

Nubuck Leather

PRODUCT CODE	: N.A.
QUALITY AND STANDARDS	: IS 8170 -1977
PRODUCTION CAPACITY	: Quantity: 60,000 Pieces Value: Rs. 4,44,00,000
MONTH AND YEAR OF PREPARATION	: January, 2003.
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INTRODUCTION

Nubuck leather is generally manufactured from raw cowhide and used for manufacturing of footwear articles, leather garments and leather goods. Shoes, leather goods and leather garments are exported to different countries to fulfil the global market. Nubuck leather is softer and has attractive look.

MARKET POTENTIAL

There are a number of shoes, garments and goods manufacturing units throughout the country which demand nubuck leather due to good export market for products made by nubuck leather.

BASIS AND PRESUMPTIONS

1. The Project Profile has been prepared on the basis of single

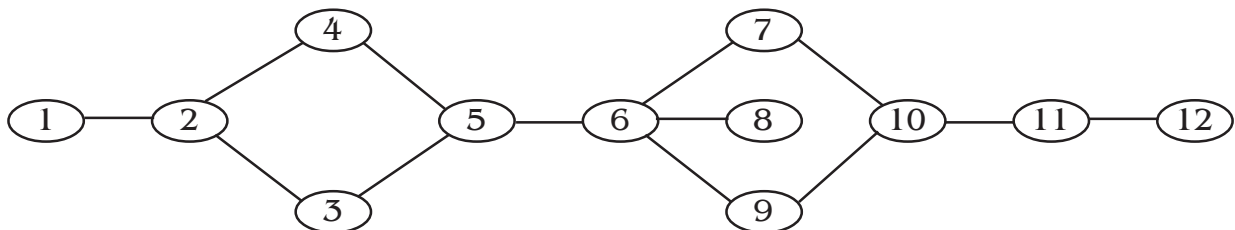
shift of 8-hrs. a day and 25-working days in a month at 75% efficiency.

2. It is presumed that the capacity utilisation will be 70% followed by 85% in the next year and 100% in the subsequent year.
3. The rates quoted in respect of salaries and wages for skilled worker and others are on the basis of minimum rates in the State Govts.
4. Interest rate for the fixed and working capital has been taken @ 15% on an average whether financed by the Bankers or Financial Institutions.
5. The margin money required is minimum 30% of the total capital investment.
6. The rental value for the accommodation of office, workshop and other covered area has been taken @ Rs. 20 per sq. mtr.

7. The rate quoted in respect of machineries, equipment and raw materials are those prevailing at the time of preparation of the Project Profile and are likely to vary from place to place and supplier to supplier. When a tailor made project profile is prepared, necessary changes are to be made.
8. The pay -back period may be 5- years after the initial gestation period.
9. The gestation period in implementation of the project may be to the tune of 6 to 9 months which includes making all arrangements, completion of all formalities, market surveys and tie-ups etc. Once all the above arrangements are made and quality/standards achieved the 100% project capacity may be achieved at the end of three years. However, a detailed PERT/CPM/ chart with implementation period has been given in the report.

IMPLEMENTATION SCHEDULE

The implementation of the project includes various jobs/exercises such as procurement of technical know how, transfer of technology, market surveys and tie-ups, preparation of project report, selection of site, registration, financing of project, procurement of machinery and raw materials etc., recruitment of staff, erection/ commissioning of machines, trial production and commercial production etc. In order to efficiently and successfully implement the project in the shortest period the slack period should be curtailed to minimum possible and as far as possible simultaneous exercises should be carried out. In view of above a CPM-PERT Chart has been illustrated below, according to which a minimum period of 227 days is involved in finally starting the project on commercial basis. By following this process a time period of 82 days can be saved.



Details of Activities

C.P.M.

Activity	Days	Activity	Days	Particulars of Activity
1-2	15	1-2	15	Procurement of Tech. know how/ transfer of technology.
3-4	15	3-4	15	Market survey, tie up and obtaining quotations.
4-5	7	2-3	7	Selection of site.

Activity	Days	Activity	Days	Particulars of Activity
5-6	70	4-5	7	Preparation of Project report
6-7	45	5-6	70	Registration and financing.
7-10	30	6-7	45	Placement of orders for machineries and receipt of machines.
10-11	30	6-8	30	Recruitment of staff and training
11-12	15	6-9	30	Addition/Alteration in rental premises
8-10	15			Procurement of raw material/Bought out components
7-10	30			Erection, Electrification and Commissioning
10-11	30			Trial Production
11-12	15			Commercial Production
Total	227		309	

TECHNICAL ASPECTS

Process of Manufacture

Raw Material: Wet salted hair slip quality cow hide of average weight 11-15 Kg. each.

Soaking: The hides are washed thoroughly and soaked in a paddle containing the following chemicals :

Na ₂ S	0.2%
Water	400 -500%

(Percentage is taken on the raw weight)

The hides are kept in the paddle over night. Next morning the paddle is run for 30 minutes and checked for proper soaking and then washed in running water, drained out and soaked weight is taken.

Liming: Liming is done in drum. The following chemicals are taken on soaked weight:

Water	300%
Nitrogen LS	0.2%
Na ₂ S	5%

Slaked Lime	4% -6%
Salt	2%

The liming takes 18-20 hours, the drum is run for 2 -3 minutes every two hours, rinsed in soft water for 10 minutes, fleshed and scudded and limed weight is taken.

Deliming: The fleshed pelt is washed in running water in drum for 20 minutes and drained out. The following chemicals are taken on pelt weight:

Water	250%
Ammonium Sulphate	1.2% to 1.7%
Sodium bi Sulphate	0.4% to 0.6%

The drum is run for 30-40 minutes and checked by phenolphthalein and test should show 20 -25 red or drained out and washed thoroughly with 2 changes of water for 20 minutes then pelts are scudded.

Pickling: The pelts are pickled with the following chemicals:

Water	70%
Salt	5%

Drum run for 10 minutes and then add H_2SO_4 -1.5%.

The acid is diluted with water and added in three instalments at an interval of 10 minutes and after last instalment run the drum for 45 minutes. Checked the pH of pelt with bromophenol blue indicator which should be 2.8.

Chrome Tanning: Half of the pickle liquor (pelt) is drained out and the hide is run for 15 minutes then add:

Basic Chrome Powder	7%
Sodium Acetate	0.5%
Soda Ash	0.3%

Chemicals are fed in two instalments at the interval of 15 minutes and drum run for further 2 ½ hours, pH 3.8 -4.0 pile up over night and next day samming and setting, splitting, shaving, to 1.3 - 1.4 mm. These shaved leathers are washed for 10 minutes in warm water 30-35°C.

Retanning: Basic Chromium 3%

Sulphate (33%)	
Sodium formate	0.5%
Drum run for 10 minutes then add	2%
Cationic fat liquor	
Drum run for 1 hour then add sodium formate	2%

Sodium bicarbonate 0.7%
(dissolved 1:10)

and drum run for 45 minutes and pH should be 4.5 -4.8 then add:

wattle extract powder	4%
Tanigun pR -(Buyer)	1%
Chestnut extract powder	1%

Drum run for 45 Minutes then drain only and rinse for 5 minutes.

Dyeing and Fat Liquoring:

Acid dye in powder 3%
Drum run for 25 minutes and then add water 100%

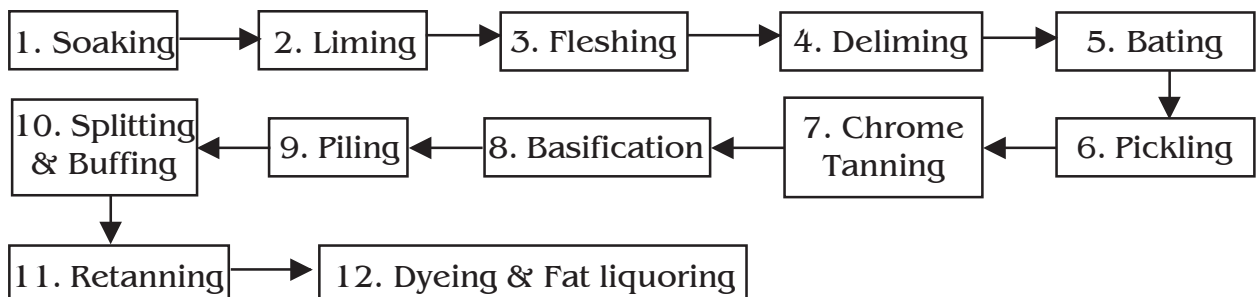
Drum run for 20 minutes and then add: Soundozal KB 6%

Drum run for 1 hour and then Add: Formic Acid - (diluted 1:10) 0.5%

Drum run for 20 minutes and then add: Taffuilon 218 A 1.1%

Drum run for 20 minutes and then horse up. The leathers are sammed, set out, saw dusted, staked, toggled, buffed on grain with 400 grit emery paper and brushed off.

Process Flow Chart



Production Capacity

Quality : 60,000 Cow hides
Value : Rs. 4,44,00,000

Quality Control and Standards

Indian standard specification IS 8170:1977 is used in maintaining standards for cow nubuck leather

Motive Power : 130 HP.
Water : Rs. 1000

Energy Conservation

The following steps may be taken for the conservation of energy:

1. Machinery and Equipment's parts which are revolving and reciprocating should be properly lubricated from time-to-time with suitable lubricant oil.
2. Lay out of the unit should be in such a way in that no back tracking of material is there.
3. All electric switches may be kept off, when not required.
4. The entire transmission belt will be tightened before starting the work, wherever applicable.
5. Fluorescent tube with electronic Chokes may be used for energy saving. Further recently developed compact fluorescent tubes called (CFT) of 10,15, watts Philips/Glaux made may be used for energy saving and decoration. These self ballasted fluorescent lamps are high efficiency replacements for ordinary bulbs. For same light output, CFLEBs consume about one fifth the power consumed by ordinary bulbs, thereby saving a lot of energy. The savings get further

multiplied when CFLEBs are used in air conditioned areas, since the saving of energy by using CLEBs also corresponds to less heat dissipation reducing load on air conditioners. The life of CFLEBs is about 8000/10000 hours i.e. about 10 times that of ordinary bulb.

The typical pay-back period in terms of savings of energy bills and cost of ordinary lamps is about 6 months operation. Unlike ordinary bulbs, these CFLEBs provide choice of three colours designated A, B and C, to suit individual requirements.

Electronic Ballast, with protection against high voltage spikes, along with high quality CFLs make these composite CFLEBs (or self ballasted CFLs) Slim, light weight, efficient and reliable units.

6. As far as possible Solar Energy and day light will be used keeping all the other lights off.
7. As far as possible inductive load of motor will be reduced and high power factor will be used with the aid of capacitors of appropriate sizes.

Pollution Control

The unit requires an effluent Treatment Plant of its own which involves the following main operation In general the operation mainly involved in it as:

1. Screening
2. Sedimentation
3. Setting, Filtration and evaporation (solar). For this proposal an effluent treatment plant of Rs.4.05 lakhs is needed. The break up of which is given below:

Breakup of Effluent Treatment Plant

Sl. No.	Description	Size	Qty.	Cost (Rs.)
1.	Solar Evaporation Tanks	20'X10'X3.5	2	
2.	Sludge Drying bed	20'X10'X3.5'	1	
3.	Equalization –Cum –Setting	15'X10'X5'	1	2,30,000
4.	Preliminary settling Tank	10'X10'X5'	1	
5.	Aeration Tank	10'X10'X5'	1	
6.	Secondary Settling Tank	4'X4'X4'	1	
7.	Drainage	2'X2'X400'		
8.	Lime addition Tank	4'X4'X4'		
9.	G.I.Sheet Pans for items (1) and(2)	20'X10'X3.5	3	70,000
10.	Aeration Paddles	10'X 8'	2	80,000
11.	Electric Motor	7.5 HP	2	20,000
12.	Motor starter	2		3,000
13.	Main Switches etc.			2,000
			Total	4,05,000

FINANCIAL ASPECTS

A. Fixed Capital

(i) Land and Building	(Rs.)
Land 2 acres @ Rs. 1,00,000	2,00,000
<i>Built up Area</i>	
1. Office and Stores etc. 120 Sq. meter	1,80,000
2. Working Sheds 1000 Sq. meters @ 1200	12,00,000
Total	15,80,000

(ii) Machinery and Equipments

Sl. No.	Description	HP/kW (Rs.)	Ind/Imp.	Qty.	Value (Rs.)
<i>(a) Production Unit</i>					
Name of machine with specification:					
1.	Wooden paddle with motor starter etc. 8' x 7'	10	Ind.	2	1,00,000
2.	Tanning Drum with motor starter 8'x6'	10	Ind.	4	4,00,000
3.	Fleshing machine 1800 mm	10	Ind.	1	2,50,000
4.	Experimental Drum 3'X3'	5	Ind.	1	60,000
5.	Double width shaving m/c. 1800 mm width	Ind.		1	4,50,000
6.	Double width splitting m/c. 1800 mm width	Ind.		1	5,50,000

Sl. No.	Description	HP/kW (Rs.)	Ind/Imp.	Qty.	Value (Rs.)
7.	Dyeing and fat liquoring Drum 8'X6'	10 HP	Ind.	2	2,00,000
8.	Staking Machine Comb type		Ind.	1	1,10,000
9.	Toggling Chamber, 10 plates		Ind.	1	90,000
10.	Measuring Machine, 1800 mm width		Ind.	1	2,00,000
11.	Generator set 50 kVA		Ind.	1	2,50,000
12.	Working Table, Toggle etc.		Ind.	1	50,000
13.	Weighing Scale		Ind.	1	50,000
14.	Buffing machine		Ind.	1	1,00,000
				Total	28,60,000
	<i>(b) Testing Equipments</i>				<i>15,000</i>
	<i>(c) Pollution Control Equipment, if required (Effluent Treatment Plant)</i>				<i>4,05,000</i>
	<i>(d) Energy Conservation Facilities/ Equipment, if used: Furnace should have heat resistant fire bricks to avoid wastage of heat energy CFT Tubes Fluorescent Tubes with electronic chokes</i>				<i>10,000</i>
	<i>(e) Electrification and Installation Charges @ 10%</i>				<i>2,86,000</i>
	<i>(f) Cost of Tube well, Pump set, overhead tank and water connection etc.</i>			<i>70,000</i>	
	<i>(g) Cost of office equipment/ Working table etc.</i>				<i>50,000</i>
	<i>(h) Cost of transformer and electrification (If load is more than 15 kW)</i>				<i>1,50,000</i>
	Total Cost of Machinery and Equipments (a + b + c + d + e + f + g + h)				38,46,000
	(iii) Pre-operative Expenses				30,000
	Total Fixed Capital (i+ii+iii) (15,80,000 + 38,46,000 + 30,000)				54,56,000

B. Working Capital (per month)

Staff and Labour (per month)

(i) Personnel

Sl. No.	Designation	No.	Salary	Total Value (Rs.)
	<i>(a) Administrative and Supervisory</i>			
i)	Manager	1	10000	10,000
ii)	Production manager	1	7000	7,000
iii)	Supervisor/ Foreman	1	5000	5,000
iv)	Clerk cum Typist	1	4000	4,000
v)	Store Keeper	1	3,000	3,000
vi)	Peon	1	2000	2,000

Sl. No.	Designation	No.	Salary	Total Value (Rs.)
vii)	Watchman	1	2000	2,000
	<i>(b) Technical Skilled and Unskilled</i>			
	Skilled Workers	7	4000	28,000
	Semi-Skilled Workers	8	3000	24000
	Machine Operators	5	4000	20,000
	Electrician-cum- Mechanic	1	3000	3,000
	Un-skilled workers	6	2000	12,000
			Total (a+b)	1,20,000
	<i>Perquisites @ 20 %</i>			<i>24,000</i>
	Total			1,44,000

(ii) Raw Material (per month)

Sl. No.	Description with specification	Qty.	Rate	Value (Rs.)
1.	Wet salted cow hides	5000 pcs.	450 per pcs.	22,50,000
2.	Chemicals	L.S.	138 per hides	6,90,000
3.	Packing Material, Polythene, Paper, Gunney bag etc.	L.S.		5,000
Total				29,45,000

(iii) Utilities (per month)

	(Rs.)
Electricity power 4000 kWh units @ 1.5 per unit	7,000
Fuel (Diesel) 500 litres @ Rs. 12 per litre	6,000
Water	2,000
Total	15,000

(iv) Other Contingent Expenses (per month)

	(Rs.)
1. Postage and Stationery	1,000
2. Advertisement and publicity	1,000
3. Repair and Maintenance	3,000
4. Telephone	2,000
5. Transportation	2,000
6. Consumable	3,000
7. Sales expenses	2,000
8. Insurance	1,000
9. Legal Expenses and taxes	1,000
10. Misc. Expenses	4,000
Total	20,000

(2) Turnover (per annum)

Sl. No.	Description	Qty.	Rate (Rs.)	Value (Rs.)
1	Nubuck Leather high grade 20,000 pcs. (22 sq. ft. area)	4,40,000 sq. ft.	60 per sq. ft.	2,64,00,000
2	Nubuck Leather medium grade 20,000 pcs. (18 sq. ft. area)	36,0000 sq. ft.	30 per sq. ft.	1,08,00,000
3	Nubuck Leather low grade 20,000 pcs. (18 sq. ft. area)	36,0000 sq. ft.	20 per sq. ft.	72,00,000
Total				4,44,00,000

(v) Total Recurring Expenses (per month) (Rs.)

1) Salary and Wages	1,44,000
2) Raw Material	29,45,000
3) Utilities	15,000
4) Other Contingent Expenses	20,000
Total	31,24,000

(vi) Working Capital (for 3 months)

31,24,000 x 3 = 93,72,000

C. Total Capital Investment

Fixed capital	Rs. 54,56,000
Working capital for 3 months	Rs. 93,72,500
Total	Rs. 1,48,28,000

MACHINERY UTILIZATION

Anticipated utilisation of machinery is about 75 to 80%.

FINANCIAL ANALYSIS

(1) Cost of Production (per annum) (Rs.)

(a) Total Recurring Cost	3,74,88,00
(b) Depreciation on Machinery and Equipment @ 10%	2,86,000
(c) Depreciation on Office Equipments @ 20%	10,000
(d) Interest on Total Capital Investment @ 15%	22,24,200
(e) Depreciation on Building @ 5%, if any	79,000
Total	4,00,87,200
Say	4,00,87,000

(3) Net Profit (per annum) (before Income Tax)

$$\begin{aligned}
 &= \text{Turn Over} - \text{Cost of production} \\
 &= 44400000 - 1482800 \\
 &= \text{Rs. } 43,12,800
 \end{aligned}$$

(4) Net Profit Ratio

$$\begin{aligned}
 &= \frac{\text{Net profit} \times 100}{\text{Turn over}} \\
 &= \frac{4312800 \times 100}{44400000} \\
 &= 9.7\%
 \end{aligned}$$

(5) Rate of Return

$$\begin{aligned}
 &= \frac{\text{Net profit} \times 100}{\text{Total investment}} \\
 &= \frac{4312800 \times 100}{14828000} \\
 &= 29\%
 \end{aligned}$$

(6) Break-even Point

Fixed Cost (per annum)	(Rs.)
(i) Total Depreciation (on m/c. and equipment, dyies, tools, furniture)	2,96,000
(ii) Interest on borrowing (Total Investment)	22,24,200
(iii) Insurance	12,000
(iv) 40% of salary	6,91,200
(v) 40% of other contingent expenses (excluding rent and insurance)	1,63,200
(vi) Depreciation on building	79,000
Total	34,65,600

B.E.P.

$$\begin{aligned}
 &= \frac{\text{Fixed Cost} \times 100}{\text{Fixed cost} + \text{profit}} \\
 &= 44.55\%
 \end{aligned}$$

Addresses of Machinery and Raw Material Suppliers

1. M/s. Bengal Machinery Co.
9 A, New Tangra Road,
Kolkata.
2. M/s. Annapurana Engg. Works
F-10/2, MIDC,
Shiroli,
Kolhapur.
3. M/s. Shalimar Engg. Works
12-B, Prabhorah Sarkar Lane,
Kolkata-15.
4. M/s. Prototype Development
and Training Centre,
B/24, Guindy Estate,
Ekkaduthangal,
Chennai-9.
5. M/s. Sandoz (P) Ltd.
Sandoz House,
Dr. A.B. Road, Worli,
Mumbai-8
6. M/s. Bayer (India) Ltd.
749, Anna Salai,
Chennai-2
7. M/s. Tamilnadu Chromates and
Chemical Ltd.
13, Nungambakkam High Road,
Chennai-34
8. Local Market.