PENTACRYL® FAQs

"Green Wood Stabilizer"

PENTACRYL, is a compound of modified polymers. It will keep green wood from cracking and splitting as it dries and is popular with carvers, wood turners, furniture makers, hobbyists and others working with green wood. PENTACRYL is formulated to penetrate green, wet wood with a moisture content above 30%, as the moisture in the wood helps the penetration. If you have wood that is semi-dry with a moisture content between 15-25%, use our WOOD JUICE stabilizer.

Green or fresh cut wood has a high moisture content. PENTACRYL works by displacing this moisture – it pushes the free water out and leaves a thin coating on the capillary and wood cell walls. As the wood dries, this prevents the cells from shrinking, thus preventing the cracking, warping and irregular drying you get with green wood.

PENTACRYL is non-hazardous, does not contain silicone, will not discolor the wood, is non-hygroscopic (meaning it will not retain water), will not oxidize, decompose or migrate in the wood when exposed to different degrees of temperature and relative humidity. It also contains a natural UV protectant.

Tests have been carried out for over 25 years with excellent results. Many types of hard and soft woods have been treated including pine, fir, basswood, tupelo, walnut, oak, apple wood, hawthorne, cherry, rock maple, soft maple, ash, madrone, yellow cedar, bamboo, exotic wood and others.

PENTACRYL can be brushed/rolled on or the wood can be immersed (soaked) into a 100% solution of PENTACRYL. Although soaking is the preferred method, excellent results are still obtained by using the brushing/rolling method. The key is to completely saturate the wood.

The following are some of the most common questions and answers relating to the use of PENTACRYL.

Q: How much PENTACRYL is needed?

A: The amount of PENTACRYL the wood will absorb depends upon the type and size of the wood. For very dense grained hardwoods, it will take as little as 3-4 ounces per board foot and for very soft, open grained wood it will take as much as 8-10 ounces per board foot. Refer to the ***Wood Calculator*** on our website to help determine the amount needed: www.preservation-solutions.com

Q: Does PENTACRYL absorb all the way through the wood?

A: Yes. PENTACRYL will absorb all the way through the wood by soaking or brushing/rolling it on. The time it takes depends upon the size and type of wood. Keep in mind that most of the absorption is through the end grain. When using the brushing method, keep applying until the wood will no longer absorb any more PENTACRYL. See the product directions for treatment information.

Q: Is complete saturation necessary?

A: In most cases the wood should be completely saturated with PENTACRYL. In some cases however, woods that are quite stable by themselves may only require several coatings to the surface, while other woods with wild grain, a lot of tension, a lot of exposed end grain or those that are unstable such as fruitwoods, require full saturation.

Q: How do I know when PENTACRYL is done soaking?

A: Using the soaking method, 1-2 days per inch of thickness is generally sufficient.

Q: Can too much PENTACRYL be applied?

A: No. Too much PENTACRYL cannot be applied. The wood will absorb so much until it is saturated. Any excess can be cleaned off the surface. Note: If using the soaking method, any PENTACRYL left over in the soak can be reused to treat other wood or strained and poured back into the origianl container.

Q: How long will it take PENTACRYL treated wood to dry?

A: Air drying wood can be a slow process and there is not a specific answer to the time it will take. Drying time will vary depending on the original moisture content - how much water is in the wood to start with - the temperature and relative humidity where the wood is being dried, plus the size and type of wood.

Since PENTACYL displaces moisture in the wood, it will speed the drying time by approximately 30%.

If the piece is a turning that is thin, then it may be dry enough to finish in 1-2 months. If it is a thick carving, slab or other large piece, it may take up to 1-2 years to completely dry.

Q: Why does the wood need to dry slowly?

A: Wood treated with PENTACRYL must be allowed to ***dry very slowly.*** If dried too rapidly, you will get cracking. Ideal drying conditions are between 55°-65°F and 45-50% relative humidity in an area with no direct heat and away from sunlight and any air movement (we do not recommend using fans).

To slow drying, wood can be covered with a cardboard box (leave a gap on the bottom to allow air to still reach the wood), loosely wrapped in brown paper or buried in dry wood shavings. END GRAIN SEALER can also be applied to treated wood to slow drying.

Q: Can a moisture meter be used?

Yes. To help determine if the wood is dry, a moisture meter can be used as PENTACRYL will not affect the reading. Keep in mind a moisture meter with prongs will only read the moisture content of the wood surface and is not a good indicator for measuring the inside of large pieces.

Q: Can wood treated with PENTACRYL be stained and finished with conventional finishes and stains?

A: Yes. Wood treated with PENTACRYL can be finished with urethane varnishes, lacquers, tung oil, linseed oil, and waxes – all have been successfully used. The wood can also be stained with aniline dyes or oil stains. We do not recommend applying water-based stains and finishes as these products add moisture back into the wood and may leave the surface tacky.

Prior to sealing, be sure you have allowed the wood to **thoroughly dry**, meaning all the water is out. If a finish is applied before the wood is completely dry, moisture will have no way to escape and the wood will eventually rot from the inside.

Q: Can a colorant be added to PENTACRYL?

A: Yes. A colorant can be added directly to PENTACRYL. Analine dyes, oil base dyes and stains, and pigments may be mixed with PENTACRYL. Again, we do not recommend water based products. The amount used depends upon the desired effect. Test the colorant in a small amount of PENTACRYL first.

Q: Can wood treated with PENTACRYL be glued?

A: Yes. Wood treated with PENTACRYL can be glued. Tests have been successful using carpenter's glue, cyanoacrylates, and epoxies. Again, it is **important** to clean the wood surfaces with solvent and be sure that the solvent has completely evaporated prior to gluing.

Q: Can wood treated with PENTACRYL be wood burned?

A: Yes. Wood treated with PENTACRYL can be wood burned. Be sure that the treated wood is completely dry first.

Q: Can treated wood be turned and carved?

A: Yes. The wood can be turned and carved. PENTACRYL makes it easier because it also acts as a lubricant for your tools until it dries.

Q: Will wood treated with PENTACRYL weigh more?

A: Depending upon the type of wood, it will weigh only slightly more when the wood is dry. On average, a cubic foot of wood will weigh approximately 8-10 ounces more than wood that is untreated.

Q: Should wood be sanded before or after treating with PENTACRYL?

A: It's best to treat the wood soon after it is cut. So, sanding can be done after it is treated and dried. If the sandpaper clogs up, it is an indication that the wood is not dry yet.

Q: Will PENTACRYL stabilize rotted or spalted wood?

and prevent the wood from drying. See information on POLYCRYL for hardening soft, punky or spalted wood. PENTACRYL and POLYCRYL can be used together on the respective areas of wood.

Q: Does PENTACRYL reduce shrinkage and distortion?

A: Yes. PENTACRYL does reduce the shrinkage up to 600% depending on the orientation of the wood grain. Quarter grain shrinks less than flat grain. Distortion is also significantly reduced.

Q: Does PENTACRYL change the color of the wood?

A: In most wood species, PENTACRYL will help keep the wood looking natural and bright. In some cases, it may alter the color slightly. Wood such as Birch that has a very light color and highly absorbent bark, may leave stains on the bark. In woods with a high tannic acid content, there may be a slight graying on the surface. This is only superficial and will sand off when the wood is dry.

Q: Can PENTACRYL be used to treat fruitwoods?

A: Yes. PENTACRYL can be used to treat fruitwoods which have a high amount of tension and can be challenging to stabilize.

Q: What if mold starts growing on my treated wood?

A: If the wood is left in plastic too long, or is being dried in a high humid area, you may see mold on the wood. This is generally just on the surface and can be treated with Lysol or another fungicide to kill the mold spores. The mold can also be sanded off when the wood has dried.

Q: Can PENTACRYL be used on bowls and eating utensils?

A: Although PENTACRYL is considered safe, it is not registered and approved as food grade. Therefore, we cannot endorse or recommend that it can be used on items intended for direct use with food or beverage.

Q: If PENTACRYL freezes, will it lose its properties?

A: No. PENTACRYL has been run through 16 freeze-thaw cycle tests. Some solids may settle after being frozen 2-3 times, but will readily disperse when slowly brought back to room temperature and shaken

Q: Will PENTACRYL keep the bark on?

A: It will help. Since PENTACRYL will help to keep the wood from shrinking and pulling away from the bark. For best results to keep bark on, the tree should be cut during the dormant period (winter) when the sap stops running and the wood has hardened off.

Q: How is PENTACRYL different from Polyethylene Glycol, PEG?

A: PENTACRYL will penetrate the wood in one day where it could take PEG 6 months to do so. PEG may need to be soaked with heat elements to keep it hot while applying. PEG acts as a humectant and encapsulates the water molecules by drawing in moisture from the air and makes the wood sticky and hard to apply a finish. PEG treated wood is heavier and darker. PENTACRYL treated wood does not have these issues.

Q: Does the odor of PENTACRYL remain in the wood after the wood has dried?

A: Once completely dry, 95-100% of the odor will dissipate.

Q: Will PENTACRYL kill bugs in the wood?

A: To keep PENTACRYL safe, it does not contain an insecticide. If your wood has bugs, we recommend treating it first with Borate. This is a safe product that will kill insects and also act as a fungicide to prevent mold growth. Note, PENTACRYL treated wood will not attract insects.

Q: How can I clean brushes used to apply PENTACRYL or clean up a spill?

A: Brushes can be cleaned with soapy water or mineral solvent. Small spills can be wiped up with paper towels.

ADDITIONAL WOOD TREATMENT PRODUCTS

END GRAIN SEALER
Since up to 85% of drying in wood occurs through the end grain, our END GRAIN SEALER is beneficial for sealing and slowing the drying in this area.

Unlike PENTACRYL or WOOD JUICE, which penetrates all the way through wood to stabilize it, END GRAIN SEALER is a non-toxic wax emulsion that is applied to just the end grain or face grain of green wood. It dries as a wax coating and seals the surface.

This product can be used on logs, timbers, wood cookies, lumber, turning blanks carvings and other green wood items.

END GRAIN SEALER can also be applied to wood that has been treated with PENTACRYL, WOOD JUICE or LOG & BEAM TREATMENT. This will help slow the drying.

EXTERIOR WOOD SEALER
This is a sealer made for use on exterior wood. When applied after using our wood stabilizer products, it will prevent the product from leaching out, while still allowing the wood to breathe and dry. This is especially beneficial when drying large wood pieces.

LOG & BEAM TREATMENT™
This product was specifically designed for use on larger logs, beams and timbers to reduce or eliminate cracking, splitting, checking and/or warping caused by shrinkage as the wood dries. It is ideal for use on log homes, post & beam or timber frame homes and structures. Also popular for treating log furniture, wood accent pieces, log archways, fireplace mantels, stairs, etc.

LOG & BEAM TREATMENT will penetrate deep and will not darken the wood. It contains a natural UV protectant to help keep the wood from fading. Formulated for use on interior wood, but it can also be used on exterior logs or timbers, as long as the wood is sealed to prevent it from leaching out in the weather. Available in 1 gallon size or larger.

POLYCRYL™
This is a concentrated, high molecular weight acrylic polymer that will fill and strengthen soft, punky or spalted wood. It will dry clear and will not yellow. POLYCRYL is water-soluble and penetrates best when the wood is wet. It will help make carving and turning easier by fortifying the soft areas of the wood.
Penetration varies depending on the density of the wood. Note that it will not penetrate the hard areas of wood, nor will it fortify super degraded wood.

WOOD JUICE™
Like PENTACRYL this is a wood stabilizer, but this treatment was formulated specifically for use on semi-dry wood to prevent ***future*** cracking, splitting or warping. It can be used on wood with a moisture content below approximately 25% but higher than 15%. Do not use on completely dry wood.

Our wood products are available in the following quantities:
Quart • 1 Gallon • 5 Gallon Container
30 Gallon Drum • 55 Gallon Drum

Dear Woodworker,

Just wanted to share the following information with you.

Since PENTACRYL's development in 1996, Health Canada and Air Resources Board of California have approved it for resale into their respective areas. We feel honored by their approval, as they are strict environmental agencies.

PENTACRYL is currently available through a variety of over 55 leading woodworking stores and catalogs both in the U.S. and abroad. Many of these companies tested PENTACRYL themselves before including it in their catalog, website and/or stores.

Favorable articles have been written on the results of using PENTACRYL in many "new products" and "product reviews" journals and catalogs.

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Revised Jan 2021

Wood Juice

MADE IN COLORADO

Stabilizer for Semi-Dry Wood

How it works

Wood Juice is a stabilizer like Pentacryl. However, where Pentacryl works best on wood with a high moisture content, Wood Juice is formulated to treat wood with a lower moisture content, typically between 15-25%. It stabilizes the wood by displacing the remaining water and preventing future cracking.

Wood Juice will also condition and rejuvenate older, dry unfinished wood. Just 1 coat is needed for projects like this.

Wood Juice has all the benefits of Pentacryl including treated and dried wood can be sanded, stained, painted, wood burned, glued and/or finished.

Wood Juice treated Walnut "cookies"

Both products are available in 32 oz, 1 gallon, 5 gallon, and 55 gallon drums to accommodate any size project.

For additional information contact us:
303.642.3060 | info@preservation-solutions.com

PRESERVATION Solutions

Pentacryl®
Green Wood Stabilizer

MADE IN COLORADO

"The Scholars Stone - The Walls of the Cave Were Paved With Stars". Sugar maple treated with Pentacryl, then phosphorescence, resign and polyurethane by artist J. Weingrod.

Maple burl vase treated with Pentacryl by Andrei Khabad.

Prevent your wood from cracking

Pentacryl is a stabilizer for fresh cut, green wood that prevents cracking, splitting, and checking as the wood dries. It works by displacing the moisture in wood, leaving a thin coating on the wood cell walls and preventing the cells from shrinking as the wood dries. Pentacryl can be applied by soaking the wood or brushing it on.

Benefits:

- Pentacryl treated wood can be air dried or kiln dried
- Brings out the natural color and enhances the grain of the wood
- Will not add significant weight to the wood
- Once dry, treated wood can be sanded, stained, painted, glued, wood burned and/or sealed
- Pleasant smell – no foul odors or harmful fumes
- Safe and easy to use

Untreated Treated

Drying *continued*

For extra large pieces, we also recommend applying *End Grain Sealer* prior to applying the cardboard (photos 16 and 17).

Be sure not to apply it to the bark edge especially if the bark is to be left on. Expect a longer drying time with *End Grain Sealer*. Once the wood has dried, the sealer can be scraped off and then lightly sanded. For medium to small cookies, you can use either cardboard or *End Grain Sealer* (photo 18).

Untreated Treated with Pentacryl

These 13" diameter by 2" thick red oak cookies were both dried in cardboard for 6 months. The one on the right was treated with *Pentacryl* while the one on the left was untreated. In addition to preventing cracking, *Pentacryl* also keeps the wood looking clean and bright.

Drying time will vary with each piece and will depend upon how much moisture is in the wood to start with, the size and type of wood, plus the temp and humidity where the wood is being dried. Do not rush the drying process or all

Finishing

Once completely dry, your wood will have a natural look and feel to it. The surface can then be sanded, stained, wood burned, glued, painted, and/or finished. We do not recommend using water-based products as this adds moisture back into the wood and can leave the surface tacky.

Untreated

Often times it is desirable to keep the bark edge intact. *Pentacryl* will help by preventing the wood from shrinking and pulling away from the bark. However, the best method is to cut the tree in the winter during the dormant period when the sap stops running, and the wood has hardened off.

Wood cookies that have come from a dead standing tree, where the moisture is much lower to almost dry, we recommend using *Wood Juice*. This stabilizer is formulated to treat drier wood to prevent future cracking.

Years of research and testing have gone into creating each of our products. They are all proudly developed and manufactured in the USA.

Pentacryl is available in 32 oz, (quart), 1 gallon, 5 gallon and 55 gallon drum sizes.

Preservation Solutions, LLC
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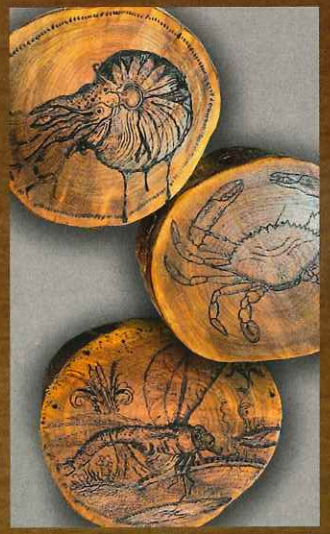
Stabilizing Green Wood Cookies with Pentacryl®

Cross-cut sections, rounds, or "wood cookies" are a popular cut of wood to work with. They are also the most challenging to stabilize, as this type of cut has the highest tension in it. The wood will tend to crack from the outside rim in towards the pith (center) to relieve the tension, forming a pie-shaped crack.

Pentacryl works by displacing the high moisture content in green wood. It is highly successful in stabilizing all types of hard and soft wood. cookies.



PRESERVATION Solutions

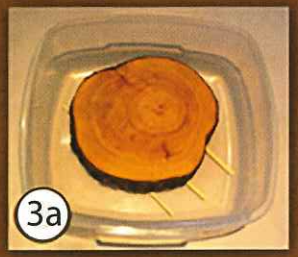
Treating

There are 2 keys to using Pentacryl successfully:
1- Complete Saturation and 2- Controlled Drying

Pentacryl is a green wood stabilizer and formulated to treat wood with a high-moisture content, above 25-30%. A moisture meter can be used to check the reading. To determine how much *Pentacryl* you will need, see the *Wood Calculator* on Preservation-Solutions.com.

Wood cookies should be treated with *Pentacryl* as soon as possible after they are cut. If they can't be treated right away, lightly wet the wood surface with water and wrap in plastic (photos 1 and 2). This will prevent them from starting to dry and crack. To keep mold from growing, do not keep the wood in plastic longer than 2-3 days.

Pentacryl can be applied by soaking or brushing/rolling on. For best penetration, the *Pentacryl* and wood both need to be at room temperature.



When soaking the cookie, use a plastic, fiberglass or rubber container only, as metal containers will adversely react with *Pentacryl* and darken the wood. For best absorption, place small wooden or plastic slats under the cookie to prevent it from sitting directly on the bottom of the container - chopsticks work well for this (photos 3a and 3b).

When working with large cookies, using a plastic kids pool is ideal – like for this 5' diameter x 10" thick maple cookie. Line the pool with heavy plastic to prevent leaking and be sure to leave enough to cover the top of the wood (photo 4). A custom soak can also be built using 2x4 lumber lined with

Complete submersion in *Pentacryl* is ideal, but not necessary as *Pentacryl* will also "wick up" from the bottom. Since this piece is too large to turn over to soak the other side (photo 4), *Pentacryl* is being applied from the top as well.

Photos 6 and 7 show *Pentacryl* being "wicked up" into the wood from the bottom of the soak.

The wood should soak 24 hours per inch of thickness. However, for larger pieces we recommend soaking 36 hours per inch of thickness. Note that the more water that is displaced prior to drying, the better results you will have.

While soaking, cover the wood with plastic to prevent premature drying on the exposed wood and keep *Pentacryl* from evaporating (Photos 8 and 9).

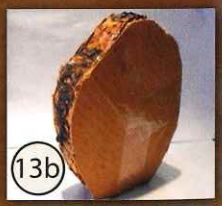
Often times, you will see a white film or residue on the wood. This is the water that is being pushed out (photo 10).

When using the brushing or rolling method, lay down a shee of heavy plastic large enough to wrap up over the top of th wood. Apply a heavy coat of *Pentacryl* and wrap the plasti over the top to prevent it from drying while it is soaking i Repeat this process until the wood is saturated.

Drying

Even though *Pentacryl* speeds up the drying process b approximately 30% since it displaces moisture, the wood sti needs to dry slowly and naturally. Protect the cookie fro direct air movement, heat source or sunlight. Ideal dryin conditions are 55-65°F with relative humidity at 25-50%.

Since wood cookies are 100% end grain on both sides and u to 80% of drying will occur through the end grain, th surface drying of these pieces needs to be slowed down. Th following are a few methods that we recommend. Stan wood on its edge so both sides can dry evenly.



Wrap cookies in brown paper or trac and cut out cardboard circles an tape snuggly to both sides (photo 13a and 13b). Or, bury in dry woo shavings or sawdust (photo 14).

When drying wood in high humid areas, lightly spray with Lysol (or other fungicide) prior to applying cardboard (photo 15). This will prevent mold from growing while drying. If mold does form, the spores are generally only on the surface and can be treated again with