

# Form varia ecoresin | installation guidelines

Please read these important instructions before installation of Varia Ecoresin® panels.

## Storage Instructions

Varia Ecoresin should be stored at room temperature in a dry environment (72°F, 25% RH) that is not exposed to direct sunlight or heat. Varia Ecoresin panels should be stored horizontally (flat) as delivered to prevent warpage. The paper protective masking MUST be removed within 30 days of receiving the shipment to prevent adhesive from sticking to the panel.

## Cutting/Drilling Recommendations

Circular saws, band saws, saber saws, jigsaws, hacksaws, or handsaws can be used for cutting Varia Ecoresin sheets. However, some saw designs are better suited than others for sawing Varia Ecoresin because they produce smoother or faster cuts. Table saws and band saws usually produce the best surfaces, and they can be used in most sawing operations.

Ensure proper support of the Varia Ecoresin when sawing, since excess vibration can cause cracking of the panel. If you notice melting or gumming, try to increase the blade tooth size, reduce saw speed, inspect blade sharpness or provide air cooling. If you notice chipping, decrease blade tooth size, increase saw speed, check blade for sharpness, and minimize panel vibration. Do not use wet saws, water jets or expose product to water if the product has a fabric or organic interlayer.

TYPE OF CUT	TOOL	BLADE TYPE	BLADE PARAMETERS	BLADE SPEED
straight cut	circular/table saw	triple chip	7.25" diameter, 40 teeth	4500 RPM
curved cut	saber/jig saw	Finish cutting blade	7 teeth/inch	-
curved cut	band saw	0.50"	3 teeth/inch	20 inches/minute
trimming + deflanging	router	carbide tipped, double fluted	1-1/8" diameter	13,000 RPM

Varia Ecoresin is easily drilled using zero-degree rake angle bits with dubbed off cutting edges. Regulate pressure and speed until a continuous spiriling chip is observed. Back out drill frequently to free chips. This is particularly important when drilling deep holes. The rate of drill feed into the Varia Ecoresin can vary from 0.01 to 0.025 inch per revolution. Drill speeds up to 1,750 rpm are best for smaller holes (less than 1/2" or 12.6 mm), while speeds as low as 350 rpm can work for larger holes. Peripheral speeds of twist drills for plastics range from 100 to 200 feet per minute. Standard drill bits will work, but bits specifically designed for plastics are recommended.

## Cold Bending/ Line Bending

Varia Ecoresin can be cold bent for simple bends and curved areas. Because of its low thermoforming temperature, Varia Ecoresin is easy to strip heat and line bend. Remove the protective masking from the area to be bent. For right angle bending, relieve 60-70% of the material using a 90 degree "V" cut. Using a line heat device, regulate the heat to a temperature that allows the Varia Ecoresin to reach 230-250°F. Thicker gauge requires a longer period of time to allow heat penetration. Place sheet over heat source at bend area. Allow heat to soften material; time depends on gauge, 1/8" typically requires 2 minutes. Remove from heat and make desired bend, place in wood or fabric-covered aluminum fixture to cool. Do not remove until sheet cools to room temperature.

- Always strip heat a sample piece first
- Avoid drafty rooms which can cause uneven heating and cooling
- Be sure to cover forming fixtures with soft fabric (felt) to avoid scratching Varia.
- Bending Varia Ecoresin when it is too cold results in a highly-stressed, weakened material.
- Thicker gauges (over 0.125") may require heating on both sides
- Always bend the sheet with the heated side forming the inside radius.

## Bonding

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Two-part adhesives are recommended when bonding Varia Ecoresin to itself or dissimilar plastics. Weld-on 55 and 58 are effective when joints need to retain slight flexibility, may be subjected to changing thermal conditions, or required waterproofing. Weld-on 55/58 are to be used when bonding Varia Ecoresin panels to other Varia Ecoresin panels, PETG, Polycarbonate, ABS, or Butyrate substrates. Weld-on 55 has a longer working time (6 min) than Weld-on 58 (3 min). Consult the 3form Adhesives Matrix (available online) or call the 3form Technical Service desk at 877-649-2670 for additional bonding questions.

- DO NOT use Cyanoacrylate or solvent type thread locking materials (Loctite®) with Varia Ecoresin.
- DO Use mechanical fastening solutions (eg. Nylok Blue Patch, Teflon tape) to more permanently secure hardware.

## Expansion and Contraction

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Varia Ecoresin will expand or contract with temperature fluctuations. Special care should be taken when installing Varia before a building's HVAC system has been turned on. All holes for hardware should be oversized to allow for temperature fluctuations. All channels or frames should leave room for the product to fluctuate inside the channel. For expansion/contraction estimates check the Varia Ecoresin Specification sheet at: [http://www.3-form.com/download\\_files.php](http://www.3-form.com/download_files.php)

## Frequently Asked Questions

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### **CAN THE EDGES BE FLAME POLISHED?**

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Yes. Edges should be finely sanded before polishing. Using a butane torch, turn flame to lowest setting, then use a sweeping motion, with the flame 1-3" away from the surface. Once the surface becomes smooth and glassy move on to the next area. Do not hold the flame on any one spot or you risk melting or deforming the resin.

### **CAN YOU USE A ROUTER ON VARIA ECORESIN?**

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Yes. Any conventional router will work with Varia Ecoresin. We do not recommend using a router for Crush or River Rock products.

### **HOW DO YOU CLEAN VARIA ECORESIN?**

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Rinse sheets with lukewarm water. Remove dust and dirt with a soft cloth or sponge with a solution of mild soap and water. A 50:50 solution of isopropyl alcohol and water also works well. DO NOT use solvents such as acetone, benzene, gasoline, carbon tetrachloride, xylene, toluene, ketones, or lacquer thinner to clean Varia Ecoresin.

### **CAN SURFACE SCRATCHES BE BUFFED OUT?**

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Varia Ecoresin finishes such as patent and sandstone can be refinished. However most Varia Ecoresin surface finishes would be ruined by buffing. Download the 3form polishing instructions from the 3form website for more details.

### **DOES VARIA ECORESIN CHANGE COLOR OVER TIME (YELLOW) FOR AN INTERIOR APPLICATION?**

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Varia Ecoresin will not yellow over time due to interior lighting (florescent, incandescent or halogen) over time.

### **HOW DOES VARIA ECORESIN REACT TO WATER EXPOSURE?**

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Products with fabric or organic interlayers should not be exposed to water under any circumstances unless the edges are properly sealed. WeldOn 55/58 is the recommended sealant for the edge of panels followed by the application of SilGlaze II SCS2801 silicone.

### **HOW DO I REMOVE RESIDUE AFTER THE PROTECTIVE PAPER IS REMOVED?**

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Peel coat should be removed within 30 days of receiving the shipment. If adhesive residue is left on the sheet, use GOO GONE® to remove the residue. If problems persist, please contact the 3form Technical Support.

## Application Limitations

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Like any thermoplastic, Varia Ecoresin has some performance limitations under specific conditions and in particular environments. When selecting a product, the environment and the conditions under which the product is to be used should be considered by the user. Consult the Varia Ecoresin specification sheet for additional information.

## Warranty

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3form, Inc. warrants that its products will conform to the product specifications supplied by 3form and that its products are free from defects in materials and workmanship. For details regarding the full 3form product warranty, please refer to the warranty documentation on [www.3-form.com](http://www.3-form.com).