

## Preparation of Hide Glue

Provided by Luscombe Violins Inc. [www.violins.ca](http://www.violins.ca)

Dry Hide Glue available from Luscombe Violins at <a href="http://www.violins.ca/supplies/hide_glue.html">www.violins.ca/supplies/hide_glue.html</a>	This document is available with pictures at <a href="http://www.violins.ca/info/hide_glue_preparation.html">www.violins.ca/info/hide_glue_preparation.html</a>
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Hide glue is the standard glue that is used by violin makers, and is prized for its organic nature and ability to be dissolved to remove a plate or other part of a violin to perform internal and external repairs. It is made from dried hooves, skins, and other animal parts. Its organic source is responsible for the qualities which necessitate many of the common violin repairs - humidity and dryness can weaken the glue joints, making re-gluing of loose joints necessary.

Modern glues are not water soluble, and as such, are not subject to the conditions of our atmosphere or exposure to moisture in the same way that natural hide glue is. However, a good hide glue joint very strong - it can easily be stronger than the wood itself. Spreading a thin film of hide glue on a plate of glass will damage the glass - often times breaking it (I have had clear glass baby food jars and ceramic pots which contained hide glue break during the drying and consequent shrinkage of the glue).

Hide glue is available in a powder, granular or flake form. It must be mixed with hot water to become useful as an adhesive. To heat the water for the glue I use a rather ordinary laboratory hot-plate with a dial heat adjustment on the front. An alcohol lamp, old clothes iron (upside-down), or other heat source could also work.

Hide glue is made in a double-boiler to prevent the glue from over heating or becoming scorched on the bottom. Half of a soup can or other metal container could be suitable. I use a small 3" diameter copper pot. Inside the copper glue pot (the water jacket) is placed another container (preferably glass), which is used to heat the glue and water mix. I have also used baby food jars, held with a simple wire frame to keep it from tipping. A tin can smaller than the water jacket would also be suitable, though some metals can discolour the glue.

The glue pot holds about 4 ounces. I usually start with about 2 ounces of cold water, and put one common teaspoon of dry glue into this. The glue should be fully dissolved while the water is cold. The glue should be heated to about 70 C, or 165 F. I must admit that I don't use a thermometer. The water in the jacket should be quite hot, but not near boiling point.

When the glue is ready, there should be a slight skin forming on the glue. If heated for too long beyond this point the glue will thicken rather quickly. At this point I usually put a couple of teaspoons of water into the glue. Between the fingers it should feel oily, but not thick. If it feels watery, it is likely too thin.

I use a 1" brush (dollar store variety should be adequate) for applying glue to fingerboards, nuts, saddles, and other flat surfaces requiring glue.

For trickier areas, such as in an open seam or glue joint, I use a knife (the black handled artist's knife with the aluminium blade is one of my favourites) to apply the glue into an open edge seam (there is no way of getting a brush into these tight crevices). Be careful to leave the metal knife blade in the hot glue for at least a few seconds before using it, or it can quickly cool and gel the glue on the knife. If the glue gels, it must not be clamped, as it will create a "cold joint" that will fail to obtain maximum strength.

For gluing cracks on the top or back of an instrument, rub the glue into the crack (this can be done with a brush or clean fingers) until it starts to come through the other side. Have appropriate clamps ready, so that it can be clamped while the glue is still warm and thin.

Make sure that all glue is wiped off of varnish, and washed from unprotected wood. Glue or glue-water can damage varnish that it is allowed to dry on. Unvarnished wood that absorbs glue or glue water will not

accept stain or stained ground varnish as well as the surrounding wood, so will leave light spots under the varnish!

I recommend the medium strength (315 gram strength) glue. All strengths of hide glue are capable of making a joint stronger than the wood. The major differences in the glue is the working time. The strong glue (380 gram) tacks faster, and the weaker glue (195 gram) gives more working time. In my opinion, the 315 gram gives the best of both worlds, and is rated stronger than the weak one.

Dry hide glue can be found on our web site, at [www.violins.ca/supplies/hide\\_glue.html](http://www.violins.ca/supplies/hide_glue.html)

An excellent plastic glue pot, with 2 sections (one for glue, one for hot water), as well as an electric glue pot, can be found here: [www.violins.ca/tools/tools\\_herdim.html](http://www.violins.ca/tools/tools_herdim.html)

Dry hide glue can last indefinitely. Once the glue has been dissolved in water, however, it does not last long. In the summer (here in SW Ontario, Canada) when it is hot and humid, the glue will typically only last one day. The second day it starts to show very small pits in the surface (mould). By the third day it can be green and furry. In the cooler, winter weather it will usually last several days easily, but I usually make new glue each time (it is a small investment).

I have heard that refrigerating the glue can extend its useful life. This is probably true, though I have never found it necessary.

Ready-to-use hide glue can be obtained. It contains a preservative (formaldehyde?) that keeps it useful for up to several months. I have, however, heard of one maker who used it exclusively on his first several instruments with disastrous results - so I would not recommend its use, even if there are those who have had good experience with it. Don't say I didn't warn you!

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There is a thread on our Violin Making and Restoration Forum that discusses the making of hide glue, which includes some images: [www.violins.ca/forums/viewtopic.php?t=10](http://www.violins.ca/forums/viewtopic.php?t=10)

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