



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

Warning and Safety Information

Please read the safety warnings provided on the adhesive container and on the last page of this tip sheet before use.

Surface Preparation and Shop Conditions

This adhesive will bond only to porous surfaces. Not for use on fire-rated substrates or any surface treated with boric acid. Thoroughly scuff sand the substrate with 60 to 80 grit sand paper by hand before application to make the surfaces as porous as possible. A finer grit of sand paper will not work. This is especially important for maple plywood and MDF. The substrate surface should be free of dust, dirt, grease or other contaminants. The substrate moisture content should be 8-12%. Also note that the back of a paper-backed veneer should be scuff sanded. Do not use this product when the shop temperature is below 70°F. Pieces to be bonded must be 70°F or higher.

Mixing Summary for 1lb of Powdered Adhesive (45 Square Feet of Coverage)

Water is all that is necessary to start the reactive curing process of the Ultra-CAT resin. Add 6 to 7 ounces of lukewarm (80 to 90°F) water to 2.66 cups* (or 1 lb) of Ultra-CAT and mix for 3 to 5 minutes with a mixing blade mounted in a hand-held drill. Then mix an additional 2 to 3 ounces of water and stir again until the new water is dispersed. Leave the adhesive undisturbed for 3 to 5 minutes and then continue mixing until it is completely free of lumps.

Add up to 1 oz. of water if the glue seems too thick.

Ultra-CAT Powder by Volume*	Ultra-CAT Powder by Weight	Initial Water Mix	Additional Water Mix	Coverage (Square Feet)
.5 cup	86 grams	1.25 fluid oz.	.5 fluid oz.	4 - 6
1 cup	172 grams	2.2 - 2.6 fluid oz.	.75 - 1.1 fluid oz.	12 - 17
2 cups	340 grams	4.5 - 5.2 fluid oz.	1.5 - 2.2 fluid oz.	24 - 34
2.66 cups	454 grams (1 lb)	6 - 7 fluid oz.	2 - 3 fluid oz.	38 - 45
13.3 cups	2,267 grams (5 lbs)	30-35 fluid oz.	10-15 fluid oz.	200 - 250

* 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. Gram scales, which are typically used for weighing food, are inexpensive and readily available.

Mixing Instructions

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™.

1. 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.
2. The ideal tool for blending is a mixing blade mounted in a hand-held drill. With the amount of required water determined, first add approximately 2/3 of that amount to the mixing vessel.
3. 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.
4. Add the remaining water and mix for an additional minute. Mix should be smooth, creamy, and lump-free. If you are wearing chemical-resistant gloves, try feeling the glue between your thumb and index finger to make sure all lumps have dissolved.
5. 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.
6. If the glue seems too thick, add up to 4% more water. Allow a minute to fully absorb the water and re-stir.
7. The powder will not mix well with water if the glue has past its shelf life. It'll be like pouring water into sand.



Assembly Time

Under ideal conditions, this type of adhesive can offer a very generous assembly time which makes it ideal for intricate work requiring a longer lay-up process. Follow the guidelines below to ensure a perfect bond on every veneer 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. The glue dries out fastest in the open condition. Since there is a wide array of variables that affect open assembly time, a range of 20 to 40 minutes should be expected.

Ultra-CAT is typically applied only to the substrate, but the adhesive must be able to transfer from the substrate to the veneer when brought together and excessive open assembly time will inhibit this transfer. Very porous substrates such as MDF, particle board, and plywood can result in the water and glue migrating out of the adhesive and not properly wetting the veneer surface.

On rare occasions, the user may find it preferable to spread glue on the substrate and veneer surfaces if more working time is required or if additional time is needed to better wet out a difficult veneer like maple. When applying this adhesive directly to a veneer surface, be aware that the water content of the glue can cause the veneer to curl. This is especially common in flat cut veneers and can be severe with flat cut maple.

Once the Ultra-CAT powder and water have been mixed, the user can increase open assembly time by adding up to 12% Better Bond X-Press™ veneer adhesive. Doing so will reduce the moisture and heat resistance of the glue line, but not to an extent that would impact most project types. This will also slightly soften the glue line. Important: Do not add type II or type I woodworking adhesives to Ultra-CAT.

- "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 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 may be necessary to obtain maximum assembly time.
- As temperature increases, allowable assembly time decreases. The user can chill the adhesive to a maximum of 50°F once mixed, to increase assembly time. Chilling so may increase required clamping time.
- More important than just measuring the time is being sure that the glue spread is wet enough to transfer to the mating surface. This is typically indicated by a slight bead of squeeze-out around the edge of the panel.

Spread

A thin spread rate reduces the effect of bleed through when working with wood veneer. 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 and up to 10 minutes of open assembly time 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 importance of applying this glue correctly cannot be overstated. Don't make the mistake of using a paint brush or paint roller to apply this adhesive. The recommend application tool is a foam rubber glue roller which is available at 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 see the slightly obscure pencil mark on the substrate, then you probably have applied 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. Pot life is less than 4 hours at 70°F.

- 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 thick, 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.

Ultra-CAT Lightener

Powdered lightener is most often combined with Ultra-CAT adhesive when used with lighter wood tones such as those found in maple. Mix the Ultra-CAT powder with water as described in the "Mixing Instructions" section of this document. Then, in a separate container, add water to 2 - 8 oz of powdered lightener until it reaches the consistency of heavy cream. Add this mixture to the Ultra-CAT glue as needed to lighten. One 8-ounce container is enough to make a 5-pound pail of Ultra-CAT adhesive similar to the color of maple.

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. Curing time can be reduced to 2 to 4 hours at 90°F.
- 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. Doing so will shorten press time and improve bond strength. Do not leave the system unattended when a heating blanket is used.
- 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 "open time" is critical.
- Drips and beads of adhesive caused by squeeze-out on bent laminations may not dry as quick as an even spread of glue on the bonding surfaces. Do not be alarmed if any glue squeeze-out appears not to be curing.

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 resin. In most municipalities, this can be discarded as solid waste in a dumpster.

Cured adhesive on the work pieces can be removed by either sanding or machining. Be aware that hardened adhesive scraped from surfaces can have sharp edges. 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 8 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. The shelf life is shortened once the container is opened. 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.

Ultra-CAT™ Tip for Skateboard Manufacturers

Skateboard and longboard manufacturers often desire some flexibility in the glue line without sacrificing bond strength or durability. Ultra-CAT may be somewhat rigid for certain types of boards depending on the thickness and number of material layers. However, it is very easy to make this adhesive more flexible which is said to allow more "pop" in the skateboard. Once the Ultra-CAT powder and water have been mixed, the user can add up to 12% (by volume) of Better Bond X-Press™ veneer adhesive to increase the glue line flexibility. Doing so slightly reduces the moisture and heat resistance of the glue line, but not to any great extent. Important: Do not add type II or type I woodworking adhesives to Ultra-CAT.

Summary of Times and Conditions

Pot Life: Less than 4 hours at 70°F

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

Assembly Time: 40 minutes

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

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.

Safety Warning

Health Risk: CARCINOGEN

Exclamation Point: Sensitizer; Skin Irritant, Respiratory



For industrial use only. This resin contains formaldehyde which is listed by California proposition 65 as causing cancer.

APPEARANCE AND ODOR: Tan to brown free flowing powder that will form a crust on the surface by absorbing moisture from the air. Has a slight chemical odor. PRIMARY ROUTES AND EXPOSURE: Eyes, Inhalation, Skin contact. INHALATION: Dust or vapors can cause irritation. Inhalation may aggravate colds, allergies, asthma, emphysema and psoriasis. Material vapors may be carcinogenic. See chronic hazards section. SKIN CONTACT: Repeated skin contact can cause sensitization and dermatitis due to formaldehyde. EYE CONTACT: If powder gets into eyes, it can cause severe irritation. INGESTION: Ingestion of materials is not expected to occur during the normal use of this product. If ingested it may cause stomach and intestinal irritation, vomiting, diarrhea, sweating, weakness, and headache. Avoid swallowing if a large amount of material gets into mouth. CHRONIC HAZARDS: FORMALDEHYDE is listed as a human carcinogen, Group 1, by IARC and OSHA and a suspected carcinogen by NTP. Evidence is based upon animal testing and data on human is inadequate. Formaldehyde vapors have been found to be carcinogenic to animals.

Store in well-ventilated place. Dispose of contents/container at an approved waste disposal plant.

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. This product is distributed, but not manufactured, by VeneerSupplies.com.

Safety Information

A downloadable material safety data sheet is available at www.VeneerSupplies.com/pages/Product_Information.html