

**PROJECT PROFILE**

**O N**

**MANUFACTURING OF PU LAMINATED SPLIT LEATHER**

**PREPARED BY :**

**LEATHER/FOOTWEAR DIVISION**

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## PROJECT PROFILE ON PU LAMINATED SPLIT LEATHER

PRODUCTION CAPACITY PER ANNUM	90,000 sides of PU Laminated Split Leather equivalent to approximately 1350000 sq.ft.
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QUALITY STANDARD : As per customer's specification.

NO. OF WORKING DAY PER ANNUM : 300 days.

MONTH & YEAR OF PREPARATION : September, 2005

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## 1. INTRODUCTION

The PU Laminated Split Leather is a modern development in leather manufacturing field which has presently a very high demand in the market. This leather has gained wide popularity in the fashion world and is used for making a wide variety of fancy leather products. Considering the low market price of the splits from cow and buffalo hides, its huge availability in the local market and a substantial market potential, the project on manufacturing the PU Laminated Split leather can be said to have a very bright prospect.

## 2. MARKET

There exists a huge market potential for this type of leathers. This is because the footwear and various types of leather products made out of PU Laminated Split Leather are in great demand both in domestic market as well as in the export market. Marketing of the finished PU Laminated Split Leather will not be a problem, since there are a large no. of footwear and leather goods manufacturing units in India specially at Chennai, Kolkata, Kanpur, Agra, Delhi and others places for the production of footwear and leather goods to meet both the internal demand as well as the export demand. Since it is very difficult to furnish the exact demand for the PU Laminated Split Leathers, the prospect can be understood from the overall export performance of Indian leather industry during the last two years which is shown as below:

### **Overall Export statistics of Indian Leather Industries**

EXPORT OF LEATHER AND LEATHER PRODUCTS FROM INDIA DURING APRIL-FEB 2003-04 VIS-A-VIS APRIL-FEB 2004-05 (Value in Million US\$)			
CATEGORY	APR-FEB 2003-04	APR-FEB 2004-05	% VARIATION
FINISHED LEATHER	486.39	523.70	7.67%
LEATHER FOOTWEAR	479.63	537.47	12.06%
FOOTWEAR COMPONENTS	146.03	149.71	2.52%
LEATHER GARMENTS	280.04	304.94	8.89%
LEATHER GOODS	423.81	516.45	21.86%
SADDLERY AND HARNESS	46.39	53.58	15.50%
NON-LEATHER FOOTWEAR	48.16	78.66	63.31%
TOTAL	1910.45	2164.51	13.30%

Source: DGCI & S

### **3. BASIS AND PRESUMPTION**

- 1) The unit would work on single shift basis of 8 hours for 25 days in a month and 300 days per annum.
- 2) Full capacity utilization is envisaged to be achieved within a period of one year.
- 3) Wages and salary is considered on the basis of prevailing local rates.
- 4) Rate of interest for fixed and working capital = 15%
- 5) Margin money = 25%
- 6) Pay-back period of the project = About 3 years.
- 7) Own accommodation.

### **4. IMPLEMENTATION SCHEDULE**

\_\_\_\_\_The implementation schedule is considered to be about one year. This will be necessary taking into account the possible time required for obtaining NOC from the Pollution Control Board, Provisional Registration, preparation of Project Report and its appraisal, permanent registration, taking loan/finance from the bank, arrangement of land, building, machinery & equipment and other working infrastructure, establishing rapport with the trade, industries associations, trial run operation etc.

## 5. TECHNICAL ASPECTS

### **Process of Manufacture :**

The splits taken out from the chrome tanned wet blue leathers(buffalo or cow) are used for making the PU Laminated Split leather. The process of manufacture of the PU Laminated Split leathers from the wet blue splits is given below :-

At first, the wet blue split leathers are shaved in the shaving machine. The thickness is kept at 0.9 to 1.0mm. Then the weight of the shaved splits are taken. This weight will be used for measuring the quantity of chemicals to be added in the subsequent processes.

### **Acidification**

The wet blue splits are taken into the drum and acidified as follows :-

Acetic Acid	- 0.25%	} The drum is run for 10-15 minutes.
Water	- 200%	

### **RE-CHROMING :**

The re-chroming is done in the same bath and the process is run as follows :-

Basic chrome sulphate	= 3% - 40 mins.
Add: Sodi-bi-carb	= 0.5% - 30 mins.

The PH of the bath is adjusted to 4.0 and then the re-chromed wet blue splits are washed in running water for 10 min.

### **Neutralisation**

The neutralisation of the wet blue splits are done as follows :-

Sodi-bi-Carb – 0.5%	The drum is run for 40 mins.
Sodium Formate –0.5%	
Water - 200%	

The netralisation is checked with Bromocresol Green and the PH is adjusted at 5.0. The bath is then washed for 10 mins. And a new float of water is taken in the drum.

### **Retanning**

This process is followed as given below :-

Cationic Fat liquor	- 2%	The drum is run for 30 mins.
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Add : Wattle extract - 2%

Basyntan DI (Syntan) - 1%                      The drum is run for 30 mins.

The re-tanned splits are washed in running water for 5 to 10 mins. Then fresh water is taken into the drum.

**Fat – Liquoring :**

The fat-liquoring is done as follows :

Water	- 200% ( 55° - 60° C)
Sulphited vegetable oil	- 4 %
Synthetic Oil	- 2%
Preservative	- 0.25%

The oil emulsion is added to the drum and the drum is run for about one hour. The exhaustion of the fat is checked. Then 0.5% Acetic Acid is added for fixing the fat and the drum is run for 30 mins. more.

Add : Preservative - 0.25%.                      The drum is run for 20 mins.

The materials are then washed for 10 mins. in running water and then drained out and piled up in the horse overnight.

Next day, the splits are sammed, set and dried. Then the dried split crusts are conditioned in the wet saw dust, toggled and staked in the staking machine. The staked splits are then trimmed off. Then buffing and snuffing of the splits are done on the flesh side and grain side respectively followed by dusting-off operation. The splits are now ready for finishing operation for making PU Laminated Split leather.

**Finishing**

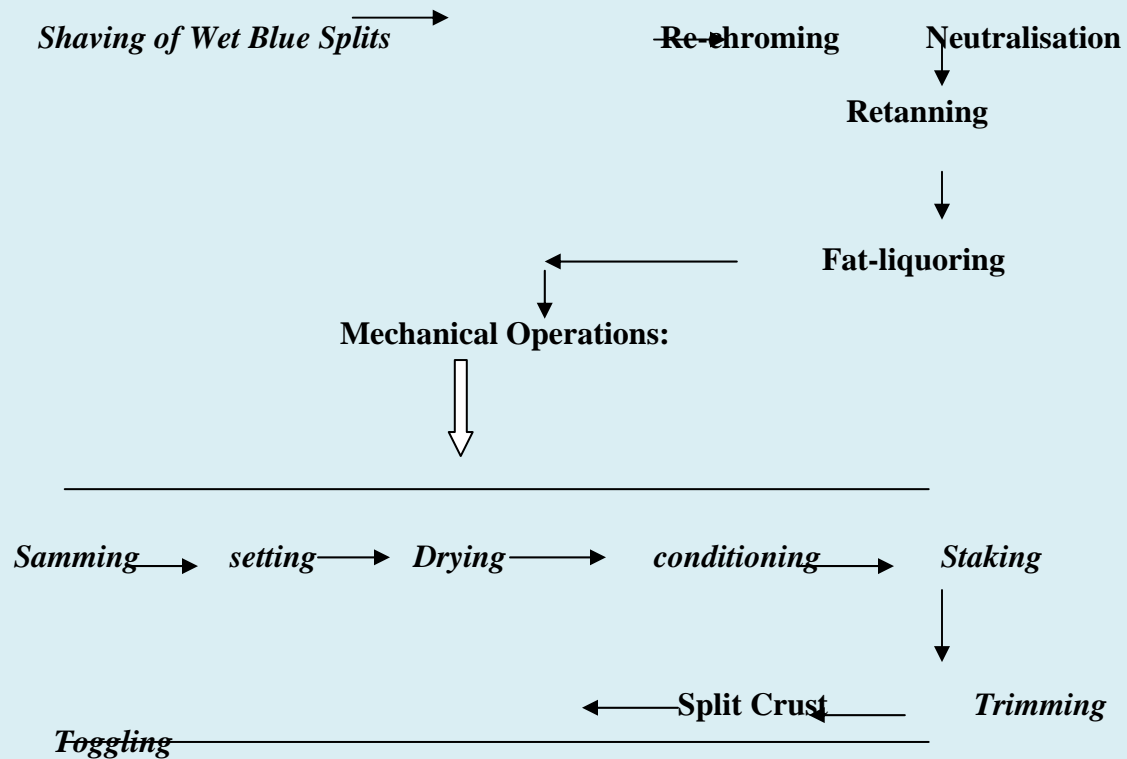
At first a coat of latex solution or Polyurethane solution is applied on the surface of the split on the grain side and dried. Then a hair-cell print is applied on this surface in the hydraulic press. Then a polyurethane (PU) foil is put over the grain side surface of the split leather and plated in the hydraulic press under controlled temperature and pressure. The colour of the PU Laminated split leather will vary and will be selected according to the choice of the customers.

The PU Laminated Split Leather thus produced is finished at the edges by trimming the excess PU film. Finally, the area of the leather is measured and the leathers are packed for despatch. For the purpose of this Project, an average area of 15 sq.ft. per side of the split leather has been considered.

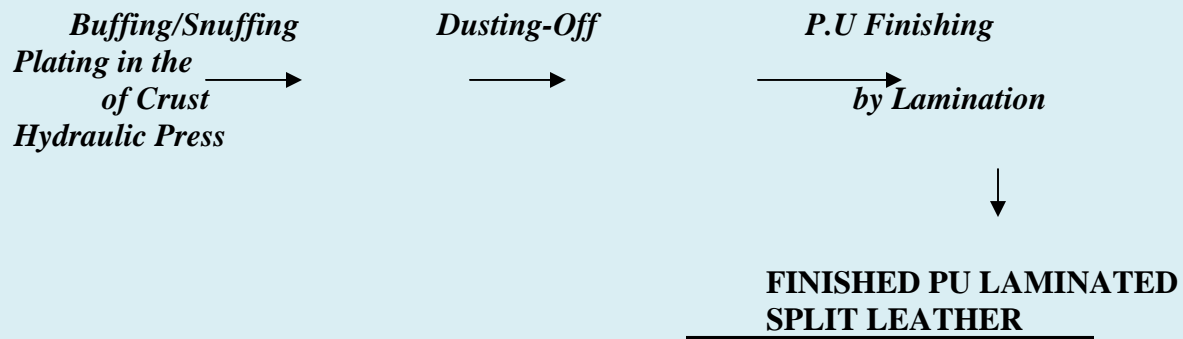
6. PROCESS FLOW CHART:

Process Flow Chart for Manufacturing of PU Laminated Split Leather

Wet Blue Split to Crust Process Flow



Crust to Finishing Process Flow



7. **PRODUCTION CAPACITY (PER ANNUM)**

a) **Quantity:** 90,000 sides of PU Laminated Split leathers. One side represents half of the full cow or buffalo leather, with an average area of **15 Sq.ft**, each side . So, Average total Production =**1350000 Sq.ft. (Approx.)**

b) **Value** = **Rs. 3,51,00,000**

8. **MOTIVE POWER:** 100 HP.

9. **POLLUTION CONTRIOL:**

The pollution control is nowadays one of the most important environmental issues and this has to be given utmost attention. This is because, the effluents coming out of the tanning processes are very toxic and they are likely to affect the flora and fauna of water if disposed off elsewhere or in the river. Hence, for running such tanning unit, a No objection Certificate (N.O.C.) has to be obtained from the Pollution Control Board. Also, suitable measures have to be taken for pollution control by making arrangement for treatment of tannery effluents through a effluent treatment plant.

Hence, a proper effluent treatment plant is to be installed in the tannery to treat the tannery effluents and make the treated water go into the river.

In general, the operations mainly involved in it are :

- 1) Screening;
- 2) Sedimentation;
- 3) Settling and filtration and evaporation (solar).
- 4) Chrome Recovery Plant

The **Estimated Cost** for the effluent treatment plant would be around **Rs.15.00 Lakh.**

The **Running cost** of effluent treatment plant per month is estimated to be around **Rs.30,000/-**

10. **ENERGY CONSERVATION:**

There exists a lot of scope for 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 check and reduce the wastage of energy. They should be made cautious to maximise the output with minimum consumption of energy. The electrical lines should be properly installed and checked at regular intervals. The boiler, if any, should be properly maintained and misuse of fuel in the form of wood, petrol/diesel/ kerosene should be avoided. In order to take appropriate measures to effect energy conservation following steps would be taken.

- 1) Maintenance department will be properly geared up to ensure proper maintenance of all the machines and the electrical system.
- 2) Control system will be provided to measure the cost center-wise energy costs and make comparison of these costs with the standards.
- 3) Common drive system will be made to run the paddles, drums and other machines.
- 4) Workers will to be properly trained and made aware to save the energy.

## 11. FINANCIAL ASPECTS

### 1) Fixed Capital

#### (I) Land and Building Amount(Rs.)

**Land:** (Total Area – 1000 sq.mtr.) 21,00,000

#### **Building:**

1)	Office, stores etc. 150 sq.mtr.	6,00,000
2)	Working shed 600 sq.mtr.	21,00,000
Total (Rs.)		<b>48,00,000</b>

#### (II) Machinery & Equipment:

S.No.	Description	Ind./Imp.	Qty.(Nos.)	Value(Rs.)
1.	Tanning Drums including 15 HP motor, starter etc. Size: 8'x 6'.	Ind.	2	4,00,000
2.	Single width Shaving Machine(300mm Width) 5 HP motor.	Ind.	2	2,00,000
3.	Reversible setting out machine, Size:5'-0" (1500mm) with one Gear Box, Panel Box, Foot switch 5HP. 960 RPM. AC motor, One 15 HP 1440RPM AC Motor, starter etc.	Ind.	1	3,00,000
4.	Slocomb staking Machine with 7.5 HP Motor, starter etc.	Ind.	2	2,00,000



5.	Single width Buffing Machine with 5.00HP Motor & starter etc.	Ind.	2	1,60,000
6.	One Dusting off M/c.	Ind.	1	50,000
7.	Toggle chamber with 20 boards.	Ind.	1	3,00,000
8.	Measuring Machine.	Ind.	1	2,00,000
9.	One generator set.	Ind.	1	2,00,000
10.	One spray booth Size: 9'x5' with top Booth cover, 2 nos. Of 18" exhaust fans and starter.	Ind.	1	50,000
11.	Hydraulic Press.	Ind.	1	10,00,000
12.	Tools & equipment.	Ind.	L.S.	1,00,000
13.	Electrification & installation @ 10% of the cost of Machinery.			3,06,000
14.	Furniture & fixtures.			1,00,000
<b>Total cost of Machinery &amp; equipment (Rs.)</b>				<b>35,66,000</b>

**III) Pre-operative Expenses: Rs1,00,000/=**

**Total Fixed Capital (I+II+III) Rs.84,66,000/=**

## 12. WORKING CAPITAL(per Month)

### i) Cost of Personnel(per Month)

S.No.	Designation	No.	Salary(Rs.)	Total(Rs.)
1)	Technician	1	25,000	25,000
2)	Supervisor	1	10,000	10,000
3)	Office Clerks	2	5,000	10,000
4)	Skilled Workers	5	5,000	25,000
5)	Semi-skilled Worker	6	3,500	21,000
6)	Helper	4	2,500	10,000
6)	Peon/watchman	2	2,500	5,000
				1,06,000
Add: 20% perquisites:				21,200
<b>Total(Rs.)</b>				<b>1.27,200</b>

**ii) Cost of Raw-Materials(Including packing materials) per month :**

S.No.	Description	Qty.	Rate(Rs.)	Total(Rs.)
1.	Wet Blue splits	7500 sides of Splits 112500 sq.ft (apprx.)	15 per sq.ft	16,87,500
2.	Processing Chemicals	L.S.	9.00 per sq.ft.	10,12,500
			<b>Total(Rs.)</b>	<b>: 27,00,000</b>

**iii) Cost of Utilities(Per Month):**

	Amount(Rs.)
a) Power	60,000
b) Fuel cost	30,000
c) Water	10,000
<b>Total(Rs.)</b>	<b>1,00,000</b>

**iv) Other expenses (Per Month):**

	Amount(Rs.)
• Expenses for ETP	30,000
• Transport expenses	25,000
• Stationery, postage, telephone & telegram	5,000
• Legal & other fees	3,000
• Packing	10,000
• Insurance	6,000
• Repairing & Maintenance	5,000
• Consumable stores	15,000
• Sales expenses	10,000
• Advertisement & Publicity	1,000
• Misc. expenses	10,000
<b>Total(Rs.)</b>	<b>1,20,000</b>

**13. Working Capital(Per Month):**

	Amount(Rs.)
i) Personnel	1,27,000
ii) Raw-materials	27,00,000
iii) Utilities	1,00,000
iv) Other contingent expenses	1,20,000
<b>Total(Rs.)</b>	<b>30,47,000</b>

So, Working Capital for 3 months = 3 x Rs.30.47,000/- = Rs. 91,41,000/-

**14. Total Capital Investment: Amount(Rs.)**

a) Fixed Capital	84,66,000
b) Working capital for 3 months	91,41,000
<b>Total(Rs.)</b>	<b>1,76,07,000</b>

**15. FINANCIAL ANALYSIS:**

**1) Cost of Production(Per Annum) Amount(Rs.)**

a) Total Recurring expenses per year	2,85,64,680
b) Depreciation on Building @ 5%	1,35,000
c) Depreciation on machinery& equipment @ 10%	3,06,000
d) Depreciation on furnitures @ 20%	20,000
e) Interest on Capital Investment @ 15%	26,41,050
<b>Total(Rs.)</b>	<b>3,16.66,730</b>

**2) Turnover (Per Annum)**

Item	Qty. Sq.ft.	Rate(Rs.)	Value(Rs.)
PU Laminated Split Leather	13,50,000	30/- per sq.ft.	<b>4,05,00,000</b>

3) **Net profit (Per Annum) = Turnover – cost of production = Rs. 88,33,270/=**

4) **Net Profit Ratio(%) =  $\frac{\text{Net Profit per annum}}{\text{Turnover}} \times 100$**

$$\frac{\text{Rs. 88,33,270} \times 100}{\text{Rs. 4,05,00,000}} = \mathbf{21.81\%}$$

5) **Rate of Return(%) =  $\frac{\text{Net profit per annum}}{\text{Investment}} \times 100$  =  $\frac{\text{Rs. 88,33,270} \times 100}{\text{Rs.1,76,07,000}}$**

$$= \mathbf{50.17\%}$$

**6) BREAK EVEN POINT ANALYSIS (BEP)(%):**

<b>i) Fixed Cost(Per Annum)</b>	<b>Amount(Rs.)</b>
a) Depreciation on building	1,35,000
b) Depreciation on Machinery & Equipment	3,06,000
c) Depreciation on furniture	20,000
d) Interest on Capital	26,41,050
e) Insurance	72,000
f) 40% of Salary/Wages, Utilities and Other Expenses (Excluding Insurance)	16,36,800
<b>Total (Rs.)</b>	<b>48,10,850</b>

**ii) Net Profit(Per Annum) Rs. 88,,33,270**

**iii) Break Even Point (B.E.P)(%)**  $= \frac{\text{Fixed Cost} \times 100}{\text{Fixed Cost} + \text{Profit}}$

$= \frac{\text{Rs. } 48,10,850 \times 100}{\text{Rs.}( 48,10,850 + 88,33,270)} = 35.26\%$

**16. a) Addresses of Machinery & Equipment Suppliers :**

i. The Shalimar ENGG. Works(P) Ltd.,  
12B, Prabhuram Sarkar Lane,  
Kolkata - 700 015.

ii. M/s. Bengal Machinery (P) Ltd.,  
South Tangra Road,  
Kolkata – 700 046.

iii. M/s. Gem Engg.,  
S/H/29, Pagladanga Road,  
Kolkata – 700 015.

iv. Rotpia International  
88/100 Mouda Ibrahim Street,  
Chromepet, Chennai – 600 044

**b) Addresses of Raw-Machinery Suppliers :**

- 1) M/s. Saraswati Chemicals,  
7, Ram Kumar Rakshit Lane,  
Kolkata – 700 007.
  
- 2) M/s. Vibgyor Chemicals,  
54/3, Debendra Chandra Dey Road,  
Kolkata - 700 015.
  
- 3) M/s. Bajaj Chemicals,  
83, Shakespeare Sarani,  
Kolkata – 700 017.
  
- 4) Colour –Chem Limited  
Leather BU, Ravindra Mansion,  
194 Churchgate Reclamation,  
Mumbai- 700 020

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