

Goat Leather Crafts – Caprine Outing 2006

What Is Leather?

Leather is animal skin that has been preserved by tanning. The tanning process alters the collagen (microscopic proteins that give skin its structure & elasticity) in the hide so that it doesn't decay or rot. It removes the micro-fibers holding the collagen together so that they separate and toughen. This also creates leather's characteristic softness and flexibility.

Leather vs. Rawhide

Rawhide is a hide that has undergone the initial preparations, but isn't yet tanned. It's stronger and stiffer than leather, good for lacing, thongs, saddles, dog toys, and anything else that should hold its shape or dry stiff. Leather lasts longer because of the preservative effects of tanning, and also is softer and more pliable. It's better for projects like shoes, clothes, wallets, purses, etc.

What Is Goat Leather Good For?

Goat hides make a thin, fine-grained leather that's excellent for garments and other lightweight projects. Goat leather typically weighs 2-3 ounces per square foot of material – equivalent to a thickness of 1/32nd of an inch or slightly more.

How Do You Make Leather?

After skinning, the hide undergoes the following steps to become leather. The time and ingredients involved in each step vary depending on which formulas are used for certain processes. Sample recipes for some steps are included in the next section. Between skinning, fleshing, and other steps, the hide can be preserved for several months by salting it with a pound of salt per pound of hide. Store it in a cool place where excess moisture can drain away. The hide can also be kept safe in the freezer. For most steps, soak the hide first and then let it partially dry so that it's damp enough to work with instead of being stiff as a board.

1) **Fleshing** – Make sure the hide cools quickly by hanging it stretched out. Once all the body heat has dissipated, spread the hide over a flat surface or fleshing beam – a smooth log 10" set up at an angle like a sawhorse with only one set of legs. Scrape off all the excess fat and tissue from the underside of the hide using a dull knife so as not to nick the hide or dig so deeply that the roots of the hairs are exposed. This takes some time and elbow grease. More flesh will loosen from the hide throughout the tanning process and can be removed later, but taking off as much as possible now will improve the results.

2) **De-hairing** – Once the hide is cleaned of excess material, the hair needs to be removed. Soak the hide in a de-hairing solution made from lye (concentrated or hardwood ashes extract) or lime for several days, depending on the formula. The hide is ready when the hair can be slipped – pulled out of the hide by hand.

CAUTION These solutions are strong bases – they are **VERY CAUSTIC**. Always wear gloves, work in a well ventilated area, and dispose of properly. **DO NOT USE METAL** implements, containers, etc. - only wood, glass, pottery or plastic ones.

Once the hair is loose, drain the hide of excess solution by hanging it up for a short period. Then drape it back on the fleshing surface to shave or scrape off all the hair.

3) *De-liming* – After the hair is removed, the de-hairing solution left in the hide needs to be neutralized with a mild acid formula called bate or drench. Vinegar (acetic acid) is a common ingredient. Rinse the hide repeatedly in several changes of clean water, then soak it in the bate for at least twenty-four hours (follow the recipe instructions). Rinse the hide several times afterwards to make sure it is free of excess chemicals that could interfere with the tanning process.

Rawhide: For rawhide, stop at this step. Stretch the hide over a frame or a series of nails pounded into a plank. To mold the rawhide, soak it and then shape it into its final form. Let dry in a cool, dark area. If necessary, the rawhide can be given some flexibility and softness by finishing as in the last step for leather.

4) *Tanning* – Hides can be tanned using vegetable (extract tannic acid from bark or galls, not actual vegetables!), oil (only use animal-based fats and oils), or mineral (alum and chrome salts) solutions. Buckskin is a type of leather made by tanning with the animal's brains and then smoking the hide.

CAUTION Many of these solutions include ingredients that can be **very dangerous if mishandled**. Always wear gloves, work in a well ventilated area, and dispose of properly. **DO NOT USE METAL** implements, containers, etc. - only wood, glass, pottery or plastic ones.

A medium-sized hide like a goat's requires at least 10 gallons of tanning solution, enough to completely submerge the hide in and allow for stirring. Soak the hide in the tanning formula according the recipe's instructions – anywhere from two days to two weeks, usually with some stirring and changing the solution every so often. To check the hide's progress, cut a small slice into it and look to see if the color change from tanning has penetrated evenly all the way through the hide. A lightweight hide like a goat's will tan quicker than a thicker cow or horse hide. Once the hide is completely tanned, rinse it repeatedly in several changes of clean water to get out all the chemicals.

5) *Finishing* – To complete the hide's transformation into leather, it needs to be staked and then oiled while it's still slightly damp. Coat the hide with an oil like castor oil or neat's foot oil, or with a grease like tallow or lard (remember, only animal-based fats!) or a combination of both and let it soak in. Staking the hide essentially involves beating it up to break up the micro-fibers that are binding the collagen. A common way to stake is by draping the hide over a wooden stake or the narrow end of a board and then working it back and forth over and over and over until it's soft enough for whatever project it's going to become. Other ways of staking include beating the leather with axe handles or even chewing it – the most important part is to work and work and work and work the hide until it no longer dries stiff. Once it has the characteristic softness and flexibility of leather even when dry, it is done!

Sample Recipes

Here are a few simple formulas for the steps listed above. Alternative recipes can be found in leather making books such as the two listed in the Resources section.

De-hairing Formula

“Liming Solution #3,” from *Tan Your Hide!*, pg 51

2 ½ pounds of slaked, caustic lime for every 10 gallons of water

Add the lime to water and stir with a paddle until completely dissolved. Soak the hide in this solution 36-48 hours, or until the hair comes off easily.

Bate (De-liming Solution)

“Bate Solution Recipe #1,” from *Home Tanning & Leathercraft Simplified*, pg. 72

1 part sharp cider vinegar

3 parts water

Mix enough to cover the hide. Stir well. Stir the skin frequently in the solution. Soak for at least 24-36 hours to neutralize any alkaline chemicals remaining in the hide.

Tanning Formula

“The Easiest Method,” from *Home Tanning & Leathercraft Simplified*, pg. 75

15 pounds of chrome crystals

6 pounds of common non-iodized salt, any grade

12 gallons of water

Heat the water to easily dissolve in the chrome crystals and salt. Once they are thoroughly dissolved, cool the solution to about 70 degrees Fahrenheit before adding the hide in to soak. Tanning will require nine to ten days for a medium hide and about two weeks for a large one. Stirring frequently will cut the tanning time considerably and will also insure that the hide tans evenly.

Resources

These two books provide more detailed information on making leather, alternate recipes for tanning and other steps in the process, and a few leather project ideas.

Home Tanning & Leathercraft Simplified. Kathy Kellogg. Williamson Publishing Co.: Charlotte, VT. 1984.

Tan Your Hide! Phyllis Hobson. Garden Way Publishing: Pownal, VT. 1977.