

Hide Glue/Leaf Glue/Animal Glue

Lady Samin

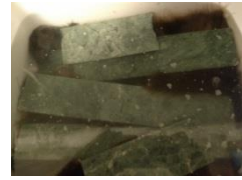
How to make Animal Glue and the science behind it

Materials:

- Animal skin(s) In the pics are three salted and partially dried gopher skins donated from a friend)
- Large pot or plastic bin depending on your process choice, soaked or boiled
- Pickling Lime
- Large draw blade or flat bladed knife
- Colander
- Mesh strainer (like a tea strainer)
- Large bowl
- Several large, flat pans (like for a jelly-roll)
- Scissors
- Old towels
- Plank of wood, log or some other support to work on
- Drying rack of some kind

Process:

1. Preparing the skins – The skins are washed in fresh water to get them as clean as possible and to remove any salt. Then put them into a large plastic dish pan full of water, to which a half cup of pickling lime has been added. If they float to the top, (due to fats on the skin), weigh them down to sink them. Remove the weights to stir them around, twice every day and replace the weights to ensure the lime could reach all parts of the skins. The skins should soak for three or four days. An alternatively way is to gently boil them for a few hours without the lime.



2. The skins are then washed with dish detergent and rinsed (for cleanliness) and as much water as possible squeezed out. Then roll the skins in towels to remove more water.



3. Next lay them the skin onto old towels placed over a plank hair side up. It helps to have the plank slant down to the ground to keep the water off you. The photo below shows the process for this. Use an old draw blade or other flat dull knife to scrape the fur off the skin. The hardest part is to keep the furs from sliding around as you work.



Image from:
<http://www.adfg.alaska.gov/index.cfm?adfg=hunting.tanhide>



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- Next flip over the de-haired skins, and scrape them with the same draw blade, so no fat or muscle is left.



Image from:
http://www.braintanbuckskin.com/Tanning_Spirit/Fleshing.htm

- Wash and rinse the skins again to remove any leftover salt and the lime.
- Cut the skin into roughly 4" squares and put them into a pot of water. The water should be three times as deep as the level of the skins. Let this heat, **so it does not boil (or simmer** – if you see any bubbles turn the heat down). Add more water if need to keep the skins well covered. After three or four hours there should be a thick slurry of liquid and hide.



Do NOT boil! Boiling will make the proteins NOT stick together and the glue will not work!

- Next straine the liquid through a calendar to remove the skin, retaining the liquid in a large bowel. Return the skin to the pot, add more water and heated it again for another batch.



- Strain the liquid a second time using a small mesh tea strainer, right into the flat pans set out for that purpose. Let it cool for an hour or so, until it can be lifted and held without breaking apart. It should not feel sticky at this point.



9. Cut most of it into narrow strips that then are cut into cubes and lay these on a cloth to start drying. Cut some into squares about 3" or so across to form "leaves", these too, were placed on towels to dry.



10. The leaf glue can be moved to a rack so that air can circulate around it better and aid in drying. The cubes will dry best if put into a covered basket that also allowed better air flow. The basket can be shaken to facilitate the drying. As the glue loses moisture and dries it shrinks quite a lot.



Store the glue in the refrigerator when you are not using it. On a hot day it will melt easily.

11. To use it, add a bit of hot water (not boiling).

Optional: When completely dry the cubes can be ground into a coarse powder – it makes it take up less space to store, and it's easier to control how much you want to use when you reconstitute it.



The science behind how it works:

The collagen (proteins) in the skin is in long twisted strands. By adding heat these strands are untwisted, exposing side branches. The side branches interconnect (bond) with each other to produce sticky gelatin. As the gelatin dries completely, the connections are locked into place – making it a good adhesive (von Endt).

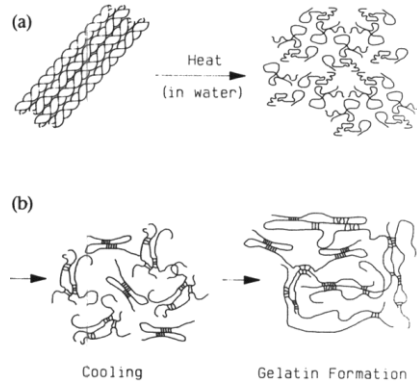


Image from: "The Chemistry of filled Animal Glue Systems" <http://albumen.conservation-us.org/library/c20/vonendt1991.html>

Denaturation of Proteins:

When excessive heat is added, the long-twisted chain untwists (like above), BUT the exposed side branches are altered (unlike above where they are the same). These altered branches can no longer interconnect. Without the interconnections there is not sickness or glue.

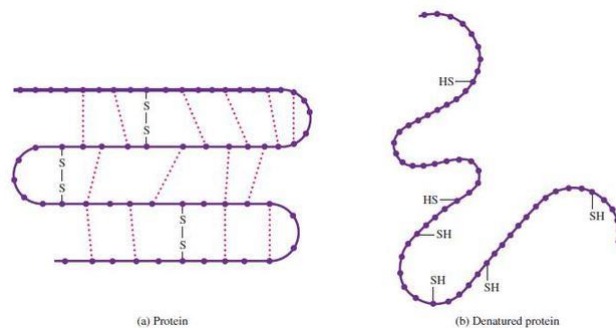


Image from " The "Virtual Chem Book" <http://chemistry.elmhurst.edu/vchembook/568denaturation.html>