



# skin & hide tanning



## what is it?

Animal skin is made up of a number of layers, and is predominantly a fibre network of interlocking spiral proteins. Hide tanning is the process by which a raw skin is preserved. After tanning, the skin should be stable, and not rot or be attractive to animals and insects. The process generally has a chemical stage and a physical manipulation with lubricants such as oils. In traditional (or natural) tanning there are two main techniques:

**Emulsifiable oil tanning** (or brain or smoke tanning): using an emulsifiable oil such as brains or egg yolks whilst working the skin (physical). The skin is then smoked, when formaldehyde enters the skin (chemical) and ensures that even if it gets wet, it retains its softness. This creates a soft, shammy-like leather.

**Bark, or vegetable tanning:** immersing the skin in a tannic acid solution (chemical), made by boiling high-tannin plant material (such as certain tree barks, nuts and leaves) in water to produce a tannin-rich, acidic tea. Once the skin is tanned through – a matter of days for small skins like rabbits, to months for deer or even years for large cows – it's then removed and rinsed. The skin is then oiled and worked soft (physical). This creates a firm, waterproof leather.

**History:** humans don't have much insulative fur or any protective scales. We require clothes in many climates, to keep warm, safe, shaded, and camouflaged. Archaeological finds suggest that hide tanning was carried out as far back as 70,000 years ago, through the study of flint scraping tools. Leather would have been the main 'fabric' for thousands of years. There are wall paintings of tanning in Egypt, and leather clothing, many thousands of years old has been found preserved in peat bogs throughout Europe.

Tanning in Europe was a major occupation, and many traditional tanning techniques have been lost – replaced by industrial chemical processes. There has been a resurgence however – in particular in North America, via the primitive skills movement, and in Scandinavia, learning from traditional Sami techniques.

## What skins can be tanned, and for what use?

- Fur (e.g. rabbit, squirrel or fox) can be brain or bark tanned: for hats and cold-weather clothing.
- Deer skin\* (rawhide): hard, inflexible, untanned skin for drums, containers or cordage.
- Deer skin\* (buckskin): soft 'shammy'-like leather made using the emulsifiable oil technique – for clothing, bags and moccasins.
- Deer skin\* – firm waterproof leather that's great for bags, straps and belts (bark tanning).



*Tanned skins, left to right: bark tan deer, fox fur, bark tan salmon, brain tan deer, rabbit fur, bark tan deer.*

- Sheep skins (with the hair kept on) can be brain or bark tanned, great for rugs or coats.
- Fish skins: can be brain or bark tanned for a textured, strong material, good for bags, clothing and jewellery.
- Glue: any mammal skin can be made into a water-soluble glue by boiling and reducing the liquid. The glue is from collagen in the skin.

\*or any other hoofed animal

For leather and buckskin the hide preparation process is generally:

- Soaking: in an alkaline solution such as wood ash or hydrated lime (this dissolves mucous, makes the hair slip out and puffs up the fibres).
- Dehairing: using a tool to remove the hair (for buckskin also removing the grain – the outer layer of skin).
- Scraping: fleshing and membraning – removing excess fat, flesh and membrane (skin layer)
- Rinsing: rinsing out the alkali and bringing the hide back to neutral or acidic pH.

...and then either:

**Brain tanning:** soaking in a brain solution, and stretching the skin out, and repeating this process until the hide comes soft and dry, and then smoking the hide over a cool smokey fire; or:

**Bark tanning:** soaking the skin in tannin solution – initially a weak solution, gradually getting stronger, until the hide is tanned through. Then softening with oil.

**Commercial chemical tanning:** most modern commercial tanneries use a chromium solution, which, when allowed to leach into waterways, causes problems for humans and nature. Often tanneries are in developing countries with more lenient environmental and work safety laws, making it easier to get away with polluting waterways and harming health.



Rawhide drying in a rack.

### what are the benefits?

- You're creating an alternative to the damaging commercial chemical tanning industry.
- Skins, bark, brains, etc. – can be obtained for free, and you can create a useful product from biodegradable, non-toxic materials.
- When working with skins, people feel a sense of connection to the natural world around them, and to our ancestors who would have tanned as part of their everyday lives.
- If you're tanning anything the size of a deer skin or larger, you get a great upper-body workout as you persevere to work it soft for hours!
- You 're helping to revive an ancient skill, that could also be turned into a career.
- The end result – leather – can be crafted into beautiful, useful things.

### what can I do?

Hide tanning is not easily learnt from a book. Attending a course is a good idea. There are a few key tools and pieces of kit needed, but once you get an understanding of the process and tools, it's totally doable in a garden or even in the woods. Fish skins can be done in the kitchen, but other tanning is best done outdoors. It shouldn't be smelly, unless you leave it until it starts to rot!

**Obtaining skins:** there are ethical considerations when obtaining skins, so do ask questions of your supplier. Generally, you can find 'waste' skins that would otherwise be thrown away, for example:

- Rabbits, foxes and squirrels are considered pests on some farms, and are culled. They're often thrown away or left to rot.

- Deer skins – from deer stalkers or deer farms.
- Fish skins – can be obtained from fishmongers.

**Skinning:** also a useful skill, though you'll often get the skins already off the animal from the butcher or game dealer. It is also a skill best learnt in person, but there are some good videos online.

**Storing skins:** if you can't use a skin immediately, it's important to store it correctly to avoid rotting. Options are:

- Freezing – skins keep well in a freezer (this is the only option for storing fish skins).
- Salting – sprinkling the flesh-side of the skin with salt and letting it drip dry then rolling and storing away from animals (this is just a storage method, not part of the tanning process).
- Drying – so long as a skin remains fully dry, bacteria cannot begin the decay process (though insects and rodents might damage it).

Sewing buckskin / leatherwork is an art in itself, and with this you can create clothes, bags, shoes, belts, and so much more.

### resources

- see [lowimpact.org/skins-hides](http://lowimpact.org/skins-hides) for more info, courses, links & books, including:
- Matt Richards, *Deerskins tino Buckskins*
- Lotta Rahme, *Traditional Tanning*
- Lotta Rahme, *Fish Leather*
- [skillcult.com/tanning-and-leather](http://skillcult.com/tanning-and-leather) – range of articles and videos on brain and bark tanning
- [paleotechnics.com/articlesindex.html](http://paleotechnics.com/articlesindex.html) – articles on brain tanning and skinning
- [braintan.com](http://braintan.com) – US site with wealth of info



Scraping deer skins on beams (wooden and plastic) with metal scraping tools.

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