



## Hide Glue

PUBLISHED ON *May 13, 2016* *November 20, 2019* by *Salko*

Animal Glue also known as hide glue or protein glue has been around since the Neanderthals, no they weren't making furniture but instead they used it to protect their painting from moisture. There is also written evidence found around 2000 BC the Egyptians were using hide glue. This glue was found on their caskets and furniture in the Pharaohs tombs. The Greeks and Romans also used animal and fish glue for their Marquetry and veneering, Chinese and even American Indians were found to use hide glue.

Animal Hide Glue is made from, well, animals, skin, tissues, bones (hoof, teeth etc.) what type of animal well mostly horses that were going to be put down. Other animals include rabbit, fish and Ox

Hide glue comes in a granular form, flakes and flat sheets which do have an indefinite shelf life if kept dry.



To use it you must first dissolve it in water, then heat it in a glue pot be it over fire or an electric stove to about 140F (60c) but no more than 180F and you cannot boil it as high temperature will destroy the glue strength. You must work quickly which is a disadvantage as the temperature drops the glue starts to set. The open time will vary on the gram strength which range from 120-250, the latter having the shortest open time and I believe it to be around a minute. I have a PVA glue that has an open time around 2 mins which comes in very handy when you need to glue some small parts and you cannot clamp it, it takes 4 hours to cure which is pretty bloody awesome. Hide glue takes anywhere from 12-24 hours to cure which is pretty much standard for most glues on the market.

As I said above hide glue starts to set as it cools down and begins to cure as the water evaporates from it, hide glue will not cure if it is soaked. Why would you soak it? Beats me.



Patrick Edwards who is a scientist by profession but now known for the last 30 or 40 as a respected antique furniture restorer who does many jobs for the Smithsonian developed the OBG (Old Brown Glue) which is hide glue with a gram strength now honestly I can't remember whether it's 192 or 250 that can be used at room temperature and has an open time of 30 mins. This was made possible by adding urea, now Urea isn't a new invention, woodworkers discovered back in the 19<sup>th</sup> century if you add Urea to the mix it would extend the open time and keep it in a liquid state but back to OBG. OBG has a shelf life of 18 months from its creation date so you'd hope it hasn't been sitting on the store shelves for too long. It can be frozen to prolong its shelf life and it does not affect its qualities. 18 months is pretty darn good as no other glue including Titebond's Liquid Hide Glue can make that claim. All glues except for OBG has a shelf life of up to 12months.

OBG gluing strength is equivalent to hot hide glue. Knowing that OBG is equivalent to hot hide and I use the term hot in reference to using a glue pot eliminates the need of having to use a glue pot but for the sake of tradition and expense using a glue pot is a better option if you are going to be making a lot of furniture, clocks whatever everyday as it is pricey in this country to buy OBG. Of course it's a lot cheaper in the US, everything seems to be cheaper in the US not sure why the yanks are so tight with their money, try living in Australia then you'll see what expensive really is. Anyway shooting my mouth off again, the process is the same you still need to heat it up but not in a glue pot but using hot tap water instead. If your boiler doesn't heat your water to 140F up to and no more than 180F which mine doesn't I boil the water in a kettle and mix some cold water and pour it in a jar which I'll monitor the temperature using a thermometer used for cooking and then place the bottle inside the jar. I purchased a small empty bottle which I use and store the large bottle in my freezes and top it up as I need to.

Hide glue is not a gap filler so if you suck at making good tight joints I wouldn't recommend using it, the reasons are because of the drying process. As I said above hide glue cures by losing its moisture if the joint has gaps then the moisture in the glue doesn't evaporate and won't fully cure it will remain gummy due to the moisture in the air. However, if the joints are tight then the wood absorbs the moisture and the glue dries hard.

When it dries it dark but clear and yes it will darken more over time but obviously you won't see that, if you're a messy woodworker no problem you can leave it on which you wouldn't but you can as it does not affect any finishes unlike every other glue on the market that will, or you simply scrape it off or yes wash it off. Just by applying a damp cloth it will come straight off again no other glue including titebond liquid hide can make that claim. In fact, titebond say's in their fact sheet if you apply a few drops of water it will weaken the bond, also titebond say's in their safety sheet not to get glue on your skin as it will cause irritation and so forth. Not so with true hide glue, with hide glue you can cover your hands in it. It will be very sticky and uncomfortable but it simply washes off with water, no soap nor turps or industrial soap required, just plain old water will do it.

Lastly you reverse protein glue by adding moisture and heat to it.

Hide glue is also known to set on itself by performing a rubbed joint, so when edge gluing you apply glue on both edges. You rub the edges against each other until it tacks and then set it and leave it to dry without clamps. As it starts to dry the glue will pull into itself forming a tight gap free joint. Hard to believe but it's been done like that since the 16<sup>th</sup> century when furniture making begun as a craft.

You may be wondering just how strong is it, well I can tell you I build all my clocks, furniture and now I'm starting boxes and none of them have come back. I've even glued as test piece a mitered corner joint, I'm still yet to break it apart. Maybe I'm a weakling but I tried to break the joint and couldn't do so and remember that's end grain gluing. The trick to this is simple, you apply glue to both mating pieces then allow the end grain to soak up what it can and let the rest dry a little to form a thin film. Then you apply some more glue and mate the pieces immediately together without any waiting. Clamp it and walk away and the next day it should not come apart.

To tell how you know hide glue in particular the liquid hide and not titebond but OBG has deteriorated. There are some signs to look for, if you know the expiry date is up it doesn't mean that it's useless as OBG hide glue has been known to last 2 years but everything has an end so here are the signs.

The proteins break down and the glue becomes very runny at normal room temperature, there is a foul odorous smell and mould begins to form. If any of these things occur its time to chuck out your bottle and buy a new one. There's no point in keeping it even if it's ¾ full, like Chris Schwarz said without glue you've got nothing but a pile of wood sticks or something along those lines.

If you don't want to purchase OBG you can make it yourself. But you would need a glue pot, hide glue and salt. To save me writing anymore than I need to here is an extract from Don Williams, senior furniture conservator at the Smithsonian's Museum Conservation Institute.

*To make a batch of liquid hide glue takes about three minutes of active work, according to Williams, but it's three minutes spread over a 48-hour period. And you don't need anything special in addition to the hide glue – except table salt.*

*To begin, you have to make hot hide glue. I'm sure if you have yet to purchase a glue pot (a special pot for making and reheating hot hide glue), you're not of the mind to do so for this single purpose. You don't have to. You can use an electric hot plate, a saucepan, a small glass jar and a small amount of hide glue flakes or pearls, along with salt.*

*Here are the steps: The first day, mix two parts hide glue flakes with three parts water into the jar and let everything soak. The following morning, heat water in the saucepan to a temperature of 140° F (a thermometer helps with accuracy), add in one-part salt to the jar then cook everything for about two hours. Next, immediately stick the cooked mixture into your refrigerator for the balance of the day (quick cooling is key).*

*On morning three, fire up the burner and cook the mixture for another two hours (Williams always cooks the glue twice). Once the batch cooks the second time, you have liquid hide glue. Williams adds that he seldom makes more than a pint of glue at a time. He pours it into a plastic ketchup or mustard squeeze bottle for easy dispensing.*

*And here is the most interesting part of home-made liquid hide glue: The salt makes this product stay liquid at room temperature and salt preserves the glue so there is no spoil date – just as salt has done throughout time in salting meat.*

Hide glue has been used for thousands of years and yes it has stood the test of time the tombs are filled with furniture and caskets still held together with hide glue. It wasn't until WWII when they decided they needed to make glue that didn't involve a lengthy setup process and hence PVA was invented. Yes modern day glues are very strong in fact so strong that you will break the wood and not the glue joint but they are not reversible. What does that mean to you though, probably nothing. If you want someone in 150 or more years to repair your now antique then hell yes it means something. It means something to someone and it should mean something to you as a craftsman. I as a craftsman who works solely with hand tools care enough to what I put on the things I make from the finishes down to the glue. On the other hand I'm a traditionalist, I tend to follow what they did 300 years ago. Why because it works, it wasn't broken then but we broke it today due to the unnecessary war we had and the wars we still have, due to mass production, higher profits, bigger demands it must get done yesterday. Hide glue has proven itself but you and I will not see if PVA will prove itself, Maybe it will or won't only time will tell but I am sure glad that there are companies out there who still produce hide glue and I'm glad that there are thousands of craftsman probably millions around the world who have created a demand for such products to be made available.

That's all folks hope you learned something new or refreshed old memories. No matter what you use, use it well and enjoy your craft.

Till next time

CATEGORIES [TECHNIQUE, TOOLS](#) • TAGS [ANIMAL HIDE GLUE, GLUE, LIQUID HIDE GLUE, PROTEIN GLUE](#)

## 18 thoughts on “Hide Glue”

### 1. Coisas EM'adeira says:

*May 12, 2016 at 10:09 pm*

Hi Salko!

As you know, I've been reading a lot about this subject.

I found your blog post very useful and its almost “Hide Glue for Dummy's” – self explanatory.

That's great!

Believe it or not the major difficulty thing until now was the translation of the words to Portuguese.

Because here we have lots of different words to several types of animal protein glues.  
This week I was able to found the proper names and the glues are very cheap! Lucky me  
Next week I'll be "cooking" 🤖

REPLY

2. **handmadeuniqueclocks** says:

*May 12, 2016 at 10:41 pm*

That means I'll be coming over for dinner 🤖

REPLY

1. **Coisas EM'adeira** says:

*May 13, 2016 at 9:03 am*

I'll make you a special delicious traditional food!

REPLY

3. **Greg Merritt** says:

*May 12, 2016 at 11:14 pm*

Very good write up Salko.

I have used the Titebond and the OBG. Both worked fine for me, but I do prefer the OBG for most of the same reasons you state above.

The one thing that I have yet to try is hot hide glue. I have been contemplating switching to hot hide glue because I don't use all that much glue and even the small bottle of OBG last well beyond the published expiration date. I'm thinking I could mix small batches of hot hide glue when needed. In its dry (pre-mixed) state, the hot hide glue will last indefinitely. Finding a small batch glue pot is proving to be the challenge.

REPLY

1. **Coisas EM'adeira** says:

*May 13, 2016 at 9:11 am*

Greg

Joshua in this post <http://www.workbenchdiary.com/2011/05/homemade-hide-glue-pot.html> made one with just a few bucks...

And <http://www.calebjameschairmaker.com/> frozen the excess in small silicon (ice cube makers) containers.

REPLY

1. **Coisas EM'adeira** says:

*May 13, 2016 at 9:14 am*

Ups!

I type the wrong address.

The right one [calebjameschairmaker.com/](http://calebjameschairmaker.com/)

4. **handmadeuniqueclocks** says:

*May 12, 2016 at 11:28 pm*

The expiry date on my bottle is 9/15, I never use a lot of glue hence why the big bottle is still 3/4 full, I've kept it in the freezer and last night took it out to refill my small bottle. I was pleasantly surprised to see that it still is in good condition that it hasn't gone off, smelly or runny. With the one I have on my bench it was runny but not extremely so I've done a couple of test edge glue ups. 12 hours have passed and I was able to break the bond with my bare hands which I didn't like but in the middle it did break on the glue line and on the ends it tore the timber. The other two tests I've left to allow 24hrs to pass. Winter is approaching us so it was cold last night which probably played it's part.

I think your suggestion is a great idea, you won't find small glue pots but you can place a small amount in it do it that way. I'll ask my buddy Steve what he does with his left over glue in the pot, he's retired now but still buys them in 25kg bags not really sure why I guess old habits don't die. I'll get back to you on this.

REPLY

5. **rene.** says:

*May 13, 2016 at 7:38 am*

Wow!

Never read such an comprehensive down-to-earth guide about hide glues.

It is all in there (seems to me) for the start, first and further experiments.

Thank you for sharing!

REPLY

1. **handmadeuniqueclocks** says:

*May 13, 2016 at 10:42 am*

Thank you Rene

REPLY

6. **Matt McGrane** says:

*June 23, 2016 at 8:53 pm*

Hi Salko. These two posts of yours about hide glues were really great. I've never used hide glue (hot or liquid) and only know a little about it. But I've read a fair amount from people who use it regularly. So far I've been satisfied with PVA glue, but maybe if / when I get into building larger furniture items I might look into it. I'm particularly interested in its reversibility in the event a joint just doesn't seat properly.

Thanks for the information.

REPLY

7. **handmadeuniqueclocks** says:

*June 23, 2016 at 9:07 pm*

Glad you found it useful but as you know my builds aren't generally large well most of the time so this is not just for larger items. However if you are doing really fiddly stuff that require an instant bond the 2 mins PVA is fine, the only thing I need now is a portable stove to keep the temperature at a constant 140F (60c). As this OBG is quite expensive I'm thinking about making my own but I do like the fact that OBG is in a bottle and I can store it out of the way when I don't need it.

REPLY

8. **Cam** says:  
*December 29, 2018 at 10:36 am*  
Just a note about Old Brown Glue, on the FAQ <http://www.oldbrownglue.com/index.php/faq-and-info> it states that " It is also not recommended for rubbed joints."
- REPLY
1. **Salko Safic** says:  
*December 29, 2018 at 12:13 pm*  
That's true, it isn't recommended for rubbed joints because of the added urea I suspect. However, I have successfully done a rubbed joint with smaller pieces, but wouldn't try it with large case pieces. If you want to do a rubbed joint, then use Hide glue without the added urea.
- REPLY
9. **Magic** says:  
*November 19, 2019 at 10:37 pm*  
A bit late to the discussion but a point to consider on the expiry date: in many industries manufacturers want to have as short expiry date as possible, so that shops have to re-stock their product more often. It does not mean that the product outside of the expiry date is not working – I've seen products that magically moved from 12 to 18 months expiry date when the law required that the minimum is now 18 months. Manufacturers already had the data for the real expiry date so it did not took them any time to extend it, but they still preferred to keep it to the minimum (for forced re-stocking).
- REPLY
1. **Salko Safic** says:  
*November 20, 2019 at 5:24 am*  
This is a very good point you made I never considered. It's deceitful though on the manufacturer's part. Thanks for the info.
- REPLY
10. **Mark Lawrence** says:  
*March 18, 2021 at 1:59 am*  
Really useful and interesting thank you
- REPLY
11. **pac0571** says:  
*August 21, 2021 at 4:55 am*  
FWIW – I picked up a cosmetic wax hot pot, and use it for my hide glue, in a double-boiler setup. It's the same size, and has a built in thermostat. A cheap little \$20 pot has worked greta for me for a couple years so far.
- REPLY
1. **Salko** says:  
*August 21, 2021 at 9:50 am*  
Yeah I've been looking at them for some time now, but I couldn't be sure that they wouldn't over the cook the glue
- REPLY



