

(Round-table discussions are held occasionally at regular club meetings to gather information on specific topics and to preserve and share the experiences of members.)

Glues and Turning

Bytown Woodturners Round-table

1. Basic Properties, Uses and Hints

White/Yellow (polyvinyl acetate – PVA)

Type 1

Type 2 - Water resistant

Type 3 - Waterproof

- Type one has the least creep for segmented work, according to some. Brian Schofield said that the "creep" is actually caused by the wood moving – not the glue. It moves constantly, pulls the glue – then moves back, leaving a ridge of glue, which is not so flexible. This theory was later supported in a magazine article by Malcolm Tibbetts who said the same.
- Shelf life on all PVA glues is about 12 months, but it is useable as long as it is not separating
- Curing time is 24 hours. Do not put a glued piece on a lathe before it is cured.
- Clamp all Titebond lightly. Otherwise the joint gets starved of glue and can separate when spun on the lathe.

Epoxy (2-part)

- Water resistant
- Good on oily woods if cleaned with solvent first (alcohol)
- Dries clear
- Good for gap filling. Try the 5-minute epoxy for this. It is not as strong as the slower-drying version but there is less time for the epoxy to run out of the gap.

- Can be mixed with fillers such as coffee (for a bark effect) minerals, powdered gold and silver leaf, etc for special effects

Cyanoacrylate (CA)

- Toxic – do not breathe fumes
- Water resistant
- Dries clear
- Bonds in seconds
- 1-year shelf life, or more, if stored in a refrigerator or freezer. Bring back to room temperature before using.
- Try and buy the clearest glue (no color). The clearer the glue, the higher the quality seems to be.
- Do not use to glue pieces of wood together. It delaminates over time.
- Do not use regular CA on surface that flexes
- Use butylized (rubberized – flexible) on flexible surfaces – It is great for bonding Velcro to foam sanding pads
- Stabilizes bark
- Can be used as a finish on pens. Put a couple of drops of linseed oil on a paper towel and rub pen while spinning slowly on lathe. Put a couple of drops of CA on the same paper towel and rub it onto the spinning pen. You have seconds. Creates a very durable finish.
- Use to fill porous centers of Antlers. Rub some baking soda into the porous area and coat with CA glue. It looks like solid antler material.

Polyurethane (Gorilla)

- High strength (but foam is not a filler, it produces weak joint)
- Water resistant

- Dries flexible
- Brown glue line
- Short shelf life

Hot Melt (Glue Gun)

- Temporary joints only
- Good twist strength
- Low sheer strength
- Glues spigots on bottom of expensive wood
 - Do this only on dry wood. The water in wet wood keeps the glue from adhering properly
- Use HOT (big) gun or warm board, or melt sticks in an old electric frying pan and dip the spigot in to coat it (keep your fingers clear of the glue).
- Waterproof
- Long shelf life

2. How To UNstick (debond) cured pieces

White	Type 1 -water Type 2 Type 3
Epoxy	Heat, Chisel
CA	Acetone, special debonder
Polyurethane	Chisel
Hot Melt	Alcohol

3. How to clean up Uncured glue

White	Type 1 -water Type 2 - water Type 3 -water
Epoxy	Acetone
CA	Acetone, special debonder
Polyurethane	Soap and water
Hot Melt	Alcohol

4. How to keep glue from discoloring wood

Seal wood with finish you are going to use.

5. Glues and Fillers

Before filling bark inclusions it is a good idea to clean out any unwanted material (dirt, stones, etc) and then spray the inclusion with shellac. The shellac keeps the glue from seeping through the wood and staining surrounding fibers.

Coffee (Use finely ground coffee. Cheap Italian at \$2 a pound from an Italian grocery works just fine.) Do not use instant coffee. You can also mix in some different colors of sanding dust to give a more lifelike bark effect.	CA glue -- pack about 1/8 inch coffee into hole/crack and coat with thin CA. Repeat until hole full. Do not use accelerator Mix coffee with 1 part of the epoxy. When integrated, add second part of epoxy. and fill the hole or crack. Use 5-minute epoxy to speed process Mix white wood glue with coffee and pack into hole (good for smaller holes and cracks, otherwise takes a long time to dry)
Coarse brass or other filings (key-making machine)	CA glue works best, using same technique used for coffee. It produces the clearest finish when sanded. Epoxy also works but can produce dull finish if

	<p>overheated during sanding. It softens at about 175 degrees Celsius. CA glue remains hard up to 300 degrees Celsius.</p>
<p>Metal Powders (Jacquard Pearl-Ex and Mona Lisa precious metal powders), (good for packing into carvings, coves and inclusions to add contrast, especially on dark woods.</p>	<p>These powders will not absorb CA glue fast enough to make a useable mix before the glue cures</p> <p>Use 5-minute epoxy, mixing 1 part powder to 1 part of each of the two parts of epoxy.</p> <p>The powders will also mix with PVA (white) glue which can then be forced into carving or cracks</p>
<p>Stone (crushed) inlays</p>	<p>CA glue and epoxies as well as polyester resins will work well to bind the stone into the wood. Check the hardness of the stone before starting, as you want to be able to sand it afterwards. Google the Mohs Scale of mineral hardness – otherwise you may end up using diamond sandpaper (\$26 for a 3" disc).</p>
<p>Sanding dust</p>	<p>If using white glue, mix dust with glue to form a ball the consistency of putty. Press this into the opening or carving. The "patch" will be darker than the surrounding wood, so use a slightly lighter coloured dust, if possible. Collect dusts from various woods (after bowl sanding sessions) and store them in small (2 oz) plastic bottles.</p> <p>If using other glues, seal the hole with shellac to prevent the glues from staining the surrounding wood</p> <p>Epoxies can be handled like white wood glue, but stir the dust into one part thoroughly before adding Part 2 of the epoxy.</p> <p>CA glues work best if you pack about 1/8 inch of dust in hole, then cover it with thin CA glue. Do not use accelerators as this will produce a white crust.</p>

Dyes	Powdered dyes work best in epoxy. However, small amounts of liquid can be added without compromising the strength of the epoxy.

6. Glue as a Turning Material

White wood glue or epoxy can be used to glue together the pages of books (a few dozen pages at a time) to form a solid block. This block can then be turned and you will get some amazing effects of the letters (and even text) appearing on some sections of the turning.



"London" by Robert Lane

7.Gluing Dissimilar Materials

- If you need to glue dissimilar materials like wood and steel, a great source of information on what works is the website:

<http://www.thisisthat.com/>