

**Leather:**  
**AN OVERVIEW OF MANUFACTURE**

**Annex**

**Content**

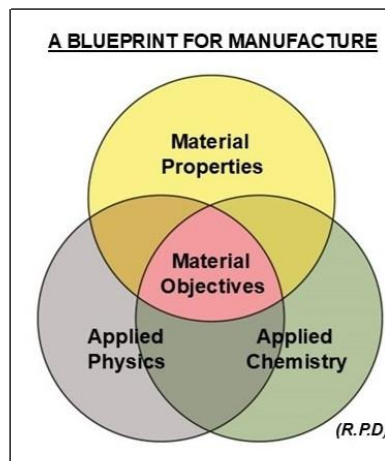
**Synopsis - Leather: THE TECHNOLOGY OF MANUFACTURE (*Volume 3 of 3*)**

**Schematic 1(a)**  
**Schematic 1(b)**

**Panel 1**  
**Panel 2**

## Leather: THE TECHNOLOGY OF MANUFACTURE

This study is designed for the Leather Technologist, and builds upon the leather-making information presented in “Overview”. It also includes a structure to best understand the requirements of this complex technology. Here, the three basic components involved in manufacture - “Material Properties”, “Applied Physics”, and “Applied Chemistry” - are expressed diagrammatically:



In turn, these components are sub-divided into a series of factors, then presented as three inter-related models. The role of each factor is then described in a series of essays, with contributions by specialists in their sectors. This is a blueprint for the technologist to control, manage, and manipulate procedures to advantage. With supportive information, this is a base for good leather manufacture, and the creation of leathers to specification.

**Manufacture: Stages and Procedures**  
**BOVINE HIDES: CHROME TANNAGE: FOOTWEAR LEATHERS**

*Schematic 1(a)*

Procedures

"Overview" ©R.P.Daniels

Mechanical operations	Process vessels. (many configurations) All chemical processes	Drums, mixer-type, tri- - compartmental vessels. (also pits and paddles)
Chemical processes	v	
Requirements	v	
Additional information	v	
<p align="center"><b>Stage 1</b></p> <p align="center">Removal of unwanted components from structure</p> <p align="center">and</p> <p align="center">Extension of the structure</p>	1 <sup>st</sup> Soak	Accurate in-put weights. Specific wight ranges.
	v	
	Green flesh	
	v	
	2 <sup>nd</sup> Soak	
	v	
	Unhair + lime	
	v	
	Lime flesh	
	v	
<p align="center"><b>Stage 2</b></p> <p align="center">Introduction of new products into the structure</p> <p align="center">and</p> <p align="center">Extension of the structure</p>	+/- Lime split	+/- <u>Lime splitting</u> Defines grain substance for further processing. Offers high extension of structure throughout all procedures until the completion of tannage. Gives maximum choice for use of the flesh split.
	v	
	Delime	
	Bate	Structural relaxation, and release inter-fibre waste.
	v	
	Pickle	
	Chrome tannage	Creation of a versatile multi-purpose tannage.
	v	
	+/- Blue sorting/gradings	+/- <u>Wet sort</u> (pre-samm). Absence of compression and samm indents for clear identification of grain defects.
	v	
	Samm	+/- <u>Blue Sort</u> (after samm) Accurate assessment for area and substance. Easier handling and enables rationalisation.
	v	
	Side	+/- <u>Blue Splitting</u> To maximise substance potential from selections made at blue sorting.
	v	
Selection: Blue sort		
v		
+/- Blue Split		
v		
Shave		
v		
Trim		
v		
Neutralise		
Dye + fixation		
Retan		
Fatliquor/lubricate	Development of a wide range of properties to customer specifications.	

v

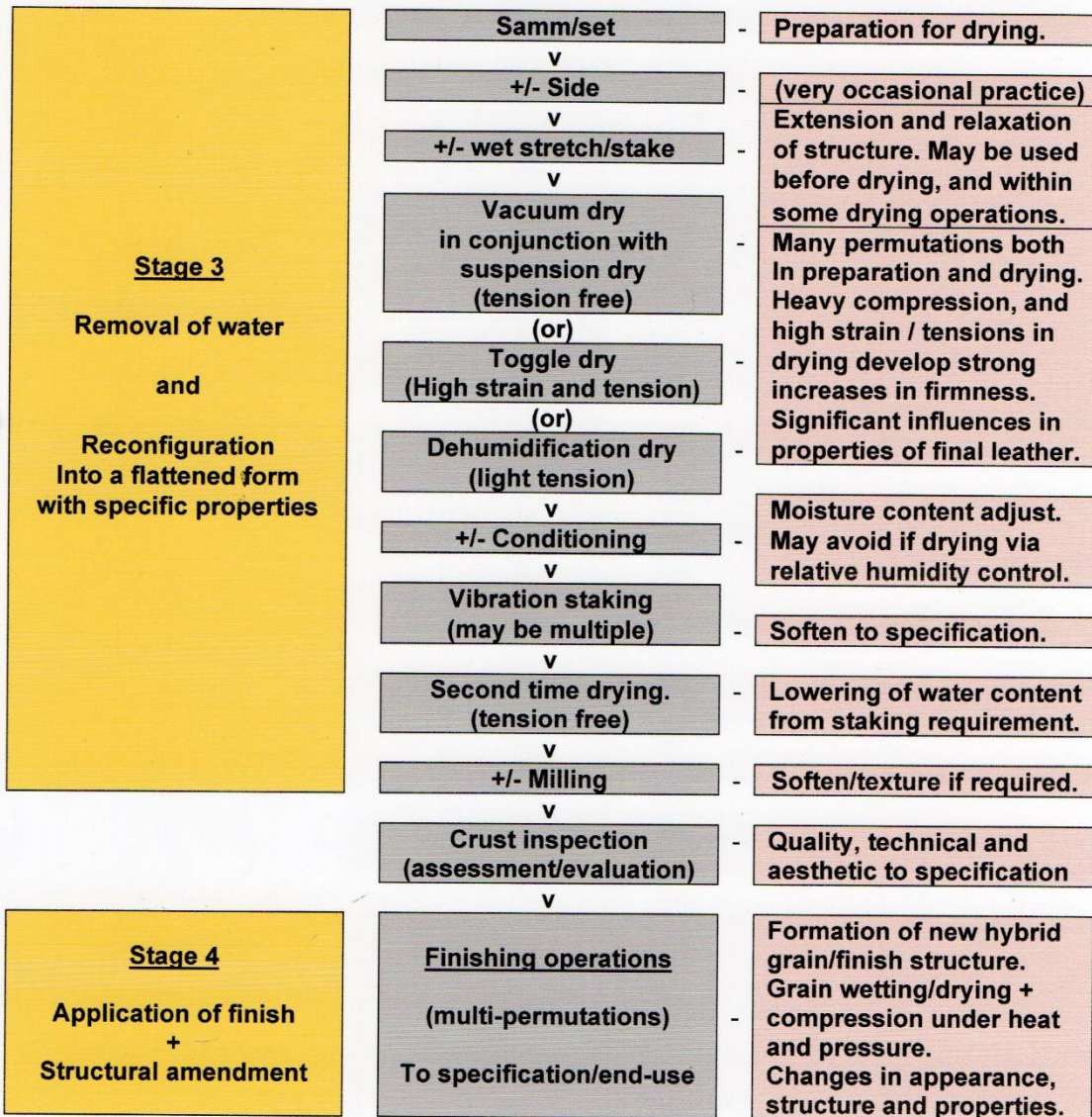
Details set down for broad information only. Variations in procedures required according to materials classification, plant and equipment, and end-specifications.

**Manufacture: Stages and Procedures**  
**BOVINE HIDES: CHROME TANNAGE: FOOTWEAR LEATHERS.**

Schematic 1(b) continued

Procedures

"Overview" ©R.P.Daniels



Details set down for broad information only. Variations in procedures required according to materials classification, plant and equipment, and end-specifications.

<b>Panel 1</b>		<b>“Overview” © R.P.Daniels</b>		
<b>Characteristics of different tannages</b>				
<u>Tannage</u>	<u>Properties of dried leathers (tanned only)</u>	<u>Shrinkage temperature (saturated) and Charge</u>	<u>Dyeing, retanning and fatliquoring. (anionic products)</u>	<u>Properties of final leathers and End uses</u>
Chrome	Blue-green colour. Hard and thin.	100C. Cationic	Good dye properties. High uptake of retanning agents and fatliquors.	Very versatile. Very soft to firm. Footwear, auto, furniture, bags, leather goods etc.
Glutaraldehyde	Light yellow brown colour. Soft to medium. Thin with poor retention of shape unless heavily supported by syntans/resins.	Approx 75C. Anionic	Poor dye properties. Poor uptake of retanning agents and fatliquors.	Very soft to firm. Good aging properties. Auto use – mouldings and seats if heavily retanned. Footwear, upholstery.
Other tannages (Many options)	White to pastel colours range. Moderately soft / firm handle.	75C – 85C. Anionic	Poor dye properties. In general, similar uptake of retanning agents / fatliquors as “Glutaraldehyde”.	Soft to firm. Many variations, with mainly glutaraldehyde – type properties.
Light vegetable	Cream to light brown colour. Moderately soft.	Approx. 85C. Anionic	Poor dye properties. Low requirement for retanning agents and fatliquors.	Soft to firm with good shape retention. Well filled leather suited for shoe linings and leather goods. Anti-bacterial properties and warm handle.
Heavy vegetable	Light to red-brown. Firm, with dense structure.	Approx. 85C. Anionic	Dyeing and retannage mainly not required.	Offers excellent shape retention. Suited for soling, harness, belts, moulding and carving.
Note: • Information for general guidance only.				

<b>Panel 2</b>		<b>“Overview” © P. Evans</b>	
<b>Finish variations</b>			
<u>Structure</u>	<u>Category</u>		
Full grain	Aniline	Semi-aniline	Pigmented
Corrected	Aniline	Semi-aniline	Pigmented

