

MirrorCast Void and Crack Filler

Description:

MirrorCast is a clear epoxy casting resin designed to fill knots, cracks and voids in wood substrates with minimal shrinkage. Use MirrorCast to fill voids prior to finishing wood components. MirrorCast can also be tinted with System Three Epoxy pigment dispersions. When cured, MirrorCast can be sanded, shaped and drilled.

Recommended Uses:

- Filling medium to large size knots
- Filling large cracks and checks in wood slabs
- Filling inclusions in wood slabs
- Decorative wood art

Directions for Use:

How Much MirrorCast For The Job

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

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

MirrorCast kit sizes	Cubic Inches
1.5 Pint Kit	45
3 Quart Kit	170
1.5 Gallon Kit	345
15 Gallon Kit	3,400

Sealing

Wood holds a considerable amount of air in its grain structure. Before filling any void, pre-sealing the void substrate with a thin coat of MirrorCast is essential to avoid excess bubble formation. Voids that go through the entire slab will first need to be plugged. This can be done with materials like packing tape, duct tape, or plastic sheet goods.

Apply MirrorCast using a small disposable brush. A thin, even coat yields best results. After 10-15 minutes, apply a second thin seal coat. If plugging a void, brush a thin layer of MirrorCast around the base of the void, where the wood and plugging material meet. This prevents MirrorCast from leaking through when later filling the void. Some voids such as narrow cracks cannot be sealed using a brush. In cases like this, pour MirrorCast along the exposed edges. Pour enough to lightly coat the side/sides. Allow an overnight cure of the seal coat.

Note: The seal coat will remain tacky, even after an overnight cure. Full hardness development of the seal coat is not necessary before beginning the filling phase of the project. Remove plugging material after MirrorCast has cured 72 hours.

Mixing

See Use Chart for calculating the appropriate pour depth and repour times for MirrorCast. These recommendations are a guideline for obtaining maximum clarity and lightest color.

Mix by volume two parts Resin (Part A) to one-part Hardener (Part B). Pour Part B on top of Part A into the same container. Hand-mix the material from the bottom to the top. Scrape the sides of the container as well as the mixing stick. Mix until the composition turns from cloudy to clear.

Note: Overmixing can result in excess bubbles which can detract from the clarity.

Filling

MirrorCast performs best when the ambient conditions are between 70-80°F. Acclimate the wood and the epoxy 24 hours before use. Cool conditions will cause MirrorCast to thicken and trap excess bubbles in the epoxy.

The top surface must be flat and free from unevenness. Surfaces that are rough sawn or uneven will prevent MirrorCast from filling to full capacity. Use a carpenter's level to make sure that the wood slab is level before filling.

MirrorCast is best suited for filling voids that are contained on all sides. Multiple layers can be built up without showing pour lines. Voids that are exposed to the outside edge have some limiting factors to consider. Smaller voids that meet the perimeters outlined in the Use Chart can be completed in a single pour. However, larger voids may require more than a single pour. When multiple pours are done, a noticeable pour line will be visible when viewed from the side of the finished piece.

When filling a void, pour MirrorCast just to the surface. Allow it to settle for 5-10 minutes. Then slowly add more material, slightly overfilling. The MirrorCast should be domed and proud from the surface of the wood slab. Avoid overfilling the void, where MirrorCast spills out onto the surface. Thin films of MirrorCast take extended periods of time to cure. Wipe up any material that is on the slab surface. Within the first 30 minutes check the fill level. If the MirrorCast has dropped below the surface, carefully refill to a slightly overfilled level.

Note: Micro bubbles can be encapsulated within the cured epoxy cast. In most cases the micro bubbles are not visible, nor do they affect the final clarity.

Additional pours can be done once MirrorCast has hardened sufficiently and when the cast has returned to room temperature. No sanding is required between pours within 72 hours. After 72 hours lightly sand the surface with 220 grit paper. Use a vacuum or clean compressed shop air to remove sanding dust.

Use Charts

Note: Knots, cracks, and voids come in random shapes and sizes. Refer to the Use Charts recommendations to approximate the number of fills necessary to fill the void. These recommendations are based on the application temperature range of 70-80°F. If your working conditions exceed the recommended temperature range, then err on the side of caution and increase the number of pours, particularly in large void filling situations.

A note on minimum pour depth. It's advisable to pour MirrorCast no thinner than ½" in depth. MirrorCast cures very slowly in small volumes. Pours that are below the recommended level can take upwards of 72 hours to cure to a reasonably hard state.

Note: The length is accounted for in the tables below for cracks and large voids. You therefore only need to measure the depth and width.

Knots and Small Voids

Number of Pours

3" Deep	1	2	2
2" Deep	1	2	2
1" Deep	1	1	1
	1" Wide	2" Wide	3" Wide

Cracks

Number of Pours

3" Deep	1	1	2	2	2
2" Deep	1	1	1	1	1
1" Deep	1	1	1	1	1
	¼" Wide	½" Wide	¾" Wide	1" Wide	1.5" Wide

Large Voids

Number of Pours

2" Deep	2	2	2	2	4
1" Deep	1	1	1*	1*	2
	4" Wide	5" Wide	6" Wide	7" Wide	8" Wide

* 1" thick pours are possible in 6-7" wide, large void applications. However, the color of the MirrorCast is likely to shift slightly off color due to exothermic heat buildup. Lighter, more water-like color is achieved by pouring MirrorCast at ½" - ¾" deep intervals. Tinting MirrorCast will generally offset any color shift in 6" - 7" wide x 1" deep pours.

Knots and small voids (see above) benefit from mixing MirrorCast and keeping it in the mix cup for 30-40 minutes before pouring into the void. Doing so will allow entrapped microbubbles to escape.

Surface Preparation For Finishing

Best results are achieved by allowing MirrorCast 7 days to fully cure before sanding and finishing. Sand MirrorCast with a hard-sanding block with 120-150 grit sandpaper to flatten the surface to the surrounding wood substrate. A cabinet scraper can also be implemented. Once the epoxy surface is flat with the surrounding substrate, use an orbital or random orbital sander. Sand the wood substrate, blending into the epoxy filled area. Over sanding MirrorCast can dish the surface. Occasionally, check the top with a straight edge to gauge progress. Further sanding is dictated by the type of protective finish coating selected. You will note that the MirrorCast surface will lose its clarity after sanding. However, once a protective coating is applied, depth and clarity will return. See sanding recommendations below for the appropriate grit selection

prior to applying the top coat. Be sure to follow with the correct grit sequence. Skipping grits can result in scratches showing through the top coat.

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 400-600 grit

Top Coats

Most coatings are compatible with MirrorCast, but it's advisable to pretest to ensure that expectations are met. MirrorCast can be used in conjunction with all System Three Epoxies and top coats. Like most epoxies, MirrorCast can be used for exterior application, but a quality UV top coat is needed to protect from sun exposure. See System Three Clear Finishing of Outdoor Wood for more details.

Typical Properties:

Properties Part A:

Viscosity:	750 cps
Density:	9.48 lbs./gal.
Color:	Colorless

Properties Part B:

Viscosity:	20 cps
Density:	7.99 lbs./gal.
Color:	Slight Amber

Mixed Properties:

Mix Ratio Volume:	2:1
Mix Ratio Weight:	100 parts A - 41 parts B
Working Time @ 70°F:	1 hour
Full Cure:	7 days
Application Temperature:	70-85°F
Clean Up Solvent:	Denatured Alcohol

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