

What is tanning? Overview of Leather Processing Process 2019

WHAT IS TANNING? ”

SYNOPSIS

What is Tanning? ”

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What is tanning or How to tanning? This is the process of treating animal skins to produce leather, using Tanning, an acidic chemical compound.[what-is-tanning-leather](#)

(Tannins or tannoos are a plant-based polyphenol that is capable of making stable bonds with proteins and other high-molecular organic compounds such as amino acids and alkaloids.

To tan the hides leather is a process that permanently changes the protein structure of the skin, making it more durable and less prone to decomposition, and also coloring it.

Before tanning, the skin does not peel off, desquamate, desalinate and soak in water for 6 to 2 days.

Traditionally, tanning uses tannin, an acidic chemical compound from which tanning derives its name. The use of chromium (III) solution was used by operators during the Industrial Revolution.

Coloring can occur in the tanning process, all of which are handled according to safety standards and industrial specifications at the "Tannery".

Tannery refers to the factory area where the leather is handled.

The process of what is tanning and leather tanning often get confused when people often use these words interchangeably.

However, we need to clarify between a product and a product creation process.

If you want to learn more about what is basic knowledge of leather, Thuy Bich also has an article with more than 5000 words presented in quite detailed and clearly mistakenly brings the most general knowledge to the reader.

1. HISTORY OF FORMATION

The English word for tanning is from the medieval Latin *tannre*, a derivative of *tannum* (oak bark), French *tan tan* (tanbark), and old Cornish *tann* (red oak). These terms are related to the Proto-Indo-European hypothesis * *donu* meaning 'fir tree'. (The same word is the source for the Old High German *tanna* meaning 'fir', in reference to the modern *Tannenbaum*.) Although the linguistic confusion between conifers and oaks is quite different, the word *tan* refers to dyes and hidden preservatives are from Gaulic's use in relation to oak bark (the source of tannins).), and not the fir tree.

what is da-la-la

Ancient civilizations used leather for water bags, handbags, belts and nails, boats, armor, quivers, scabbards, boots and sandals. Tanning is being performed by the Mehrgarh people in Pakistan between 7000 and 3300 BC. Around 2500 BC, the Sumerians began to use leather, which was attached by brass rivets, on horse wheels.

In the past, tanning production was considered a toxic or "smelling trade" and was dropped on the outskirts of town, among the poor. Indeed, the ancient method of tannery tended to smell so badly that tanners remained isolated from today's towns where the old methods were used. Skins often go to a tidy and dirty tannery with soil and gore. First, ancient tanners would soak leather in water to clean and soften them. Then, they will crush and scrub the skin to remove the remaining meat and fat. Next, tanner is necessary to remove fur from the skin. This is done by soaking the skin in urine, painting it with a mixture of alkaline lime or simply allowing the skin to peel off for a few months then dipping it in a saline solution. After the hairs were relaxed, the barbers shaved them with a knife. Once the hair has been removed, tanners will "bate" the material by smashing the stool into the skin, or soaking the skin in animal brain fluids. Bating is a fermentation process based on enzymes produced by bacteria found in faeces. Among the commonly used feces are dogs or pigeons.

Historically the process of tanning actually uses plant tanning. In some process variants, cedar oil, alum hair removal, traditional alum hair removal or tannins are applied to the skin as a tanning agent. When the skin is stretched, it loses moisture and absorbs the agents.

Green alum has any effect? This is an important substance in the almost irreplaceable tanning processes.

After its application in chromium suturing (III) solution after 1840, it was discovered that this method could also be used with leather and therefore used by tanners. .

2. WHAT IS A SKIN PROTECTION CODE?

The tanning process begins with taking animal skins. When an animal's skin is tanned, the animal is killed and skinned before body heat leaves the tissues. This can be done by tanner, or by taking the leather at a slaughterhouse, farm or local fur tanner.

Preparing to conceal begins by curing them with salt. Maintenance is used to prevent de-protein (collagen) degradation from bacterial growth in the delay from concealment until it is processed. Maintenance removes water from skin and skin using osmotic pressure differences. Skin and skin moisture is greatly reduced, and osmotic pressure increases, so that bacteria cannot grow. In wet salt, the skin is heavily salted, then pressed into packages for about 30 days. In brine treatment, the skin is stirred in a salt water bath for about 16 hours. Curing can also be done by preserving skin and skin at very low temperatures.

3. IMPLEMENTATION PROCESS

The steps in leather production between maintenance and tanning are referred to as factory operations. These include, in order, immersion, liming, removal of foreign tissue (no discomfort, flakes and meat), delineation, biting or riddling, immersion and immersion.

where-leather-is-made-the-tanneries-to-know

3.A SOAKING

During immersion, the skin is submerged in clean water to remove residual salt from vulcanization and increase moisture so that the skin or skin can be further processed.

To prevent skin damage due to bacterial growth during immersion, a biocide, typically dithiocarbamate, can be used. Fungicides such as 2-thiocyanomethylthiobenzothiazole may also be added later in the process, to protect wet skin from mold growth. After 1980, the use of biocides based on pentachlorophenol and mercury and their derivatives was banned.

3.B LIMING

After immersion, the skin and skin are taken for liming: treatment with lime milk (a basic agent) may involve the addition of a "sharpener" (disulfide reducing agent) such as sodium sulfide, cyanide, amines, etc. This activity is mainly to:

Removes hair and other keratinous substances

Eliminates some proteins that dissolve in interference like mucus

Swelling and splitting of fibers to the desired level

Get rid of natural grease to some degree

Bring collagen in the hiding place to a suitable condition to get satisfactory tannage

Weakening of hair depends on the disulfide binding of cystine amino acid, which is a feature of the protein keratin layer that strengthens hair and wool (keratin usually accounts for 90% of the dry weight of the hair). Hydrogen atoms are provided by a sharpening agent that weakens the cystine molecular bond, whereby the disulfide covalent bond bonds eventually break down, weakening keratin. To a certain extent, sharpening also contributes to no effect, as it tends to break down hair proteins.

The isoelectric point of collagen hidden (this is a protein-strengthening protein unrelated to keratin) is also transferred to about 4.7 due to a limp.

3.C UNHAIRING AND SCUDDING

The irritants used at this time include sodium sulfide, sodium hydroxide, sodium hydrosulfite, calcium hydrosulfide, dimethyl amine and sodium sulfhydrate. Most hair is then mechanically removed, initially mechanically and then manually using a blunt knife, a process known as scudding.

3.D DELIMING AND BATING

The pH of the collagen is brought down to a lower level so that enzymes can act on it, in a process called identification. Depending on the end use of the skin, the skin can be enzyme-treated to soften them, a process called bating. In modern tanning, these enzymes are pure agents, and the process no longer requires bacterial fermentation (such as from soaking manure) to produce them.

3.E PICKLING

After bating is completed, the skin and skin are pre-treated with regular salt (sodium chloride) and then with sulfuric acid, in which case the skin needs to be dyed. This is done to reduce the pH of collagen to very low levels to facilitate the penetration of mineral tanning substances into this substance. This process is called pickles. Salt enters the hiding place twice as fast as acid and checks for the negative effects of a sudden drop in pH.

4. WHAT IS A SKIN LEVEL?

In this article, I just give a few methods of tanning that are known and popular up to the present time.

4.A CHROME TANNING

Before the introduction of chrome chemicals in tanning, several steps were needed to produce tanning leather. These steps include shaving (removing hair), impregnating lime (impregnating alkaline substances like sodium hydroxide), reducing lime (neutralizing pH recovery), softening the skin with enzymes, and pickling (lowering the pH of raw hides and

salts of sulfuric acid). The pH must be very acidic when chromium is added to make sure the chromium complexes are small enough to fit the distance between the fibers and the remainder of the collagen. When the desired level of chromium penetration into the skin has been achieved, the skin's pH is raised once again to facilitate the tanning process. This step is called basicization. In its rough state, the chromium leather is blue, so it is also called moist blue. Chromium tanning is faster than plant tanning (less than a day for this stage of chrome tanning) and produces stretchable leather suitable for making purses, handbags or clothes.

chrome-tanning-leather.jpg

Chromium (III) sulfate ($[\text{Cr}(\text{H}_2\text{O})_6]_2(\text{SO}_4)_3$) has long been considered the most effective and effective tanning agent. Chromium (III) compounds of the type used in tanning are significantly less toxic than hexavalent chromium, although the latter arise in incomplete waste disposal. Chromium (III) sulfate dissolves to form cation hexaaquachromium (III), $[\text{Cr}(\text{H}_2\text{O})_6]^{3+}$, at higher pH undergoing processes called olation to make active polychromium (III) compounds. Dynamic during tanning, is cross linking of collagen subunits. The chemistry of $[\text{Cr}(\text{H}_2\text{O})_6]^{3+}$ is more complex in tanning baths than in water due to the presence of many ligands. Some ligands include anion sulfate, carboxyl groups of collagen, amino groups from the side chain of amino acids and masking agents. Masking agents are carboxylic acids, such as acetic acid, that are used to prevent polychromium chain formation (III). The masking agents allow the tannery to increase the pH to increase collagen's reactivity without inhibiting the penetration of the chromium complex (III).

Collagen is characterized by a high content of glycine, proline and hydroxyproline, usually in repeat -gly-pro-hydro-gly-. These residues give rise to the spiral structure of collagen. Collagen's high hydroxyproline content allows for significant cross linking with hydrogen bonding in a spiral structure. Ionized carboxyl groups (RCO_2^-) are formed by hydrolyzing collagen by the action of hydroxide. This transformation occurred during the application of lime, before the introduction of tanning agent (chromium salt). Ionized carboxyl groups coordinate as ligands to the chromium (III) center of the oxide-hydroxide clusters.

Tanning's tanning increases the distance between the protein chains in collagen from 10 to 17. The difference is consistent with the cross-linking of polychromium species, which arise from olation and oxidation.

Before introducing the basic chromium species in tanning, several steps are required to create an adjustable hide. The pH must be very acidic when chromium is added to ensure that the chromium complexes are small enough to fit between the fibers and the residue of collagen. After reaching the desired level of penetration of chromium into the substance, the pH of the material is raised again to facilitate the process. This step is called the base. In a rough state, tanned skin is greyish green, so it's called wet blue. Chrome tanning is faster than plant tanning (less than a day for this part of the process) and creates a stretchable leather that's great for use in bags and garments.

After applying the chromium agent, the bath was treated with sodium bicarbonate to raise the pH to 4.0. 4.3, creating a cross-linking between chromium and collagen. An increase in pH is usually accompanied by a gradual increase in temperature up to 40 ° C. Chromium's ability to form such stable bridging links explains why it is considered one of the compounds. The most effective tanning. Chrome tanning leather may contain 4 to 5% chromium. This effect is characterized by hydrothermal stability of the skin and resistance to shrinkage in hot water.

4.B VEGETABLE TANNING

horween-vegetable-tannery Plant-based tanning method. The chemical properties of tannin are a class of astringent polyphenol chemicals that are naturally present in the bark and leaves of many plants. Tannins bind to collagen proteins in the skin and cover them up, making the leather less absorbent and less prone to attack by bacteria and mold. This procedure also makes the skin softer. The major bark types used in tanning today include species in the genera *Castanea*, *Quercus*, *Coriaria*, *Notholithocarpus*, *Tsuga*, *Schinopsis*, *Aspidosperma*, mangrove species, *Acacia* (especially *Acacia catechu*) and *Terminalia* (like *Terminalia chebula*). Hides are strained on frames and soaked for several weeks in large tanks with increasing concentrations of tannin. Plant leather is soft and used in the manufacture of suitcases or household leather.

Plant tanning uses tannin (an astringent polyphenol), naturally occurring in the bark and leaves of many plants. Tannins bind to collagen proteins in the hideout and encase them, making them less soluble in water and more resistant to bacterial attack. The process also makes hiding more flexible. The main types of bark processed in bark factories and used in modern times are chestnut, oak, redoul, tanoak, hemlock, quebracho, mangroves, acacia (acacia tree; see catechol) and myrobalans from *Terminalia* spp. The hide is stretched over the frame and soaked for several weeks in barrels increasing the concentration of tannins. Plant tides are not flexible and are used for luggage, furniture, shoes, belts and other clothing accessories.

4.C ALTERNATIVE CHEMICALS

"Wet white" is a term used for leather produced by alternative tanning methods to create a white skin layer. Like wet blue, wet white is also a semi-finished stage. Wet white can be produced using aldehydes, aluminum, zirconium, titanium or iron salts or a combination of them. Concerns about the toxicity and environmental impact of any chromium (VI) that can form during tanning have led to an increase in more effective wet white methods.

4.D NATURAL TANNING

The conditions present in the swamp, including high acidic water, low temperatures, and lack of oxygen, combine to preserve but seriously tan the bogged body.

the old-tan-yard-at-bakers-tannery

4.E TAWING

Tawing is a method that uses alum and aluminum salts, often combined with other products

such as egg yolks, wheat flour and other salts. The skin becomes tanned by soaking in a solution of potassium salts and warm salts, between 20 and 30 ° C. This process enhances skin elasticity, elasticity, softness and quality. Adding egg yolks and flour to a standard soaking solution adds to its good handling properties. The skin is then dried in air (crust) for several weeks, allowing it to stabilize. Traditionally, Tawing is used on pigskin and goat skin to produce the whitest color. However, exposure and aging can cause a slight yellow color over time and, if it stays wet, the skin will tear and decay. Technically, tawing is not tanning.

Depending on the desired finish, the skin may be waxed, rolled, lubricated, oil injected, split, shaved and dyed. Suedes, nubucks, etc. are completed by raising the sag of skin by rolling with rough surfaces.

The first stage is preparation for tanning. The second stage is actual processing and other chemical treatment. The third stage, called reworking, applies detergents and dyes to the material to provide the physical strength and desired properties depending on the final product. The fourth and final stage, called finishing, is used to apply finishing materials to surfaces or surface finishes without applying any chemicals if desired.

4.F TRADITIONAL LEATHER OF VIETNAMESE PEOPLE

According to legend, the tannery profession in Vietnam dating back to the Mac dynasty had a mandarin of Nguyen Thoi Trung, a native of Tram village, Tu Ky district, Ha Hong district (now Gia Loc, Hai Duong) went on a mission to China and learned about it. job to pass on.

Commonly used leather is buffalo or cow leather, soaked for six hours in water then picked up and mixed with lime, stirring daily. After a month, take out again, wash, shave, trim.

If you want to dye it, use red water soaked in parrot skin for about a month. Yellow, then fire for about five days. Also use alum to dye white.

5. EFFECTS OF HEALTH AND ENVIRONMENT

The question that environmentalists always ask is: To what extent is "tannery contaminated" and how to address this situation as effectively as possible, in order to minimize the negative impacts on the ecosystem that people live in.

The tanning process involving organic and chemical compounds can have an adverse impact on the environment. Agents such as chromium, vegetable tannins and aldehydes are used in the tanning step of the process. However, other processes and chemicals are involved. The chemicals used in tanned skin production increase the level of chemical oxygen demand and the total solids dissolved in water when not handled responsibly. These processes also use large amounts of water and produce large amounts of contaminants. Where-leather-is-made-the-tanneries-to-know-image-via-red-wing

Kanpur, India is a prime example of how tanning chemicals and wastewater can negatively affect health and the ecosystem. In 2013, the city became the largest leather exporter. About

80% of the wastewater is untreated and dumped directly into Kanpur's main water source, the Ganges. Agricultural land is flooded with blue water, contaminated with chromium III, lead and arsenic. Decades of pollution in air, water and soil have caused a range of diseases in people living in the area. Health problems include asthma, vision problems and skin problems including: contact dermatitis, hives, hand eczema, fungal infections and eczema. Tanneries in Leon, Nicaragua, have also been identified as a major source of river pollution.

Boiling and sun exposure can oxidize and convert various chromium (III) compounds used in tanning into carcinogenic hexavalent chromium, or chromium (VI). These six-valence chromium flows and scrap are then consumed by animals, in the case of Bangladesh, chickens (the nation's most common protein source). Up to 25% of chickens in Bangladesh contain harmful hexavalent chromium content, increasing national health problems.

Chromium is not only responsible for these diseases. Methyl isothiazolinone, used to protect microorganisms (fungi or bacteria), causes eye and skin problems. Anthracene, used as a tanning agent, can cause kidney and liver problems and is also considered a carcinogen. Formaldehyde and arsenic, used to perfect the skin, cause eye, lung, liver, kidney, skin and lymphatic health problems and are also considered carcinogens. Leather waste is detrimental to the environment and the people living in it. The use of old technologies plays a big part in the harmful effluents leading to environmental pollution. This is particularly prominent in small and medium tanneries in developing countries.

6. REPLACE CHOICE

As an alternative to tanning, leather can be dried to produce raw leather instead of leather.

7. LINKING TOGETHER

A tannery can be associated with a grinding mill, initially as a grinding wheel facility for sharpening knives and other sharp tools, but later carrying tools and materials from the craftsman. closed shoes for sale.

There are several methods of treating wastewater and solid waste being studied, such as anaerobic digestion of solid waste and sludge.

8. WHAT'S THE FINAL SUMMARY

At this point, everyone has partly understood an overview of the "Tanning process" and its basic knowledge. Thank you for watching till the end.

All words are kept intact so that when you want to learn more, you can easily search for documents. Therefore, the article is relatively dry and lengthy, revolving around academic and mechanical processes.

Once again, thuybich.com would like to sincerely thank you and see you again in other posts.

9. SOME ADDITIONAL INFORMATION

9.a How many types of leather are on the market?

At the present time, we can already have many types of animal skins from animals such as tiger tanning, pig tanning, snake tanning, wild cat tanning, sheep skin, sheep skin, bird skin, da da ostrich, goat leather, cowhide, crocodile, buffalo and buffalo tanning, from small scale (manual and home tanning) to industrial-scale tanning (tannery, tannery workshops) tannery ...).

With the question from many people, is the tanning product in Vietnam good or not, is sheep skin durable? Because these are all high-class leather with very high technical requirements, requiring sophistication and professionalism, the new products have high durability and quality over time.

Cowhide is now widely used because of the price, the understanding that it brings from the way of tanning also makes cowhide a favorite.

With various products made from cowhide, we have: Nappa cowhide, Wax cowhide (If you do not know what wax cowhide is, you can read the article. to know more), calfskin,

Because of its popularity, there will be many questions raised by many people: How much is cow leather ?, What is cow leather ?, Types of cow leather, How to process cow leather ?, How to do it? How to soften cowhide, How to identify genuine cowhide, How to dye cowhide, etc.

In another article I will try to answer all the problems of rotating cowhide to give you a better understanding of this material.

And finally, the finished leather tanning process will create intact leather and from these skins will create many different types of products such as cowhide jackets, crocodile leather jackets, lambskin jackets. , leather shoes, men's wallets, leather belts.

9.b Tanning addresses throughout the country?

Tanning is one of the most important steps to creating quality leather products. Under the development of science and technology and the continuous creativity of people, we are creating a lot of products. diversity that contributes greatly from reputable companies and tanneries.

So thubichvl would like to introduce to you some reputable addresses in the tanning industry for your readers if you need to find out, it may be easier to find information for ordering crocodile tanning leather. species.

+ <https://thuybich.com/thuoc-da-la-gi/> and wholesale leather establishments: Anh Ky (cow leather factory), Kim Thanh also has cowhide and crocodile leather workshop: Hao Duong, Saigon leather, Dona cinnamon, Hung. Thai, My Viet, Saigon Tantec, wei leather in Vietnam, Binh Ky, Dang Tu Ky, Vu Thanh Hung, Forest Vietnam, Kien Dinh Ba Hung, Mr. Tien Thanh,

Vinh Tien, Vinh An, Yi Sheng VN,

+ Some big cities: Hanoi, Ho Chi Minh City, Can Tho, Da Nang, Hai Duong,

With the very high demand of the market, every day there are many people interested in the tanning process. It is easy to see that on Google we have encountered a lot of queries: how to tan leather, how to tan leather, how to crocodile leather, how to tan leather, tiger skin, how to tan wild cats

Ngc Thng

frequently asked Questions

People also ask

What Is A Tanning Leather?

A type of hide made from animal skin that has not been processed to form a finished leather

What does tanning mean?

Tanning has created a new era of products that people can use. It greatly influenced the society, politics and economy of nations.

What is tanning leather?

Leather or leather is the main product of the tanning process.

People Also Looking

Tannery is what to do

Tanning at home

Traditional tanning

Simple way of tanning

Apprenticeship in tanning

Lecture technology lecture

How to tan wild cats

The bark is able to extract what substance is used in tanning