

## Frequently asked questions about Alcolin Professional

### 1. How can I lengthen the time to assemble my glued furniture?

Apply adhesive to both surfaces. Of the polyvinyl acetate type adhesives, Alcolin Professional has the longest assembly time. Alternatively one must switch to a polyurethane adhesive such as Alcolin Waterproof Glue which offers an assembly time of approx. 20 minutes.

### 2. What is the best glue for hard/oily wood species?

Alcolin Waterproof Glue being a polyurethane based adhesive is probably the best type of adhesive for hard / oily wood. Alcolin Ultra, Alcolin Professional and Alcolin Fast Set are also very good adhesives for these types of wood species.

### 3. How can I improve my bonds to hard/oily wood species?

The most important consideration when gluing dense, oily woods is to use freshly machined pieces. Immediately after resurfacing (within 3 hours), the wood should be glued. This will prevent as much of the woods natural oils from interfering with the bond. Another suggestion is to wipe the surface with mineral spirits or acetone. This will help to rid the surface of any oils present. Finally, because of the density of a hard wood it may be necessary to sand the surfaces to be glued lightly before applying the glue (use a fine sand paper > 100 grit) This will help your adhesive "wet" the surface. Applying adhesive to both surfaces will increase drying time which will allow the glue a longer time to penetrate the surface of the wood.

### 4. What can I thin the wood glue with?

Most of our wood glues can be thinned with water up to 10% by weight. Note that addition of water will affect bond strength and can result in glue failure. Adding more than 10% water is for this reason, not recommended.

### 5. Can Alcolin Professional be used to bond leather?

Yes, Alcolin Professional can be used for most porous surfaces such as wood, paper, cork, board, fabric, plaster, stone, etc.

### 6. How fast does Alcolin Professional take to set?

It depends on a number of factors: Temperature, humidity, wood species and moisture content of the wood. Normally it will take 1 hour on pine wood. Low temperature, high humidity, high wood moisture content and a denser wood species will increase setting time.

### 7. Do I have to clamp my joints?

For the strongest bonds it is best to clamp. This will promote better penetration of the glue into the wood resulting in better mechanical bonding. For small parts such as those used during model building, Alcolin Professional offers a unique property not found in other PVA cold glues, that of high wet grab. The high wet grab allows these small parts to remain together without the need of clamping.

**8. Can Alcolin Professional be used to bond expanded polystyrene?**

No – Alcolin Waterproof is ideal for this application.

**9. Can I use Alcolin Professional for outdoor applications?**

It is preferable that a water resistant wood adhesive be used for this application, however one can get away with an ordinary wood adhesive, if the furniture is sealed with an appropriate waterproof finish and is not exposed to continuous long term damp conditions. This will increase the moisture content in the wood, which in turn may soften the glue line and weaken the joint.

The best adhesive to use for this application is Alcolin Ultra or Alcolin Waterproof Glue.

**10. Can I use Alcolin Professional for applications requiring water resistance**

Alcolin Professional is not suitable for applications requiring water resistance. Alcolin Ultra or Alcolin Waterproof Glue should rather be used.

**11. When I took my work out of the clamps the glue had not set and was still soft, chalky and white. What is wrong?**

The most common reason for this problem is that the glue was used at a temperature too low to allow film formation. All water-based wood glues have what is called a Minimum Film Forming Temperature (MFFT). Below this temperature, the glue dries to a chalky white appearance, leaving the glue joint weak.

The solution is to ensure that the glue and the parts to be glued are above MFFT, before and during the clamping process. Use a heater to increase the room temperature. Most PVA glues have an MFFT of around 7°C, however, refer to a Technical Data Sheet for information on the MFFT for the glue that you are using.

Another problem could be that the wood was too wet, in which case the wood should be allowed to dry completely to a moisture content of between 8 – 12% prior to gluing. Damp wood can be glued with Alcolin Waterproof, however, when the wood eventually dries, cracking and splits might occur in the wood due to shrinkage.

**12. What is the best adhesive for stressed joints (chairs, tables, etc)?**

Alcolin Professional is an aliphatic resin glue (also known as Carpenter's glue or Yellow glue), which has excellent creep resistance making it the best glue for stressed joints.

**13. My laminated tabletop set uneven. What is the problem?**

The various pieces of wood had different moisture contents, thus on drying to an equilibrium moisture content some pieces shrunk more than others. It is important when making furniture that the different wood pieces have the same moisture content. It is a recommended practice to leave wood pieces to acclimatize for two weeks in workshop before gluing.

**14. Can I bond different species of wood together with Alcolin Professional?**

Different types of wood can be bonded together as long as their moisture contents are similar.

**15. When I varnish my furniture the varnish shows a different colour along the glue line.**

After gluing, never take a cloth to wipe off glue squeeze out as this spreads the glue into the wood grain where it dries invisibly. When you stain the surface the stain will not penetrate the grain that is sealed with glue, resulting in the discolouration. It is best to allow glue squeeze out to start drying, and then take a sharp chisel before the squeeze out has fully dried, and scrape it off. Alternatively place masking tape along the edge of the wood before gluing to prevent glue squeeze out from contaminating the wood.

**16. The glue did not set when I bonded varnished wood together.**

If water based glues are applied to coated wood it will not dry. The varnish creates two non-porous surfaces, which prevents the water from escaping from the glue line. The best glue to use is Alcolin Waterproof Glue (polyurethane based), which does not require water evaporation to set. In general it is best to remove the varnish before gluing as varnish does not provide a strong surface to glue on i.e. the varnish will easily pull away from the wood resulting in apparent glue failure.

**17. Do joints have to be tight fitting?**

Always make sure that your joints are tight fitting, otherwise it will not be structurally strong. A thin glue line is stronger than a thick one. Be cautioned however that joints that are too tight may push the glue away from the glue joint resulting in an adhesive starved glue line.

**18. What is the best adhesive for stressed joints requiring flexibility (decks, stairs, etc)**

Alcolin Waterproof Glue. Alcolin Professional is too brittle.

**19. How does one remove Alcolin Professional from a carpet?**

Wet a towel with water, place over the glue, cover with a plastic sheet to prevent the towel from drying out, and leave overnight. By the next day, the glue should be soft enough to remove. Repeat if necessary. Alternatively try a steam machine to soften the glue. Alcolin Paint Stripper will soften Alcolin Professional but may remove colours from carpets and it would be best to check for colour fastness first.

**20. What is the difference between an ordinary PVA cold glue such as Alcolin Cold Glue and Alcolin Professional?**

Alcolin Cold Glue is a polyvinyl acetate based adhesive, whilst Alcolin Professional is an aliphatic resin adhesive. Alcolin Professional has advantages of high wet tack, fast setting speed, high heat and solvent resistance; it is sand-able and suitable for high stress joints. Alcolin Professional is ideal for gluing of high stress joints found in for example chairs, whereas Alcolin Cold Glue is an excellent general purpose wood glue.

**21. Why did the glue line turn black?**

Some woods such as oak have high levels of tannins, which react with the acid in the glue to form a black residue. When working with softer woods such as pine, which are low in tannins, this problem is generally caused by iron contamination from rusted or blunt saws and planers. All Alcolin wood adhesives are formulated with an additive to minimize this problem.

**22. What adhesive is best for cutting boards?**

Alcolin Ultra or Alcolin waterproof are ideal due to their excellent water resistance.

**23. Which is the best wood glue for furniture?**

While all our wood glues can be used for furniture assembly, Alcolin Professional is the best because of its extremely tough glue line, which prevents creep of the glue joint. If water resistance is required, then Alcolin Ultra or Alcolin Waterproof Glue should be used.

**24. What is the best glue for restoring antique furniture?**

Alcolin Professional Wood Glue is excellent and being an aliphatic resin adhesive it bonds well to the old glue residue. In addition it offers a glue line that is creep resistant, ideal for stress joints. It is also easily sandable and offers good solvent resistance compared to standard PVA type adhesives.

**25. Which is the best wood glue for outdoor conditions?**

Both Alcolin Ultra and Alcolin Waterproof Glue have excellent water resistance. Alcolin Waterproof Glue being a polyurethane based adhesive meets European EN204 D4 water resistance standards and offers the highest water resistance and should be used if the joint will be stressed and the glue line directly exposed to constant water e.g. wooden decks. Ultra is the preferred recommendation if one is looking for a safer to use water based adhesive and if the joint will be protected from direct, constant water.

**26. Why should I resurface/sand my wood before gluing?**

When gluing soft and medium density wood species, the surface of the wood to be glued should be resurfaced within 24 hours of gluing.

Resurfacing is important because it opens up the wood cell structure allowing the glue to penetrate deeper into the wood making for the strongest glue joint. When gluing hard, oily, or resinous woods, it is very important that one resurfaces within 3 hours of the gluing operation. Resurfacing also smoothes surface unevenness caused by moisture changes. It is best to resurface by planing however, sanding with a fine grit sand paper also works well.

**27. What is the best way to resurface your wood?**

Using a planer is best; however a fine sand paper (grit 360) can also be used.

**28. Will applying more glue to a joint give a stronger bond?**

No. The strongest glue joint requires intimate contact of the parts – applying too much glue will result in a thick glue line preventing the necessary close surface contact.

For this reason, the thinnest glue line is generally the strongest. Apart from costing you more, applying more glue will increase the drying time of the glue and require a longer clamp time slowing down your work time.

### **29. What is the Assembly Time?**

The Assembly Time refers to the time lapse between glue spreading and application of pressure. The time between glue spreading and closing the assembly is Open Assembly Time. The time between closing the assembly and pressure application is called the Closed Assembly Time. It is recommended that only the amount of adhesive that can be used within this time be applied at any one time. The Assembly Time is influenced by the glue spread-rate, environmental conditions and wood species. Assembly Time is increased by cold weather, high humidity; high spread rate and high-density wood species (slow absorption of the adhesive into the wood).

### **30. How can I tell if I exceeded the Assembly Time?**

A neat little trick is to observe the glue squeeze out from the joint. If no glue squeeze out is observed as the clamps are tightened, this can usually mean that the Assembly Time was exceeded. Be cautioned though, it can also mean that too little adhesive was used.

### **31. How can I successfully join end grain pieces?**

The trick to successfully bond end grain is to prevent the glue from absorbing completely into the wood and resulting in glue starvation along the glue line. This is done by priming the end grain with some glue diluted in a little water, and allowing this to dry prior to the gluing operation.

### **32. What is glue starvation?**

This is a condition whereby insufficient glue is found along the glue line, which results in a weak joint or delamination.

There are three primary causes of this problem:

- Applying too little glue.
- Applying too much pressure when clamping causing excessive glue squeeze out from the glue line.
- Gluing wood that is too dry may result in all the glue being absorbed into the wood.

### **33. Can I glue a panel of wood to a supawood board?**

Yes it can be done, but with difficulty, and there is no method that will guarantee success.

The reason for this is that the two substrates differ in dimensional stability, so the glued laminate will technically be an unbalanced design. The supawood is dimensionally stable, whereas the wood will expand and contract with changes in environmental humidity.

The first step for such a job is to ensure that your wood is conditioned to the correct moisture content as this will reduce post assembly dimensional movement in the wood.

A recommended method of doing the above job is to cut saw lines (approx 2 – 3 mm wide) at 40mm intervals along the length of the board. This surface is then glued onto the supawood. These grooves will reduce the impact of any movement in the wood.

As a post treatment, one must varnish all the surfaces of the laminate to reduce moisture movement into and out of the board.

**34. How do I remove black rust stains in my wood, caused by rusted iron nails?**

Wash the wood in a 10% solution of Oxalic Acid. Once dried (the next day), wipe off any remaining Oxalic Acid residue powder with a damp cloth.

**35. What should the moisture content of wood be?**

Successful gluing depends on the proper moisture content of the wood.

Eight to twelve percent is recommended for general South African conditions, however it is strongly recommended to consult an equilibrium moisture content chart to determine the exact recommended moisture content for a particular geographical area.

**36. What problems may arise if my wood moisture content is incorrect?**

Lower moisture content may result in starved glue-line due to excessive absorption of the glue into the wood. Higher moisture content will result in longer setting times and too high may cause the glue not to set. Moisture content higher than the equilibrium moisture content result in wood shrinking and may lead to joint delamination, wood splitting and or distortion in shape. If the individual parts making up a laminate had differing moisture content, a condition known as stepped joints may arise.

**37. I am working with small wooden parts in modelling, what is the best glue?**

Alcolin Professional because it has high wet tack / grab ideal for holding together small parts that cannot be clamped.

**38. How do I clean up Alcolin Professional?**

Use a damp cloth and remove excess glue before it has dried. After the glue has dried, scraping or sanding works well, alternatively, use a solvent based paint stripper. In all cases, it is best to clean the glue up before it dries.

**39. With what do I seal the ends of chipboard to make it waterproof?**

Alcolin Woodmate, Alcolin Acrylic Sealant, Alcolin Silicone Sealant, or Alcolin Permobond.

**40. Trying to laminate paper onto board using Alcolin Professional, but am having an 'orange-peel' effect telegraphing through the paper**

The water in the glue is swelling the wood chips/fibre in the chipboard/MDF – this swelling telegraphs through the paper giving an orange peel effect – particularly noticeable on glossy paper. There are five possible solutions. 1. use less glue 2. Use a water based glue with high solids (low water content) 3. Use a solvent based adhesive 4. Use a board with fine fibres 5. reduce clamping pressure.

**41. What is the shelf life of Alcolin Professional?**

12 months, if stored in a cool, dry place in its original moisture tight container.

**42. What adhesive can I use to glue polystyrene?**

Alcolin Waterproof Glue is a polyurethane adhesive and is ideal, in particular if polystyrene is to be glue to itself or any other substrate. Silicone adhesive also works well, and Alcolin Fix All can also be used if it is being bonded to a porous surface.

**43. Is it true that glue will blunten the planer blades if a glued-up board is run through it?**

Some very hard and brittle glues, like epoxy resins, filled PVA adhesives and urea formaldehyde types, will. Generally unfilled PVA, hide glues and polyurethane types don't. All Alcolin wood adhesives are formulated to minimize any wear on the blades

**44. Gluing hard wood using a PVA cold glue and am applying it with a felt roller, but the glue is not wetting the wood as seems to "roll" back off areas that it has contacted as if there was silicone or some type of oil on the wood. The roller is in good condition and the spread rate is fine.**

The wood may be glazed or burnished if it was surfaced with blades that are blunt. Any spots where the glazing occurs would not allow the adhesive to "wet" the surface. It is absolutely necessary for the adhesive to wet the surface if a good bond is to be obtained. To ensure that your adhesive wets out the wood best, ensure that it is freshly surfaced / machined immediately prior to gluing and that blades are sharp to get a clean cut to keep wood pores open.

**45. Is an animal/ hide glue better than a PVA cold glue glues?**

Animal and hide glue in wood gluing are not widely used anymore. A few reasons are that they require heat to soften and cooling to cure. This can be a problem. A joint constructed using PVA is often stronger. PVA is more easily spread onto large surfaces. PVAc systems, including glue costs, are usually less expensive. PVA glues do not discolour the wood and are more forgiving in some ways.

**46. Several days to a week after I glue up 2 pieces of wood with Alcolin Professional, it appears that the glue line has oozed out, even though I sanded it smooth shortly after the glue had "set". The glue line seems to be 'raised'. What is the problem?**

The glue often becomes rigid after 24 hours, which causes problems. The wood pieces that you glued together must be a little too wet, either at the time of gluing or after you have sanded them, the wood then subsequently shrinks down a little-as rule of thumb, 1% shrinkage for 2% moisture content (MC) change for oak (a very high shrinking wood) to 1% shrinkage for a 4% MC change for pine and other lower shrinking woods. However, the glued area resists shrinking because the glue adds rigidity. The glue joint area stays the same size even though the wood around it is shrinking, hence the bump that you see. Another cause could be that a thick glue line is compressed by expanding wood that was too dry prior to gluing. The solution in both cases is to ensure that the wood is at the correct moisture content prior to gluing. Refer to a chart on Relative Humidity vs Moisture content of wood to ensure that the wood is dried adequately for the geographical area.

**47. Since bamboo is not a true wood fiber, but a grass, what is the best glue to use with bamboo?**

Grass and wood are all cellulose fiber. Any adhesive that will glue wood will also bond bamboo.

**48. What is best adhesive and preparation for dowel joints in an oily hard wood e.g. teak?**

Teak can be difficult as it is oily and the natural oils interfere with glue's ability to bond. We recommend using a freshly machined surface and wiping it with a solvent just prior to gluing. The cleaner the dowel holes the better the bond will be. Try Alcolin Professional, Ultra or waterproof which tend to be less affected by oily woods than most of the traditional adhesives. For exterior applications, ultra or waterproof would be best due to their improved water resistance properties.

**49. Can you undo glue joint glued with Alcolin Professional? I am looking for ways to break the glue joint to refinish the job.**

The key to the disassembly of glue joints is weakening the bond. Bonds made with Alcolin Professional can be broken with water. Steam from an iron may also work. Placing a few drops of water on the edge of a joint may cause the joint to weaken.

**50. Can surfaces which have been painted or stained be bonded using Alcolin Professional**

Alcolin Professional is designed to bond bare wood. Painting or staining a wood blocks the pores, keeping the glue from penetrating into the wood – for this reason a water based PVA cold glue adhesive will not work. An adhesive which forms a mechanical surface bond and does not require loss of solvent to cure may work e.g. Alcolin Waterproof glue, however it is necessary to remember that the overall bond will only be as strong as the bond between the paint and the wood. We recommend that all substrates be clean of any type of paint, stain or sealer prior to gluing.

**51. Is there a glue that offers the speed advantages of hot melts and the structural strength of PVA cold glue?**

Some PVA glues can give you heat resistance up in the 93°C range, but not much higher. Most of them will begin to soften at around 74°C, and run the risk of opening up a glue line. Liquid polyurethane's are not much better, having heat resistance up to about 88-99°C. Urea resins are a good option, as they give you a thermoset bond and will not soften or reflow with heat.

The ideal alternative to traditional hot melts when structural strength is required, are reactive polyurethane hot melts. These "new" hot melts cure in 2 stages; the first is a mechanical bond created as the adhesive cools, the second and final stage occurs over the next 48hours as the adhesive cures chemically. The final bond is "thermoset" meaning it won't re-flow with heat. It is also extremely strong and waterproof.

