



RiverCast Big Pour Casting Resin

Description:

RiverCast is a clear epoxy system formulated specifically for woodworking casting applications. It produces ultra-clear casts with minimal bubble entrapment. RiverCast can also be tinted with System Three CastFX Colorants. Use RiverCast to make beautiful river tables or to fill large inclusions in wood substrates.

Features:

- Fill voids up to 1.5” thick in a single pour
- Crystal clear
- Defoams rapidly
- Contains no VOC’s
- Easy 2:1 mix ratio
- Tintable with System Three CastFX Liquid Colorants and Dry Metallic Pigments

Directions for Use:

How Much RiverCast For The Job

Measure the length (L) x the average width (W) x depth (D).

$L \times W \times D = \text{total cubic inches}$. From the total cubic inches, see which RiverCast kit meets your needs. It’s advisable to pad your estimate by 10% to ensure that enough material is available.

RiverCast kit sizes	Cubic Inches
1.5 Gallon Kit	346
7.5 Gallon Kit	1,732
15 Gallon Kit	3,465

Working Conditions:

Epoxy casting resins have a great deal of latitude with respect to the depth of pour. The main thing to keep in mind when considering deep pours is the ambient temperature. At room temperature (70-80°F) conditions, RiverCast can be poured up to 1.5” thick in a single pour.

Note:

In the winter months, RiverCast may be exposed to very low temperatures during transit. In some cases, the Part A can turn cloudy from the exposure to cold temperatures. If the Part A is cloudy, you will need to reconstitute the material. Heat the Part A only in a water bath at approximately 120°-130°F throughout. Once the Part A returns to a clear state, no further heating is necessary. Allow the material to return to room temperature before beginning your project.

Machining the Slab:

In most instances, large slabs are not perfectly flat. If possible, remove unevenness by having the slab CNC milled, or implement a router sled. Both of these machining methods yield excellent results. Ensuring that the slab is flat will be greatly beneficial once its placed in the mold.

Building a Form:

When fabricating a river table or when filling large inclusions that go through the entire slab, it's necessary to build a framework to contain the epoxy. Plastic sheet goods or smooth, rigid plywood covered with clear packing or house wrap siding tape work well for constructing a non-stick form. The form sides can be fabricated from MDF, plywood, or other smooth, rigid material with the same clear packing or siding tape. Apply a bead of fast setting silicone caulk on the bottom of the mold sides. Additional caulk can be applied on the outside edges to further seal and minimize leakage of the RiverCast.

Sealing:

Some ultra-porous wood species should be pre-sealed before use. Mix a small batch of RiverCast Epoxy. Using a disposable, natural bristle brush, apply a thin coat of the epoxy to the edges of the void and where the wood is punky. After 10-15 minutes, brush on another thin coat of RiverCast.

Pre-sealing the edges prevents large air bubbles from forming in the epoxy. After curing overnight, the seal coat will likely be tacky. The RiverCast can be poured over the tacky seal coat without issue.

Adding Colorants And Effects Pigments:

RiverCast Epoxy can be tinted with System Three CastFX Liquid Colorants and Dry Metallic Pigments. These colorants are designed specifically for use in System Three RiverCast and MirrorCast epoxy casting resins. See Cast FX Colorants product sheets for details. If using colorant other than CastFX, be sure to pretest to ensure the results meet your expectations.

Measure and Mixing:

Measure 2 parts Resin (Part A) with 1 part Hardener (Part B) into a clean graduated mixing container. RiverCast can be mixed efficiently with a drill and paddle mixer. Avoid spinning the drill up at too high a speed, as this will introduce excessive air to the mixture. It's advisable to also use a paint stick to scrape the sides and bottom occasionally as you mix. Carefully scrape the sides and bottom to prevent unmixed material from spoiling the cast. Unmixed material will not harden sufficiently and remain soft.

You'll know you're getting close to fully mixed when the mixture has turned from cloudy to clear. Once it's clear, RiverCast generally requires a bit more mixing to fully incorporate the

components. After you've mixed a batch, double-check to make sure that there is no thick buildup on the sides or the bottom of the container. See mix time chart below.

Mix Time For Drill And Paddle Mixing	
1 Gallon	3-5 Minutes
2 Gallon	4-6 Minutes
3 Gallons	6-8 Minutes

Mix Time For Hand Mixing	
1/4 Gallon	3-5 Minutes
1/2 Gallon	3-5 Minutes
1 Gallon	4-6 Minutes

Note:

For batches larger than 1 gallon, use a drill and paddle mixer. The Jiffy mixer brand is an excellent choice for mixing larger batches of RiverCast. This mixer is available on the System Three website or most paint stores. A complimentary paddle mixer is included with the purchase of a 7.5 or 15-gallon kits of RiverCast.

Filling:

When filling deep pours such as those in river table applications, measures should be taken to prevent the slab from floating. Place the wood slab in the mold. Lay 1" x 2" strips of wood on edge over the width of the mold. Cut these to length, adding a couple of inches. Measure from the top of the slab to the bottom of the strip at two different points. Cut small blocks from the extra 1 x 2 material that fit snugly between the slab and the bottom of the strip at those two points. Use packing or siding tape to affix these blocks to the longer 1 x 2 strips. Completely cover the blocks to create a non-stick surface. Smaller slabs may only need a couple of these no float sticks, whereas larger slabs will require more. Use small wood clamps to secure the no float strips to the edge of the mold. Make sure the tape covered small blocks are making contact with the slab before moving on.

Additional pours can be done once RiverCast has cured to a semi-hard state. No sanding is required between pours within 72 hours. After 72 hours, lightly sand with 220 grit sandpaper before adding more epoxy. The sanding scratches will disappear once the next layer of RiverCast is poured.

Note:

Casting resins are designed to cure very slowly. This design feature allows the end-user to pour large volumes of epoxy without experiencing a runaway exothermic reaction.

If constructing a river table, it's best to keep the slab contained within the form for a full 7 days. In the early days of cure, the epoxy is underdeveloped and could possibly warp or bend if not fully supported. Keeping the slab supported and contained as it cures greatly minimizes potential unwanted movement of the wood slab/epoxy. Additionally, RiverCast will machine much nicer after it reaches a full cure.

Surface Preparation For Finishing:

Best results are achieved by allowing RiverCast 7 days to fully cure before machining. A CNC or router sled are excellent choices for removing the excess epoxy to the wood substrate level. The result is a dead flat surface that can be sanded easily with a random orbital sander.

Sand RiverCast with a random orbital sander and 100 grit sandpaper to remove machine marks left from the CNC or router. Work up the grit chain without skipping any grits. A typical progression of grits goes from 100, 120, 150, 180, 220, 240, and 320. See sanding schedule below for more details.

Care should be taken when sanding the surface. Wood and epoxy have differing densities and, therefore, sand at a different rate. Feel the surface often to key in on potential dishing issues that are developing. Occasionally, check the top with a straight edge to gauge progress.

You will note that the RiverCast surface will lose its clarity after sanding. However, once a protective coating is applied, depth and clarity will return.

Sanding Schedule:

MirrorCoat and other System Three Epoxies – Sand to 150 grit

Polyurethane- Sand to 220-320 grit

Lacquer- Sand to 320-400 grit

Oil finishes- Sand to 320-400 grit

Topcoats:

Most coatings are compatible with RiverCast. Pretest to ensure that expectations are met. RiverCast can be used in conjunction with all System Three Epoxies and topcoats. Like most epoxies, RiverCast is suitable for exterior application, but a quality UV topcoat is needed to protect from sun exposure. See System Three Clear Finishing of Outdoor Wood for more details.

Individual Component Properties:	Resin	Hardener
Viscosity @ 77°F cps (25°C)	1,100 – 1,200	17 – 20
Density lbs./gal.	9.28	8.12
Color	Colorless	Colorless
VOC Content	0	0

Mixed System Properties:	Resin	Hardener
Mix Ratio By Volume	2 Parts	1 Part
Mix Ratio By Weight	100 Parts	44 Parts
Application Temperature Range	N/A	70-80°F (21-27°C)
Working Time @ 70°F (21°C)	N/A	1 hour
Recoat Time w/o Sanding @ 70°F (21°C)	N/A	Up to 72 hours
Mixed Viscosity 350 cps		

Cured Properties:	
Full Cure @ 70°F (21°C)	7 days
Shore D Hardness	80-82
Maximum Service Temperature	160°F / 71°C