



ALCOLIN ULTRA



Description

ULTRA is the most advanced water-based adhesive available today. It combines the safety, strength, sandability, ease of use and water cleanup of PVA adhesives with the durability, open time and water-resistance of polyurethanes. It is the first ever one-part wood glue to pass the ANSI/HPVA Type I water-resistance specification and offer a one-year shelf life. ULTRA is proven waterproof and yet cleans up with water. In addition, this waterproof formula also offers durability, superior bond strength, heat resistance, longer open assembly time, shorter clamping time, and lower application temperature. ULTRA is safer, stronger, faster and cheaper than traditional polyurethane glues. ALCOLIN PROFESSIONAL has a VOC of 8.4g/L, meeting the Green Building Council of South Africa 'African Green Star SA Office V1' specification of less than 30g/L

Features & Benefits

- Waterproof - passes ANSI/HPMA Type I specification
- Fast setting - reduced clamp time, increasing turnaround time
- Superior strength - final bond stronger than wood
- Tough glue line - sands easily
- Strong wet tack - holds small parts without the need for clamping
- Long open time - more time for assembling of parts
- Excellent heat resistance - use in areas subject to heat, ideal for manufacture of post form tops
- No foaming / stained fingers - easy to use, no mess
- Versatile - bonds a variety of wood species and processed board composites
- Chemical resistant - unaffected by most finishes
- Single pack system - no on-site mixing of catalyst, pot-life limitations and wastage due to cured material
- Low VOC - non-toxic, non-flammable (wet state)
- Water-based formulation - cleans up easily with water

Applications

- Interior and exterior applications e.g. furniture, door and window frame assembly, cutting boards, wood turning, kitchenware, etc
- Ideal for interior furniture with frequent short-term exposure to running or condensed water and high humidity e.g. sauna and steam rooms.
- Ideal for edge gluing, face gluing, finger jointing, doweling, veneering applications and general assembly
- Suitable for laminate boards where short press time is required and for post forming applications

Adhesion

Excellent adhesion to soft woods (Pine, Meranti), medium woods (Beech, Oak), hard woods (Imbuia, Teak) and processed boards composites (hardboard, chipboard, supawood, high pressure laminates)

Performance properties – industry standards

- ANSI/HPMA 1994 I Water Resistance
- European Standard DIN EN 204 D3



Limitations

ULTRA should not be used to adhere coated woods, synthetic woods and melamine. Not for continuous submersion or for use below the waterline. For outdoor furniture, we recommend protection with adequate surface coating. Not for structural or load bearing applications. Use when temperature of glue and materials is above 7°C. Because of variances in the surfaces of treated lumber, it is a good idea to test for adhesion

Safety instructions

Although ULTRA is non-toxic, safe handling practices should be implemented to avoid irritating sensitive skin. It is advisable to wear gloves in order to avoid direct skin contact. If glue comes in contact with skin or eyes, flush thoroughly and immediately with water. If irritation continues, seek medical attention. Glue is slippery when wet, so care should be taken when cleaning spillages that occur. Refer to our Material Safety Data Sheets for further toxicological information and comprehensive handling instructions

Surface preparation

The surface must be clean, dry, free from all loose materials, dust, dirt, rust and any other contaminants. When working with woods that are oily or high in tannic acid, wipe the joints with acetone before gluing. Acetone clears the contaminants from the wood pores on the bonding surface and dries quickly without leaving any residue

For the best result, planing of the wood should take place within 24 hours of gluing. After this time, the cell structure of the wood closes, which may significantly reduce the ability of the glue to penetrate sufficiently, resulting in a poor bond

The moisture content of the wood should be between 8 – 12%. Higher moisture contents will result in longer pressing times and will lead to risk of delamination and wood splitting due to shrinkage of the wood on either side of the bond-line

To avoid wood shrinkage or swelling after processing, it is very important to ensure that the wood is dried to a moisture content corresponding to the equilibrium moisture content (EMC) at the site where the article will be used. EMC is the moisture content of the wood that corresponds to a given relative humidity. If the moisture content of the wood is higher than EMC, it will lose moisture until it reaches EMC. A corresponding shrinkage in the wood will occur which may result in delamination along the glue line and/or wood splitting. *Consult with your Alcolin Rep for further information*

To prevent "stepped joints", it is important to ensure that all the wood has similar moisture content. This can be achieved by allowing the wood to acclimatize in your shop for 7 – 14 days

Care should be taken to ensure a tight fit between wood pieces with no saw marks and no burnishing of the surfaces to be glued

Poor surface preparation may result in the delamination of the glued joint

Instructions for use

- Ensure that surfaces are prepared as above and ensure that all joints fit tightly
- ULTRA is suitable for high frequency presses, hot presses and cold presses
- For a successful gluing operation, consideration must be given to each of the following points discussed below: Glue spread rate, Assembly time, Press time, temperature & pressure, and Post press conditioning
- Apply glue with a roller, wheel, toothed trowel or brush. Apply a **Spread Rate** of approximately 200g/m² (glue "squeeze out" should be seen coming from the joint). The glue spread rate is dependent on the object of gluing and the wood species, and must be determined in each specific case. When gluing hard and oily wood species, the substrates should be newly planed and the adhesive should be spread on both surfaces. Foiling and Veneering applications will require a lower spread rate of approximately 60 g/m² and 100g/m² respectively
- The **assembly time** refers to the time lapse between glue spreading and application of pressure and is generally accepted to be approximately 25 minutes. The time between glue spreading and closing the assembly is **open assembly time**, which in the case of ULTRA is approx. 10 minutes at 20°C and 65% relative humidity. The time between closing the assembly and pressure application is called the **closed assembly time**, which is approx. 15 minutes. It is recommended that only the amount of adhesive that can be used within this period be applied at any one time. The



TECHNICAL DATA SHEET

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)

- **Press time** is dependent on wood species, moisture content and environmental conditions. Cold temperatures and higher humidity levels may require longer press times. Denser wood species, oily woods and those with higher moisture content will also require longer press times. We recommend pressing an unstressed joint for 30 minutes to two hours. Press times should be determined under plant conditions. Stressed joints such as bent laminations, need to be pressed for 24 hours

Guideline minimum press times :

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|-------|--------|
| 30min | @ 20°C |
| 6min | @ 50°C |
| 2min | @ 70°C |
| 1min | @ 90°C |

- Appropriate **Press Pressure** is essential for a successful bond. Sufficient pressure is required to bring the joint tightly together. Too high pressure and short assembly times may cause the glue to be squeezed out of the glue line, resulting in glue starvation and delamination. Too little pressure will not bring the surfaces together closely enough to form a strong bond along the glue line. 7 - 10 bar or kg/cm² (100-150 psi) is recommended for soft woods, 9 -12 bar or kg/cm² (125-175 psi) for medium woods and 12 -17 bar or kg/cm² (175-250 psi) for hard woods. Clamps should be positioned a minimum of 4cm away from the sides, and evenly spaced at 20-30cm throughout the piece
- Temperature in the glue line can be between 7 - 90°C. Use of the adhesive below 7°C will result in 'chalking' and subsequent delamination. Higher temperatures up to 110°C can be used if the press times are kept very short. For **Press Temperatures** above 50°C, it is recommended that the shortest possible press time be determined. Above 70°C, it is necessary to do this because the glue is thermoplastic, and at higher temperatures an opening of the bond line can occur when the pressure is released because of the thermoplastic nature of the glue. The thermoplastic properties will increase with higher temperatures. When using HF-pressing the thermoplastic properties are more pronounced and therefore an after-pressing time is recommended in order to achieve a distribution of the heat in the glued construction before the pressure is released
- Glue joint "squeeze out" may make the area around the joint difficult to stain. Although sanding the area will help, we recommend using masking tape to cover the areas that you do not want exposed to glue. Remove excess glue immediately by wiping with a clean damp cloth
- ULTRA does not discolour wood, however, iron which might come from the glue spreader, rusted cutter blades, or from tannic acids in some wood species, e.g. oak, may contaminate the glue and darken the glue line. For this reason, always use clean, sharp, and unruined cutter blades for cutting the wood and avoid using metal tools with the adhesive
- **Post Press Conditioning** : after a minimum clamping period, the panel will develop enough handling strength to permit it to be removed from the press. An overnight cure is recommended prior to machining. A storage period of 3-4 days may be required to eliminate sunken joints caused by residual moisture in the glue line

Cleaning

- Machines and tools can be cleaned with water
- Cleaning clamps, jigs, press platens and fixtures is much easier if equipment is regularly coated with Alcolin Release Agent before using it. The release agent will prevent the adhesive from sticking to the equipment and will help dried glue to flake off quickly and easily

Storage stability

ULTRA has a shelf life of at least 12 months if stored in a cool (below 25°C), dry place in it's original moisture-tight container. The glue should not be stored below 0°C or above 30°C. If the material is kept beyond the recommended shelf life, it is not necessarily unusable. A check should be performed to observe whether the product has not separated, thickened, or shows signs of bacterial degradation (bad smell, discoloration and low viscosity). To maximize the shelf life of the opened container, ensure that the packaging is closed to create an airtight environment when not in use. If the packaging is left open for long periods, the glue will thicken and form a skin on the surface, which can damage pumps and block filters

Product packaging

- 25kg Buckets
- 200kg Drums
- 1000kg Bulk Containers



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Physical data

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| Type | Crosslinking polyvinyl acetate adhesive |
| Appearance | Viscous tan liquid, drying to a beige coloured glue line |
| Density | Approximately 1.10g/cm ³ |
| MFFT | Approximately 7°C |
| PH | Approximately 3.0 |
| Solids | Approximately 50% |
| Viscosity | Approximately 5000cps (#4, 20rpm, 23°C) |

Application data*

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| Minimum Application Temperature | 7°C |
| Spread Rate | Approximately 200 – 250g/m ² for assembly Approximately 150 - 200g/m ² for laminating Approximately 100 - 150g/m ² for veneering Approximately 60 - 90g/m ² for foiling |
| Assembly Time (20°C at 65% RH; 150g/m ²) | 10 minutes (Open) 15 minutes (Closed) |
| Press Time (20°C at 65% RH; 150g/m ²) | Unstressed Joints : 30 to 60 minutes Stressed Joints : 24 hours |
| Press Temperature | Room Temperature to 110°C |
| Press Pressure | Soft Woods : 7 – 10 Bar Medium Woods : 9 – 12 Bar Hard Woods : 12 – 17 Bar |

*Please refer to "Instructions for Use" section for further details

Performance data

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|---------------------------------|--|
| Glue line | <ul style="list-style-type: none"> ANSI/HPMA 1994 I Water Resistance European Standard DIN EN 204 D3 |
| Tensile strength (wood failure) | 8.4N/mm ² (100%) – beech wood, 2hrs clamping; 24hrs condition |
| Heat resistance @ 90°C | 4.8N/mm ² (10%) – beech wood, 2hrs clamping; 48hrs condition |
| Service temperature range | -5°C to + 90°C |

The above information is only offered, as a guide to the use of this product. Furthermore, users should satisfy themselves that it is suitable for their needs. Since we have no control over the conditions under which it is used, we cannot accept responsibility for problems caused by the use and/or application of this product.

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