



# TOTALBOAT PENETRATING EPOXY

- Seals the grain and stabilizes new, damaged, or rotted wood
- Easy 2:1 mix ratio
- Can be thinned to increase wood saturation depth
- Regular and cold weather formulas available

TotalBoat Penetrating Epoxy is a low viscosity, clear epoxy sealer that penetrates and seals for maximum protection. Restores damaged or rotten wood by creating a solid, flexible, mechanically sound bond. Easy to use formula seals new, porous wood to prevent cracking, checking, and rot.

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## CLEANER/SURFACE PREPARATION SOLVENTS:

- Denatured alcohol, acetone
- DO NOT use oily solvents or household cleaners that may leave a residue

## CLEANUP SOLVENTS:

- RESIN: Denatured Alcohol
- HARDENER: Denatured alcohol or warm water and a mild soap
- MIXED RESIN & HARDENER: Denatured Alcohol

## THINNER/REDUCER SOLVENTS:

- Acetone, denatured alcohol, or lacquer thinner

**ACCEPTABLE SUBSTRATES:** Wood, other porous substrates that are compatible with epoxy

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## EXOTHERMIC REACTION!

The cure of TotalBoat Penetrating Epoxy is an exothermic reaction and will generate heat. It is not uncommon for a larger mass of mixed Penetrating Epoxy to reach 300°F or higher during the cure cycle.

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## PERSONAL SAFETY:

Always use proper Personal Protective Equipment when handling this product. Refer to the TotalBoat Penetrating Epoxy Safety Data Sheets for more info. Only dispense or apply Wood Sealer with adequate ventilation.

## SURFACE PREPARATION

- Wood should be free of any grease, oils, tar, dust, water, wax, or other potential contaminants. Penetrating Epoxy will not form a bond to these substances.
- Any previous coatings present should be removed completely before applying Penetrating Epoxy.
- The wood's moisture content should be less than 12%. It is not advisable to apply Penetrating Epoxy to wood with a higher moisture content, as it may lead to delamination or rot.
- When it is desired to have a smooth finish, sand the wood until it is smooth and uniform with 220-grit sandpaper.
- In more extreme cases where deep rot is present, it can be beneficial to drill a series of holes in decayed wood where Penetrating Epoxy can be injected with a syringe.
- Vacuum away any sanding dust.
- Oily hardwoods and white oak should be wiped with acetone, if possible, during the surface preparation steps.
- Vacuum away any sanding dust.

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## APPLICATION CONDITIONS

- Penetrating Epoxy should only be dispensed or applied when the ambient temperature, temperature of the epoxy itself, and the temperature of the substrate meet the requirements of the selected TotalBoat Penetrating Epoxy.
  - Regular: 65-90°F
  - Cold Weather: 40-65°F
- The relative humidity should not exceed 90% for the first 36 hours of the cure process.
- Applying or curing Penetrating Epoxy outside of these conditions may slow the rate of cure or compromise some physical properties of the cured epoxy.

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## DISPENSING & MIXING:

### 2-Part Epoxy System:

- TotalBoat Penetrating Epoxy is a 2-part epoxy system, which requires blending both the resin and hardener components together at the specified ratio to create a usable epoxy material.
- Thorough mixing and exact ratios of the two components is imperative for the chemical reaction that occurs, allowing the material to achieve the maximum cured physical properties.
- Adding more resin or hardener is NOT beneficial. It will not speed up or slow down the cure, and it will only have negative consequences on the cured physical properties.



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- Only dispense the amount of Penetrating Epoxy that can be applied in a 20-minute period.
- If unsure on how much epoxy to dispense, start with a small batch, such as 3 or 6 ounces. It is far better to mix multiple small batches to ensure sufficient working time.

## **Dissipating Heat, Influencing Working Times, and Cure Rates:**

- The curing of mixed epoxy is an exothermic reaction — it generates heat.
- Epoxy in a larger, deeper mass will react and generate heat and begin to cure significantly faster than if it is spread thin or in a smaller mass.
- Maximizing the heat dissipation of mixed epoxy will promote the longest working time by slowing the chemical reaction.
- Cold Weather Version: It is strongly advised to not use this version over 65°F because the working time is dramatically shortened.
- Regular Temp Version: In warmer conditions over 80°F, it may be desirable to cool the epoxy components closer to 65°F before they are mixed to ensure sufficient working time and cure rates.

## **Mix Ratio:**

- The mix ratio of Penetrating Epoxy is 2A:1B (resin:hardener), by volume.
- When dispensing by weight, the two different versions of the product have different ratios:
  - Regular: 100A:43B (resin:hardener)
  - Cold Weather: 100A:47B (resin:hardener)
- Do not deviate from this mix ratio for any reason.

## **Dispensing with Calibrated Pumps:**

- Penetrating Epoxy can be dispensed with calibrated pumps from TotalBoat — the pumps only work with the quart, half-gallon, and gallon kit sizes. They do not fit on the pint kit. Follow the included instructions sheet for installing the pumps onto the respective bottles.
- The pumps work with both Regular and Cold Weather Penetrating Epoxy.
- Ensure that the pumps are primed before using any of the dispensed epoxy.
- **1 pump of resin, 1 pump of hardener:** When dispensing with TotalBoat 2:1 pumps, the pumps are pre-calibrated, so the user only needs 1 pump of resin to 1 pump of hardener.
- The resin pump dispenses 20mL of resin, while the hardener pump dispenses 10mL of hardener, ensuring a proper mix ratio.
- The pumps should remain installed in the bottles unless they will not be used for more than two weeks, in which case the pumps should be removed and cleaned out with

denatured alcohol and stored. Be sure the original caps are tightly secured on the resin and hardener bottles.

## **Mixing:**

- Mix the 2 components together in a mixing cup with a clean stir stick, scraping the sides and bottom of the mixing cup. Mix until the epoxy has become clear and consistent, with no striations. This usually takes 2-5 minutes.
- Once mixed, one of the specified thinners can be added if desired (see next step) — No induction time is required before thinning.
- Apply Penetrating Epoxy immediately after mixing and/or thinning.

## **Thinning:**

- Penetrating Epoxy can be thinned with either acetone, denatured alcohol, or lacquer thinner to help maximize penetration, and (to a limited degree) help to wick out moisture from the wood.
- DO NOT substitute or attempt to add any other solvents.
- The resin and hardener components must be mixed completely before any thinning solvents can be added.
- The maximum amount of thinner that can be added is equal to the amount of mixed epoxy.

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## **APPLICATION and CURING**

### **Application Methods:**

- Penetrating Epoxy can be brushed, rolled, or injected with a syringe. Using a plastic spreader may be helpful to spread epoxy on a larger, flat surface.
- Spray application is not advised with this product.

### **Application:**

- Apply a film of Penetrating Epoxy to all the surfaces that are to be sealed.
- As the epoxy is absorbed, reapply more as necessary.
- Penetrating Epoxy can be reapplied to itself if it is still liquid or very tacky. Once it has become tack-free, it will not form any sort of bond with the previous application, and the instructions for topcoating (in the next section) should be followed before reapplying.
- For best results, Penetrating Epoxy should be reapplied until a thin film of epoxy remains on the surface without getting absorbed, covering all open grain.
- Avoid pooling or filling voids.
- Do not use Penetrating Epoxy as an adhesive to bond things together.
- Allow the penetrating epoxy sufficient cure time based on the Application Data chart below. If the Penetrating Epoxy has not had sufficient cure time it may not sand properly, or it may cause coatings to delaminate.



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## TOPCOATING PENETRATING EPOXY

- TotalBoat Penetrating Epoxy is designed as a base layer, not a finish material that should be exposed to the elements.
- Do not apply any other products on top of Penetrating Epoxy until it has cured completely and been prepared following the guidelines below — this applies for varnishes, paints, primers, or other epoxy products.

### Preparing Penetrating Epoxy:

**IMPORTANT! Read this section completely before taking any action!**

- Remove the amine blush from the surface.
  - Wash the cured Penetrating Epoxy thoroughly with warm water, a mild soap, and abrasive pad or sponge.
  - Rinse thoroughly with fresh water.
  - Dry the surface completely.
- Sand the surface according to the surface preparation instructions of the product being applied. Avoid sanding through the layer of penetrating epoxy to maintain a consistent finish and waterproof base layer.
  - Most paints, primers, and varnishes will advise sanding with 150- to 320-grit sandpaper.
  - When applying another epoxy material to the surface, they may advise sanding with 80- to 180-grit sandpaper.
  - The cured Penetrating Epoxy surface should not be affected by surface preparation solvents.

- Warming the liquid epoxy to 125-150°F will rectify the crystallization in the epoxy, turning it back to the consistency it is supposed to have, making it ready to use again.
- The most common way to sufficiently warm any Penetrating Epoxy components is to insert the closed bottle into a tub or basin of warm water (do not submerge up to the cap, and do not use boiling water. 130-160°F is sufficient). Agitate or stir the contents in the bottle to ensure that all the material in the bottle reaches the necessary temperature.
- Change out the water as needed. It may take 30-90 minutes until all contents of the bottle are at least 125°F.
- Following proper storage conditions is the best way to prevent crystallization.

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## PRODUCT STORAGE

- Before and after use, seal TotalBoat Penetrating Epoxy components tightly and store in a dry place between 60-90°F.
- Do not store the product on the floor or near windows or doors that may expose the product to cooler conditions.
- Storing Penetrating Epoxy at cooler conditions or exposing the liquid epoxy components to dust and humidity can increase the risk of crystallization.
- If they will not be used for a minimum of two weeks, it is strongly recommended that the pumps are removed from the bottles, cleaned out with denatured alcohol, and stored. Tightly seal the resin and hardener bottles with the original caps during storage.

### CRYSTALLIZED EPOXY:

- Crystallization can occur in the liquid resin or hardener components of epoxy, and can present itself as a gritty texture, cloudiness, or as being much thicker in consistency than it should be.
- Epoxy that has crystallized should not be used until the crystallization has been resolved.



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## APPLICATION DATA:

<b>Hardener/Temperature Selected:</b>	REGULAR	COLD WEATHER
<b>Components:</b>	2 (Resin – Part A, Hardener – Part B)	2 (Resin – Part A, Hardener – Part B)
<b>Application Temperature/Relative Humidity:</b>	65-90°F, 0-90% RH	45-65°F, 0-90% RH
<b>Application Film Thickness:</b>	Thin film	Thin film
<b>Mix Ratio (By Weight):</b>	100A:43B	100A:47B
<b>Mix Ratio (By Volume):</b>	2A:1B	2A:1B
<b>Working Time (Less than 15 oz. of Mixed Epoxy):</b>	15-20 Minutes (@75°F)	20 Minutes @ 40°F 10 Minutes @ 70°F
<b>Gel Time (150g mass) (ASTM 2471):</b>	22 Minutes (@ 25°C)	10 Minutes (@ 70°F)
<b>Tack Free Time (Thin Film):</b>	36-48 Hours (@ 75°F)	4-6 Hours (@ 70°F) 16-24 Hours (@ 40°F)
<b>Minimum Cure Time for Light Use or Sanding:</b>	2 Days (@ 75°F)	2-3 Days (@ 70°F) 3-5 Days (@ 40°F)
<b>Full Cure Time:</b>	2-5 Days @ 75°F	2-5 Days (@ 70°F) 4-8 Days (@ 40°F)
<b>Shelf Life:</b>	At least 1 year (under proper storage conditions)	At least 1 year (under proper storage conditions)

## PHYSICAL DATA: \*

<b>Hardener Selected:</b>	Regular	Cold Weather
<b>Resin Color:</b>	Clear	Clear
<b>Hardener Color:</b>	Clear	Clear/Amber
<b>Mixed/Cured Color:</b>	Clear	Clear/Amber
<b>Resin Density (ASTM D1475):</b>	1.13 g/cm <sup>3</sup>	1.14 g/cm <sup>3</sup> (@70°F)
<b>Hardener Density (ASTM D1475):</b>	.98 g/cm <sup>3</sup>	1.07 g/cm <sup>3</sup> (@70°F)
<b>Resin Viscosity (ASTM D2196):</b>	200-350cP	360cP (@70°F)
<b>Hardener Viscosity (ASTM D2196):</b>	15-20cP	270cP (@70°F)
<b>Initial Mixed Viscosity (ASTM 2196):</b>	50cP	300cP (@70°F)
<b>Cured Consistency:</b>	Hard rubber	Hard rubber
<b>UV Stable:</b>	No	No
<b>Cured Hardness (Shore D):</b>	37-40	37-40
<b>UV Stable (Cured Epoxy):</b>	No	No

\* Specifications such as tensile, compressive, and flexural strength are not posted. These values may not be relevant for the intended use of this product. The addition of the specified thinners may also change the cured performance specifications from application to application.