

Finishing in leather: strategies and concepts



**ASSIGN
BUSTER**

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Introduction

The word “ finish” as a verb means bringing the task to an end or in another meaning is by completing the manufacture or decoration of (an article) by giving it an attractive surface appearance. (Dictionary). The same applies for leather when it reaches the final stage. The leather is now set to be modified and upgraded to give it more characteristics that meet with customer expectation. That’s why tanneries all around the world are putting more effort on the final stage in order to enhance and sell their leather.

After tannage, all classes of leather, whether vegetable or chrome tanned have to be finished to make them suitable to the purpose for which they will be ultimately used. With the exception of sole leather, finishing may broadly be said to consist of (i) dyeing or colouring, (ii) treating the leather with grease for softening and water-proofing (technically called currying) and (iii) polishing or glazing. But the finish imparted to leather is peculiar to it, so that no two varieties are finished the same way

Coming up with a finishing recipe high relays of different factors highly depending on what the customer wants. Giving an example when trying to achieve a shoe upper finish it differs from an upholstery finish. When finishing vegetable tanned leather it is neither dyed nor glazed. Its finishing is consisted in setting it out well to make it flat and smooth on the surface and pressing heavily to make it stiffer and water resistant. For chrome it differs it is run through more operation in order to achieve its final appearance starting with shaving in order to make the leather thin then

neutralization taking place ending it up with stacking in order to make the leather softer then glazed to give it the glossy look and feel.

What is the purpose of finishing? The purpose of finish is done in order to enhance certain qualities and characteristics for example protecting the leather upgrading the leather look and feel by providing a texture which is waxier and smother.

Full grain leather can be addressed as the leather that does not go through the buffing stage and this is widely used when achieving furniture leather or automotive. Achieving a full grain can be expensive to most tanners. In order to achieve the natural grain of the leather it must not contain any marks or scratches, veins and putrefaction so it is very important on how to sort out your leather. The tanner should pick a good quality grade of crust leather in order to enable for finishing.

Corrected grain leather is known as chrome tanned side leather which is buffed with emery paper on the grain enabling it to remove the defects of the leather and then applied to it a plastic resin and pigmented finish to help being built up on the leather usually this type of grain is used in the footwear industry.

Crust preparation

Crust is mentioned as the dried leather after tannage. And as it's widely known as chrome leather ends up drying quickly and that results in leather becoming stiffer and making it harder when rewetting, drying usually occurs after any normal retanning and fatliquoring. leather that is exported around

the globe is usually in this state while still many prefer at wet-blue or pickled stage because this gives them more ability of the leather process. When crust preparation is applied for full grain leather or corrected grain leather both operations are related except for some procedures for example in buffing. Leading a leather from a crust stage to finishing still undergoes several procedures and also depends on the tanner's recipe before receiving the end use .

Operations in common

- **Staking:** Staking is a mechanical operation for softening the leather, it is done through a staking machine which helps in expanding and opening up the fibers and thus leading to a softer skin. Some tanners do it manually by pulling the skins over a shaped knife but this usually takes more time compared to the staking machine.
- **Conditioning:** when the leather dries out after the retanning, dyeing and fatliquoring the fibers on the skin tend to stick together and thus making the leather more firm and harder. The fibers are then separated and the leather goes through the staking operation enabling it to become softer. Adjusting the moisture content is very important so water is applied to the leather through water guns and that evens out the moisture content before entering the staking stage.
- **Milling:** During the milling stage, the crust leather is laid in the drum responsible for milling and is then rotated at certain temperature degrees and humid conditions. The mechanical process helps the

leather in opening up its fiber this results is the leather becoming more softer

- Buffing: The objective of buffing is removing all the marks on the grain surface of the leather by that it provides a more equal surface . it is done through sandpapering the leather with sand paper for many reasons for example to create a suede or a nubuck finish on the grain or to prepare its

for a

Chemicals used and finishing operation:

- Impregnation: it is a coat the purpose of it acts like a sealing coat and this helps in sealing the buffed fibers completely in order for the chemicals to not penetrate through the leather and this will form a more uniform surface. When the corrected grain leather gets buffed the absorbance raises in high rate and any of the chemicals put onto the leather will penetrate in a high rate without building up a film. Applying an impregnation coat is a must for a corrected grain or it will ruin the objective of finishing.
- Adhesion Coat : buffing does not apply to a full grain leather therefore this coat is used in allowing the resins to bind together in a an equal strong form and this leads to a more stable film and this is highly used in the casual shoe finish because it requires higher adhesion finish qualities. After the adhesion coat is applied the leather is not set to dry out during the drying is becomes more drier and stickier this

means it is now ready for the base coat the usage of spraying guns is high recommended in the adhesion coating.

- **Base Coat:** the base coating is applied to help in covering up the leather. By using a mixture of acrylic resins and polyurethane. Acrylic resin gives the leather a more natural look and increases flexibility. As for the polyurethane resin it improves the physical qualities of the finishing film. A certain ratio that a film goes by to a non-film its either 1: 2 or 1: 3 as for the non-filming chemicals it includes a wide variety of waxes, auxillaries, oils and waxes. Base coating is usually done by spraying a couple of times and it can also be done by hand padding.
- **Embossing:** it is known as the printed pattern that is added to the leather. Embossing become popular to meet with the fashion industry, through embossing it creates a high yield in cutting because of its straightness and strength to hide the defects. During embossing high pressure is applied to ensure the print embossing acts better in higher temperatures
- **Top Coat:** The objective of adding the top coat in order to enhance the touch quality and performance and helps in the protection when finishing. Top coat can be addressed as two coats nitrocellulose and polyurethane. A polyurethane based is selected as the preferred method because it gives the required results

- Plating: it is a mechanical procedure that helps in obtaining more smoothness and a glossy look. Plating can be applied several times it highly depends on the tanner

Finishing Recipes:

- Casual Full grain upper footwear
- Safety shoe Corrected grain upper footwear

Casual Full grain upper footwear

Full Grain casual shoe

recipe

	1st coat	2nd coat	3rd coat	procedure/remarks	
Water	75	500	100	1st x1	Adhesion
RU 3961	25			light spray	
				DRY	
RU 13-541		75			base coat
PP 39-111 BLACK		100		light spray	
RA 1246		250		Dry	
FI 50		50		3rdx 2	top coat

BI 596	50	plate at 80 °C at low pressure
HM 51-760	5	
LW 5490	100	

Adhesion Coat: Polyurethane with fine particles that is applied to pre base coating the main purpose of it is for achieving higher adhesion it also help in the flexibility.

Base Coat :

RU 1 3- 5 4 1: classified as soft polyurethane that is added during the base coat to help in the embossing characteristics. It gives out softer leather outcome.

P-P black : it is a pigment applied to the leather in order to give its color

RA 1-2-4-6: Classified as hard acrylic resin which enables a better gloos and ensures better results in the rub fastness

FI 5-0: Considered to be soft filler which gives a better plating and gives out a wax that helps giving the leather a more waxy feeling.

BI 5-9-6: Soft binder which gives a nore flazing look on the leather. Also helps in giving a good plated which is considered to be helpful during the embossing stage

Top Coat

HM 51-7 6 0 - A TYPE OF SILICONE HANDLING MODIFIER WHICH ENABLES GOOD SMOOTHNESS AND a silky like feel it also enhances resistance onto the leather

LW 5 4 9 0 : they are water based lacquer which gives a kind of gloss onto the leather .

Safety shoe Corrected grain upper footwear

Chemical Name	Pre-base coat	Base coat	Top Coat	Procedure
Pigment 39-111 (Black)		350		1. 1 X Roller Coater
Impregnation Resin (RI-193)	300	150		25-30 gms/ft
Acrylic Resin (RA-2312)	100	200		Leave Overnight
Aromatic polyurethane (RU-3969)		50		Vaccum Dry@65*C/30s
Wax Filler (FI-50)		50	15	Buffing 320-340 (paper)
Natural protein binder (BI-1352)	90			

Colloidal Filler (FI-1208)			15	2. 2 X Roller Coater
Water	50	50	200	8-12 gms/ft
Water Topcoat (WT-2524)			200	PP@80*C 200P haircell
			H	Viscosity 20-25s (cup-4)
Penetrator (PT-6591)	100			
Crosslinker (XR-5923)			55	3. 2 x Spray
Rheology Modifier (RM-4410)	15-20	15-20		Mix crosslinker (water)

Impregnation Coat

- RI - 1 9 3 : Its is considered to be small particles of impregnation resin which helps in filling up the leather and it has high penetration ability it also helps in the grain break in tge leather and works on smoothening the surface
- BI 1 3 5 2 : Binder its type is medium hard which helps in the adhesion and improvement on the handling of the skin
- PT 6 5 91 : Active agents which work on helping the penetration of the finishing chemicals on the the grain layer of the skin this is usually used along a penetrartor to help the chemical penetrate faster

- RB 2 3 3 0: Its gives the leather a more rubbery feeling and helps in the patting process and filling up the skin
- RM 4 4 1 0 : a non ionic agent

Base Coat

- RU 3 9 6 9 : A polyurethane that helps in the adhesion and the flexibility of the skin
- FI 5 0 : It helps in embarking a good plating gives a waxy feeling

Top Coat

- FI 1 2 0 8 : SOFT FILLERS WHICH HELPS IN GIVING A SOFTER TOUCH AND HELPS IN PLATING
- WT 2 5 2 4 : PolYurethanes which helps in giving more elastic and flexibility
- HM 2 2 6 7 7: gives the leather a silky feeling
- XR 5 9 2 3: CROSS LINKER WHICH HELPS IN ENHANCING THE LEATHER DURABILITY AND PROVIDES A BETTER FINISHING ADHESION

Comparison

in order to achieve a full grain leather the sorting of the leather many scares and defects on the skin will lower the end product of the finishing for the corrected grain leather its easier because the buffing will hide many of the scars and defects n the skin . when it comes to embossing full grain leather it depends it may be required and it may not be depending on the grain of the leather as for the corrected grain in order to give a better grain surface.

When it comes to performance full grain leather will achieve higher performances than the corrected grain

Conclusion

All in all both are different than each other when it comes to physicality properties to achieve good results selection of crust must be made for full grain as for the corrected grain it does not require