



## Ultra-CAT™ Pre-Catalyzed Powdered Resin Veneer Adhesive Tips

### Mixing

Water is all that is necessary to start the reactive curing process of the Ultra-CAT resin. Add 6 to 7 ounces of lukewarm water to 2.66 cups\* (or 1 lb) of Ultra-CAT and mix for 3 to 5 minutes with a paint stick or a mixing blade mounted in a hand-held drill. Then mix an additional 2 to 3 ounces of water and stir again for one minute or until the adhesive is smooth and consistent. This process will create adhesive to cover approximately 45 square feet. If the glue seems too thick, add up to 1 oz. of water and mix until all lumps are removed.

This adhesive will bond only to porous surfaces. Scuff sand the substrate with 60 grit sand paper before application to make the surfaces as porous as possible. This is especially important for maple plywood and MDF. The back of a paperbacked veneer should also be scuff sanded.

Do not use this product below 70°F. Pieces to be bonded must be 70°F or higher. Panels will require 4 to 6 hours of clamping at 70°F.

Ultra-CAT Powder *	Initial Water Mix	Additional Water Mix	Coverage (Square Feet)
.5 cup (.19 lbs)	1.25 fluid oz.	.5 fluid oz.	8
1 cup (.38 lbs)	2.2 - 2.6 fluid oz.	.75 - 1.1 fluid oz.	17
2 cups (.75 lbs)	4.5 - 5.2 fluid oz.	1.5 - 2.2 fluid oz.	34
2.66 cups (1 lb)	6 - 7 fluid oz.	2 - 3 fluid oz.	45
13.3 cups (5 lbs)	30-35 fluid oz.	10-15 fluid oz.	225

\* When measuring by volume, it is important to assess the measurement before the powder settles. A delay in adjusting the measurement will cause an error in the mixture ratio. Because of this, measurement by weight is highly recommended.

### Mixing Process

Water is all that is necessary to start the reactive curing process of the Ultra-CAT powder.

- Wear a NIOSH approved dust particulate mask when mixing and using Ultra-CAT.
- For best results, always add warm water (not hot) to the powdered adhesive. Avoid adding powder to the water unless the mixture is too thin.
- The ideal tool for blending is a mixing blade mounted in a hand-held drill.
- With the amount of required water determined, first add 2/3 of that amount to the mixing vessel.
- Continue mixing for 3-5 minutes. Use a spatula to scrape powder from the sides of the mixing container back into the liquid. Mix should be creamy and virtually lump-free at this point.
- Add the remaining water and mix for an additional minute. Mix should be smooth, creamy, and lump-free.
- If you are using Ultra-CAT lightener, use a separate container and add water to 8 oz of lightener until it reaches the consistency of heavy cream. For medium toned veneers, use less lightener. Add this mixture to the Ultra-CAT adhesive as needed to lighten.
- If the glue seems too thick, add up to 4% more water. Allow an extra minute to fully absorb the water and re-stir.

### Open Time

Open time is critical. The glue dries out fastest in the "open" condition. The adhesive must be able to transfer to the mating piece when brought together and excessive open time will inhibit this transfer. The adhesive is typically applied only to the substrate. However, it is occasionally preferable to spread glue on both surfaces if more working time is required or if additional time is needed to better wet out a difficult veneer like maple. Very porous substrates such as MDF, particle board, and plywood as well as very porous veneers can also result in the water and glue migrating out of the adhesive and not properly wetting the bonding surfaces. When applying this adhesive directly to a veneer surface, be aware that the water content of the glue can cause the veneer to curl.

### **Spread**

A thin spread is critical when working with raw veneer in order to reduce the effect of bleed through. Be aware of the thickness of your veneer and relative porosity of the species you're working with, and adjust the spread accordingly. In many instances, a thin spread coupled with mandatory open assembly time (perhaps up to 10 minutes) will be necessary to prevent excessive bleed-through. Take care not to let the glue dry-out if allowing open assembly time. It must always be wet enough to transfer the adhesive to the mating surface.

- Press pressure also has great bearing on the spread rate. Lower clamping pressures should have less glue in the glue line, as thick glue lines will take longer to cure and be a weak point in the glue line.
- The recommend application tool is a rubber foam glue roller which is available at [VeneerSupplies.com](http://VeneerSupplies.com).
- The key to applying glue is to put it on evenly. The rule of thumb is that the surface of the substrate should look evenly painted with veneer glue. It should not be dripping wet. A good test is to place a pencil mark on the substrate and apply the glue. If you can barely see the pencil mark on the substrate (through the adhesive), you have the right amount of glue.

### **Pot Life**

As with most directions for gluing, this is a dynamic value. Once mixed with water, the resin begins curing/hardening. The amount of time between when it is first mixed until it reaches the unusable point is termed "pot life". Warmer temperatures yield a shorter pot life. At 70°F pot life is less than 4 hours.

- The adhesive will continue to cure until it is rock hard- generally within 24 hours.
- Only experience and a careful eye will tell you the point when the mix is unusable, so err on the side of performance rather than yield. When it has thickened to the point that it is not spreading well, consider the mix unusable and dispose of it.
- Before it gets too heavy, a small amount of water (up to 3%) may be added to keep the glue thin enough to be used. Additionally, a new glue mix can be added to a small amount of thicker product, and after being stirred, will yield a new full pot life.

### **Assembly Time**

This type of adhesive offers very generous assembly times and makes it ideal for intricate work requiring longer lay-up time. Follow the guidelines below to ensure a flawlessly bonded veneered panel.

- "Open assembly time" refers to the number of minutes after the glue is applied to the project, but before it is put together with the mating surface. "Closed assembly time" refers to the number of minutes after the surfaces have been placed together, but before full press/clamp pressure is applied. Open assembly time is typically 40 minutes.
- Open and closed assembly times are related. The maximum closed assembly time is only reached when virtually no open time is given, and is reduced about 2 minutes for every minute of open assembly time.
- These times are dependent on spread rate, substrate porosity, moisture content, and temperature- both ambient and stock temperatures.
- Keep in mind that a heavy spread rate is necessary to obtain maximum assembly time.
- As temperature increases, allowable assembly time decreases.
- More important than just measuring the time is being sure that the spread glue is wet enough to transfer to the mating surface. This is indicated by a slight bead of squeeze-out around the edge of the panel.

### **Substrate Preparation**

The best result is obtained when the substrate is properly prepared.

- For maximum bond strength, scuff sand the substrate with 80 grit sand paper.
- Substrate surface should be free of dust, dirt, grease or other contaminants.
- The substrate moisture content should be 8-12%.

### **Ultra-CAT Lightener**

Powdered lightener is most often combined with Ultra-CAT adhesive when used with maple veneer. To minimize glue-line visibility with most maple veneers, we suggest a ratio of 1 part (by weight) of lightener to 10 parts (by weight) of Ultra-CAT adhesive. Lightener is sold in 8 ounce containers. One container is enough to make a 5 pound bucket of Ultra-CAT adhesive similar to the color maple veneer.

## **Pressing / Curing**

As with pot life, cure time varies and is dependant on the conditions at hand.

- Cold pressing panels @ 70°F will require from 4 hours press time on low density species to 6 hours on high density species. At 90°F this range will be from 2 hours to 4 hours.
- Ultra-CAT requires a minimum of 70°F to cure. If this temperature can not be achieved, some users opt to place a heating blanket over the vacuum bag. This speeds up the press time and improves the bond strength.
- For optimal edge maintenance, cured panels should be allowed an additional 4 to 6 hours prior to machining.
- Ultra-CAT cures by chemical action in which the presence of water is necessary. If the water leaves the glue line prior to the complete chemical reaction, the bond will be weak. This is why the "open time" is critical.
- Drips and beads of adhesive caused by squeeze-out on bent laminations and veneered panels will not dry as quickly as an even spread of glue on the bonding surfaces. In other words, do not be alarmed if any glue squeeze-out appears not to be drying.

## **Clean-Up**

Though this is a urea resin adhesive, it is a water-based product and therefore can be cleaned up with water before the adhesive has cured. Warm water is preferred, as either cold or hot water will make clean-up more difficult.

- Eliminate as much of the adhesive from surfaces to be cleaned as possible, prior to adding water. Any mixed adhesive should be collected in a bucket and allowed to sit until cured completely, which will leave a solid mass of urea. This can be discarded as solid waste in a dumpster.
- Cured adhesive on the work pieces can be removed by either sanding or machining. Urea resin adhesives are considered easier to sand than most glues and will not load sanding belts with gummy residue.

## **Storage**

Ultra-CAT is extremely hygroscopic and should be stored in a tightly closed container in cool, dry place at all times. You can expect 12 months of shelf life when Ultra-CAT is stored properly. The rated shelf life pertains to unopened containers stored in a cool (60°-70°F) and dry place. Higher temperatures will severely reduce the shelf life (only 6 months @ 90°F), and exposure to high humidity may cause severe lumping or actual catalyzation of the powder resin.

## **Times and Conditions**

Pot Life: Less than 4 hours at 70°F

Assembly Time: 40 minutes

Pressing Time: Cold Vacuum Press: 4 to 6 hours at 70°F

Heated Vacuum Press: 2 to 4 hours at 90°F

Shelf Life: 12 months (unmixed)

## **Troubleshooting**

Some veneer species are highly sensitive to adhesive moisture content. Maple is a notorious troublemaker in the world of veneering especially when used on very porous substrates. The problem is caused when the moisture in the adhesive is absorbed too quickly into the substrate and not enough moisture is left for the adhesive to bond to the veneer. This water is the "carrier" that feeds the adhesive polymers into the pores of the veneer. Without this moisture, the adhesive doesn't penetrate the veneer. The result is a very weak bond.

Solution 1: Moderately spray the substrate with water prior to applying the glue. Then work quickly to get the veneer in place and in the vacuum press.

Solution 2: Mix up a batch Ultra-CAT glue with 50% more water. Apply a light coat to the substrate and let it dry. This will seal the substrate pores and prevent the moisture from being pulled in from the glue. After it dries, make sure the surface is smooth (sand lightly if needed) and then proceed as normal with applying the glue and veneer.

## **Disclaimer and Waiver of Liability**

Due to the multitude of circumstantial methods, conditions and environments in which an adhesive product can be used, our adhesive products are offered and sold without warranty. Our only obligation shall be to replace an adhesive product proven by us to be defective. We may also opt to provide a refund in lieu of replacement. It is our sole discretion to offer this remedy. Said refund shall not exceed the purchase price of the product. We will not be liable for refunding shipping fees, handling fees, brokerage fees, customs charges or any other expense. User accepts the adhesive product as-is and without warranty expressed or implied. The suitability of the adhesive product for any use shall be solely at the user's discretion. If the user does not accept these terms, the product is to be returned prepaid and unused within 30 days of receipt.

In no event shall we be responsible for incidental damages, consequential damages, or loss of use for any reason including, but not limited to, economic losses or other business expenses or costs resulting from failure of the adhesive to bond as intended.

## **Safety Information**

A downloadable material safety data sheet is available at [www.VeneerSupplies.com/pages/Product\\_\\_Information.html](http://www.VeneerSupplies.com/pages/Product__Information.html)