suitable dye= ½% to 1%

Run for 30 minutes and

Add:

Suitable fat liquor =4 to 6%

Run for 1 hr. and add

Retanning syntan= 3% and run for 30 minutes

Fixed with formic acid=0.25%

Run for 15 minutes check and drain.

Wash the pelt in hot water and pile for over night.

Next day sammed, setting and drying operation is done. After drying, post tanning operation are done. Then the goods are ready for finishing. The goods are finished as per requirement by using pigments and binder and finally top coat with lacquer is applied to prevent the bleeding of colour. The leather is then assorted, measured and packed for despatch.

Quality Control and Standards

As per buyers specification or BIS specification is followed.

Production Capacity (per annum)

Quantity	:	60,000 cow hides.
Value	:	Rs. 5,04,00,000
Permanent manpower	:	35 nos.
Motive Power		160 HP.

Pollution Control

As the project is envisaged to be set up in Industrial Estate for tanneries with Common Effluent Treatment Plant,

separate pollution control plant is not considered in the project. However, a cost of about Rs.10,000 will be incurred per month for maintenance of CETP.

Energy Conservation

There exists a lot of scope of energy conservation in the tannery, since a lot of energy is spent in the tannery in the form of electricity and fuel. As a measure of energy conservation, the workers should be properly trained to operate the machinery as and when required and maintain them in good condition and check wastage of energy. The electrical lines should be properly installed and checked at regular intervals.

FINANCIAL ASPECTS

A. Fixed Capital

(i) Land and Building	(Rs.)
Land 2000 sq. mtr	2,60,000
Office building, Lab. Store 120sq.mtr. @ 2000/mtr.	2,40,000
Factory shed, Boundary wall etc. 1000 sq.mtr. @ 1500	15,00,000
Total	20,00,000

(ii) Machinery and Equipments

Sl. No.	Description	Qty.	Rate (Rs.)	Price (Rs.)
1.	Wooden paddle with motor starter etc.(Complete in all respect) size 8'x7' with 10HP motor 1000 RPM	2 nos.	75,000	1,50,000
2.	Tanning drum 8'x6' with 10HP motor and starter (Complete in all respect)	2 nos.	1,50,000	3,00,000
3.	Fleshing machine 1800mm working width with 20HP motor and starter	1 no.	1,50,000	1,50,000
4.	Experiment drum 3'x3' with 5HP motor and starter	1 no.	55,000	55,000
5.	Shaving machine single width 7.5HP motor and starter	2 nos.	75,000	1,50,000
6.	Dyeing and fat liquiring drum size:8'x6' with 10HP motor and starter	2 nos.	1,50,000	3,00,000
7.	Reverseable type setting machine 1800mm working width with 15HP motor and starter	1 no.	1,75,000	1,75,000
8.	Through feed buffing machine 1800mm working width with 15HP motor and starter	1 no.	2,00,000	2,00,000
9.	Toggle chamber with 10 Plate toggle drier unit (Complete unit)	1 no.	2,00,000	2,00,000
10.	Slow comb staking M/c. with 75HP Motor	2 nos.	65,000	1,30,000
11.	Spray chamber with one compressor and two spray systems with exhaust system (complete in all respect)	1 unit.	1,00,000	1,00,000
12.	Electronic area measuring machine 1800mm working width with motor (Complete)	1 no.	2,00,000	2,00,000
13.	Weighing scale, working table and other hand tools, Lab Equipment and Misc. Items etc.	L.S.	L.S.	50,000
14.	Cost of pollution control system.	1 unit	L.S.	6,00,000

Sl. No.	Description	Qty.	Rate (Rs.)	Price (Rs.)
15.	Cost of tube well, OHD, Water Supply system, Oil fired baby Boiler etc.	L.S.		2,40,000
16.	Diesel generator set 50KVA with standard accessories etc.	1 no.		2,50,000
17.	Cost of transformer and other electrical accessories and other legal expenses etc.	L.S.		3,25,000
18.	Electrification and Installation charges @ 10% on Rs.32,50,000			3,25,000
19.	Cost of furniture and office equipment	L.S.		1,00,000
		Total		40,00,000

Total Fixed capital	(Rs.)
Land and Building	20,00,000
Machinery and Equipment	40,00,000
Total	60,00,000

B. Working Capital (per month)

(i) Personnel and Technical (per month)

Sl. No.	Designation	No.	Salary (Rs.)	Total (Rs.)
1.	Manager-cum-tanner	1	10000	10,000
2.	Production Manager-cum-Supervisor	1	7000	7,000
3.	Accountant-cum-Clerk-cum-cashier	1	4000	4,000
4.	Store Keeper-cum-Typist	1	4000	4,000
5.	Watchman/Peon/ Attendant	4	2000	8,000
6.	Sweeper	1	2000	2,000
7.	Electrician-cum-Boiler man	1	3000	3,000
8.	Machine Operator	5	4000	20,000
9.	Skilled Worker	7	4000	28,000
10.	Semi-skilled worker	8	3000	24,000
11.	Helper/unskilled	6	2000	12,000
		Total		1,22,000
Perquisites @ 20% of Salaries				24,400
		Total		1,46,400

(ii) Raw Materials (per month)

Sl. No.	Particulars	Qty.	Rate (Rs.)	Value (Rs.)
1)	Wet salted cow hides (Lower quality) Ave. of wt. 15kg.each.	5000pcs.	450	22,50,000
2)	Cost of chemicals from soaking to finishing including service charges for spliting and processing and other charges outside etc.	5000 pcs.	200	10,00,000
		Total		32,50,000

(iii) Utilities	(Rs.)
Power	30,000
Fuel (Diesel+Furnace Oil)	20,000
Total	50,000

(iv) Other Contingent Expenses		(Rs.)
1)	Stationery and postage	1,000
2)	Transportation charges	1,000
3)	Packaging charges	1,000
4)	Consumable stores	5,000
5)	Repair and maintenance	3,000
6)	Legal expenses and other Misc. items.	3,000
7)	Sales expenses	2,000
8)	Advertisement	2,000
9)	insurance	2,000
	Total	20,000

(v) Total Recurring Expenses (per month) 34,66,400

(vi)	Total working capital (for 3 months)	1,03,99,200
	Say	1,04,00,000

C. Total Capital Investment

i)	Fixed capital	Rs. 60,00,000
ii)	Working capital for 3 month	Rs. 1,04,00,000
	Total	Rs. 1,64,00,000

FINANCIAL ANALYSIS

(1) Cost of Production (per year)		(Rs.)
i)	Total working capital	4,16,00,000
ii)	Depreciation on building @ 5%	87,000
iii)	Depreciation on machinery and equipment @ 10%	3,25,000
iv)	Depreciation on office equipment @ 20%	20,000
iii)	Interest on total capital investment @ 15%	24,60,000
	Total	4,44,92,000

(2) Turn over (per year) By sale of finished leather as per:

Sl. No.	Items	Qty.	Rate (Rs.)	Value (Rs.)
i)	Grade-I (2%)	30,000 sq. ft.	55/ sq.ft.	16,50,000
ii)	Grade-II (20%)	3,00,000 sq.ft.	43	1,29,00,000
iii)	Grade-III (40%)	6,00,000 sq.ft.	32	1,92,00,000
iv)	Grade-IV (38%)	4,50,000 sq.ft.	25	1,12,50,000
v)	Natural split leather 60%	9,00,000 sq.ft.	6	54,00,000
		Total		5,04,00,000

(3) Net profit (per year) Rs. 59,08,000

(4) Net Profit Ratio

$$= \frac{\text{Net Profit (per year) x 100}}{\text{Turn-Over (per year)}}$$

$$= 11.72\%$$

(5) Rate of Return

$$= \frac{\text{Net Profit (per year) x 100}}{\text{Total Investment}}$$

$$= 36\%$$

(6) Break-even Point

Fixed Cost		(Rs.)
i)	Depreciation on building	87,000
ii)	Depreciation on machinery	3,25,000
iii)	Depreciation on office equipment	20,000
iv)	Insurance	24,000
v)	Interest on total capital	24,60,000
vi)	40% of salary	7,02,720
vii)	40% of other contingencies and utilities	3,36,000
	Total	39,54,720

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

$$= \frac{39,54,720 \times 100}{(39,54,720 + 59,08,000)}$$

$$= 40\%$$

Additional Information

For Pollution treatment Plant, designing and construction on Turn Key Basis CLRI, Adyar, Chennai may be contacted.

Addresses of Machinery and Equipment Suppliers

1. M/s. Bengal Machinery Co. Pvt. Ltd.
   9A, New Tangra Road,
   Kolkata – 700 046.
2. M/s. Shalimar Engg. Works,
   12-B, Prabhuram Sarkar Lane,
   Kolkata – 15.
3. M/s. Annapurna Engg.Works
   F–10/2, MIDC, Shiroli,
   Kolhapur.

4. M/s. PDTC (NSIC),
B-24, Guindy Indl. Estate,
Chennai – 9.

Raw Material Suppliers

1. Wet salted raw-hides are available in the local raw-hides market of Kolkata and Panjipara,
Dist: North Dinajpur, W.B.

Chemical Suppliers

1. M/s. BASF India Ltd.
2. M/s. Bayer(India) Ltd.
3. M/s. Sandoz (P) Ltd.
4. M/s. Leather Chemicals and Industries Ltd.
A-I, New Alipur, Kolkata.
5. M/s. Chromtan India (P) Ltd.
14, Temple Street,
Kolkata.
6. M/s. Balmer Laurie and Co.
10, Spuc Tank Road, Chetpur,
Chennai.
7. M/s. Golden Chemical(P) Ltd.
Vileparle,
Mumbai – 56.
8. M/s. Tamil Nadu Chromates and Chemical Ltd.
13, Nungam Bakhen High Road,
Chennai – 34.
9. M/s. Allied Resin Chemical Ltd.
134/1, M.G. Road,
Kolkata.