Value Addition in Leather Industry

B. Ramalingam

Value Addition in Leather Industry

GROWING THE TOP LINE

Enhancing presence towards higher end of value chain in business.

SUSTAINING BUSINESS

Adoption of new technologies & processes

IMPROVING BOTTOM LINE

Adding value to by-products

ENHANCING PROFIT

Input cost reduction

GROWING THE TOP LINE

GLOBAL LEATHER MARKET SIZE

GROWING THE TOP LINE

Value Chain: A Spiraling Value

	RM		INTERMEDIATE		FL		PRODUCTS		RETAIL
US Billion	18	⟷	29	⟷	42	⟷	120	⟷	300
% Value Addition		60		45		180		150	

SUSTAINING BUSINESS

Status of Indian Leather Industry

- Indian leather industry follows conventional methods of operation
- Adopts not so up to date approaches
- Current value realization of raw material is quite low
- To prepare itself to meet future requirements

SUSTAINING BUSINESS

Classification of Trade

Based on percentage of RM component in the final sale value

Above 60 %	RM oriented industry
50 – 60 %	Process oriented industry
40 – 50 %	Production oriented industry
Less than 40 %	Technology / Innovation oriented industry

SUSTAINING BUSINESS

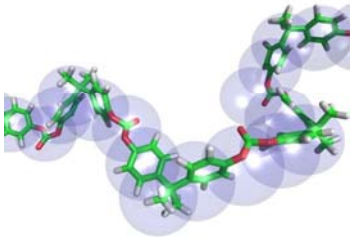
Nano Technology for Leather

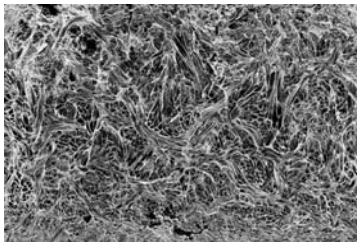
- Nano colorants for up gradation of raw material without covering
- To improve the feel, look & other aesthetics
- To fill up empty & loose portions in the leather
- To help in getting uniform surface pattern.

SUSTAINING BUSINESS

New Reactive Polymers for Leather

- **Formation of reactive polymers inside the leather matrix**
- **Eliminates looseness and makes fuller in substance**
- **Applicable for all kinds of leather matrix**
- **Provides excellent resilience**
- **Expands with pressure and heat**
- **Provides reactive sites to other ingredients**





SUSTAINING BUSINESS

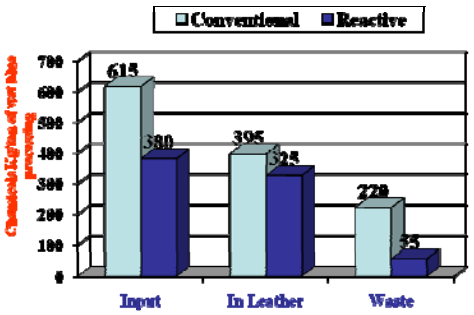
Mineral-free leather: Market Demands

- To develop leather without using chrome or other mineral tanning agents
- In tune with current market demand of using eco-friendly leathers
- To reduce the pollution load on the environment
- The value realization of these leather are better than conventional leathers.

SUSTAINING BUSINESS

Rationalization of Leather Process

- **Chemicals employed in conventional process are non-reactive to one over another**
- **No optimization of use of chemicals, water and energy**
- **Complexation of chemicals during fixing enhances the uptake**
- **Reactive process designed through chrome complexation process to achieve cleaner leather process**
- **Reduction in chemical input and waste generation by 38 and 75%, respectively**
- **Reduces the usage of water and energy by 30 and 25% respectively**



Efficiency of conventional process – 64%
Efficiency of reactive process - 85%

IMPROVING BOTTOM LINE

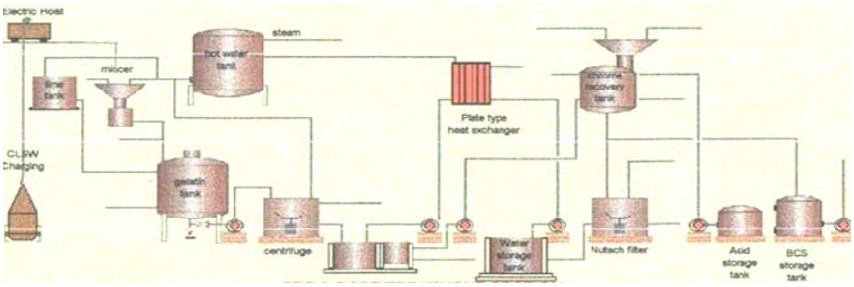
Chrome Bearing Solid Waste into Protenious Matter: A Value Addition Process

- Lab scale trials scaled to pilot, to recycling plant (1500MT/year)
- Chrome bearing waste is converted into protein hydrolysate and chromium
- Protein hydrolysate is sold to various industries
- 100% chromium is recycled in leather production
- No formation of sludge and solid waste
- Eco-friendly and closed loop process

Tata International: Waste to Wealth Generating Plant

IMPROVING BOTTOM LINE

Innovative Process for Making Value Added Products from Waste



Indian Patent filed for Value added products from chrome bearing leather solid waste: Indian Patent No.188788 (1998) and Indian Patent No. 1982/Mum/2008

Value Added Products:

- Adhesives, Biofertilizers, Leather Chemicals, Polymers

IMPROVING BOTTOM LINE

Waste to Wealth: A Model needed for Leather Industry

Type of Wastes	Current Utilization	Value Addition
Raw hide/skins trimmings	Industrial gelatine	Pharmaceutical grade gelatine
Fleshings	Glue manufacture	Bio-diesel and fertilizers
Hair/wool	Textile industry	Keratin based shampoo
Split	Split suedes	High split finish leather
Shaving dust	Leather boards	Separation of protein for application as fillers and bio-fertlizers
Tannery Sludge	Landfill	High compressive bricks making
Auto spray waste	Incineration	Water based paints
Buffing dust	Leather boards/landfill/Incineration	Generation of Bio-gas energy from buffing dust

ENHANCING PROFIT

Enhancing Profit: Controlling Input Cost

- **Uncontrollable: RM price which contributes around 60% of the product cost**
- **Controllable: Chemical cost contributes about 15%**
- **Tata Model: In-house chemical Manufacturing Unit**
- **Tanning Cluster: Common chemical manufacturing plant (CCMP) would control input chemical cost of tanners**
  - » **Replacement Syntan**
  - » **Protein fillers**
  - » **Lacquer emulsions**
  - » **Surfactants**
  - » **Fatliquors**
  - » **BCS**

Thank you