



### Cast Boxes with Dichroic Lids

*Combining Colour de Verre's box molds with CBS-Coating by Sandberg's Borderline Patterns™ and Crinklized Dichroic™ creates these very impressive and quite showy boxes.*



The process of creating these boxes is easy and straight forward:

- A template (included) is used to cut two pieces (or one double-thick piece) of clear glass and one piece of the Crinklized or Borderline dichroic.
- The sheet glass pieces along with some frit are placed in the lid mold.
- The base is filled with a combination of clear and colored frit.

The bases and lids are fired separately each with their own, special schedule.

### Getting Started

The molds must be primed so the glass doesn't adhere to the molds.

Always start the same way: Clean your Colour de Verre box lid and base with a stiff, nylon brush or a green 3M Scotch-Brite™ pad to remove any old kiln wash. (This step can be skipped if the mold is brand new.)

There are two choices for primers: Hotline Primo™ Primer and ZYP BN Lubricat (formerly MR-97). The ZYP is the easiest to apply and remove. It is an aerosol and, after firing, brushes off easily from the molds and can be washed off the glass pieces. Castings created using ZYP have exceptionally smooth surfaces and almost never require grinding or "cold work."

Primo is a traditional kiln wash that is applied with an artist's brush. It's a trusted and proven product, but requires a bit more "elbow grease" to remove after firing. Primo's big advantages are its low cost and availability.

Brief instructions for each option follow:

To apply ZYP, hold the well-shaken can 10 to 12 inches from the mold. Hold both the mold and the spray can upright. Apply the first coat using a three to four-second burst of spray in a sweeping pattern across all the mold's cavities. Do not saturate the surface. If it is the first time ZYP has been applied to this mold, it is necessary to apply a second coat of the product.



Before applying the second coat, let the mold dry for five minutes. Apply the second coat using another three to four-second burst of spray. Let the mold dry for ten to fifteen minutes before filling. Again, the double coat of ZYP

### Availability

*Colour de Verre molds are available at fine glass retailers and many online merchants including our online store, [www.colourdeverre.com](http://www.colourdeverre.com).*

### Tools

- ✓ Colour de Verre Box Lid and Base mold set
- ✓ Digital scale
- ✓ Lidded container, Artist's brushes
- ✓ Glass cutter
- ✓ Glass grinder or diamond pad

### Supplies

- ✓ Hotline Primo Primer™ or ZYP BN Lubricat (formerly MR-97)
- ✓ Medium Water Clear, Black and other colored frit
- ✓ Crinklized or Borderline Dichroic™ (on black glass)
- ✓ Clear sheet glass

only need be applied the first time the mold is used. Thereafter, only one coat is necessary. For more information about ZYP, visit Colour de Verre website's Learn section. There, download and read "Advanced Priming with Boron Nitride Aerosol."

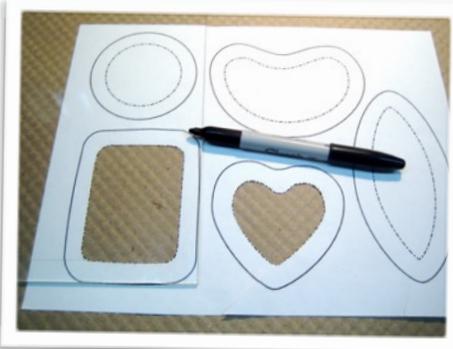
*Pro Tip: To minimize any possible interaction with dark and/or opal glasses, two additional steps may be added after the steps above have been followed. Use a soft, cotton cloth (like an old t-shirt) to gently burnish the primed mold surface. Apply an additional light coat of ZYP.*

If you choose to use Primo Primer, mix one part dry primer powder with four parts water. Next, give the molds *five* coats of Hotline Primo Primer™. While there are plenty of good shelf primers and kiln washes on the market, Colour de Verre *only* recommends Hotline Primo Primer™ for the Colour de Verre molds. It always releases and is easy to remove after firing.

One important hint: This primer settles very quickly. Each time the brush is dipped, be sure to give the primer a good stir so all the ingredients stay in solution. If the primer has sat more than 5 minutes, the active ingredients will cake on the container's bottom. Make sure to stir these sediments back into solution.

Apply the Primo Primer™ with a soft artist's brush - not a hake brush - and use a hair dryer to completely dry each coat before applying the next. The mold

should be totally dry before filling. The primer need not be pre-fired.



### Making the Lid

For each Colour de Verre box mold there is a set of corresponding patterns on the accompanying template page. Identify the pattern set for the box mold you plan to use.

The larger, solid, outer shape is used to cut two pieces of clear sheet glass or one piece of double-thick clear sheet glass. The smaller, dotted shape is for the piece of dichroic glass.

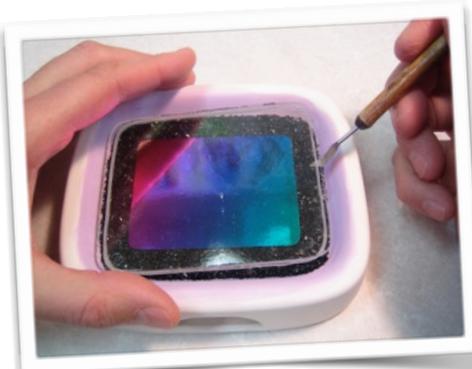
To cut the clear pieces, place the clear sheet over the template. Use a glass marking pen to trace the



solid line onto the glass. Score and break the glass to trim away extra material. Next, use a glass grinder to trim the glass piece to match the template. Repeat this process with a second piece of clear sheet glass. (A glass saw can be used in place of the scoring and grinding technique.)



Cutting the dichroic material takes a bit more care. Some of the cut dichroic pieces are not symmetrical. While the cut, clear glass pieces can be flipped over to find the best fit, the dichroic glass is coated only on one side.



Cut out the dotted template. Place the template's printed side against the dichroic glass's black side. Trace around the pattern using a

white, waterproof marker. Use the same method described above to cut out the dichroic piece. Use a



fine diamond grinding head. Grind with the coating side down to avoid chipping.

### Lid Fill Weights

Design	Recess Fill	Surround Fill (grams)
Rectangle	20	20
Round	10	10
Ellipse	12	14
Kidney	16	14
Heart	11	12

Check to see if the sheet glass pieces fit the mold nicely. Clean all pieces. If you are using two sheets of single-thickness clear glass, use four small dots of white glue to secure the clear pieces to one another. Let dry. This step makes it easier to transport the filled mold from the workbench to the kiln.

Using the table above, determine the Recess Fill weight. With the digital scale, weigh out that much

medium Black frit. Place the frit evenly in the lid mold recess.

Place the dichroic glass cutout on top of the frit – dichroic coating side up. Again, Weight out the Surround Fill of medium Black or colored frit. Arrange this around the dichroic piece. Use a small, soft brush to level the frit and brush away any frit that may have fallen onto the dichroic glass.

The dichroic cutout and frit should be about even with one another.

Gently lower the clear glass into place on top of the dichroic glass piece. Transport the filled lid mold



to the kiln. Once in the kiln, check to see that nothing has shifted.

Given the variable thickness of art glass, the mold's fill weight might be slightly less than recommend in the packaging. No need to worry: We will be firing the lid a bit cooler than generally recommended.

### Lid Casting Schedule\*

Segment	Ramp	Temperature	Hold
1	300°F/165°C	1250°F/675°C	30 minutes
2	300°F/165°C	1350°F/730°C	60-90 minutes
3	AFAP	960°F/515°C	60 minutes.
4	50°F/30°C	800°F/425°C	None
5	100°F/60°C	600°F/315°C	Off. No venting

### Base Casting Schedule\*

Segment	Ramp	Temperature	Hold
1	300°F/165°C	1250°F/675°C	30 minutes
2	300°F/165°C	1410-1420°F/765-770°C	30-60 minutes
3	AFAP	960°F/515°C	90 minutes
4	50°F/30°C	800°F/425°C	None
5	100°F/60°C	600°F/315°C	Off. No venting

### Fire Polish Schedule\*

Segment	Ramp	Temperature	Hold
1	250°F/135°C	1320°F/715°C	10 minutes
2	AFAP	960°F/515°C	60 minutes
3	50°F/30°C	800°F/425°C	None
4	100°F/60°C	600°F/315°C	Off. No venting

\*Schedule for COE 96. For COE 90, increase casting temperature by 25°F/15°C. AFAP means "As Fast As Possible", no venting.  
May 2013

Thus there will be less opportunity for the glass to pull in from the mold's edges.

CBS Coatings by Sandberg, the manufacturer of Crinklized Dichroic™ and Borderline Patterns™, recommends a lower target temperature when *casting* with this specific product. To account for this, our schedule holds the lower target temperature longer.

Fire the kiln according to the Lid Casting Schedule.

### Making the Base

Use the chart below to determine how much frit is needed to fill the base. Into a large, lidded container place one-half the fill weight of fine or medium Clear frit and one-half the fill weight of fine or medium colored frit. Put the lid on the container and shake it to completely mix the two frit colors. Put on a dust mask, open the container, and pour the mixed frit into the box base mold. If using Primo Primer, slightly mound the frit to reduce glass spurs and cold work.

### Base Fill Weights

Design	Base Fill (grams)
3½" Round	295
4x5" Rectangle	450
6" Elliptical	375
5" Kidney	385
3½" Heart	310

Place the mold into the kiln and fire the kiln according to the Base Casting Schedule.

### Finishing

If either of your casting has a spur or two, remove the spurs with a diamond pad or grinder. If either piece needs to be fire polished, follow the Fire Polish Schedule below.

Be sure to completely clean and re-prime the mold before fire polishing.

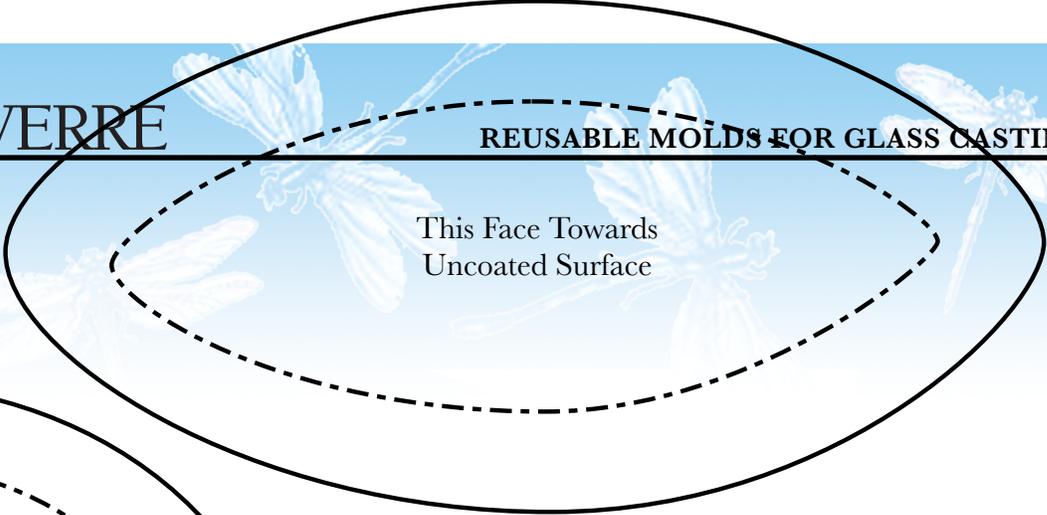


### Base Feet

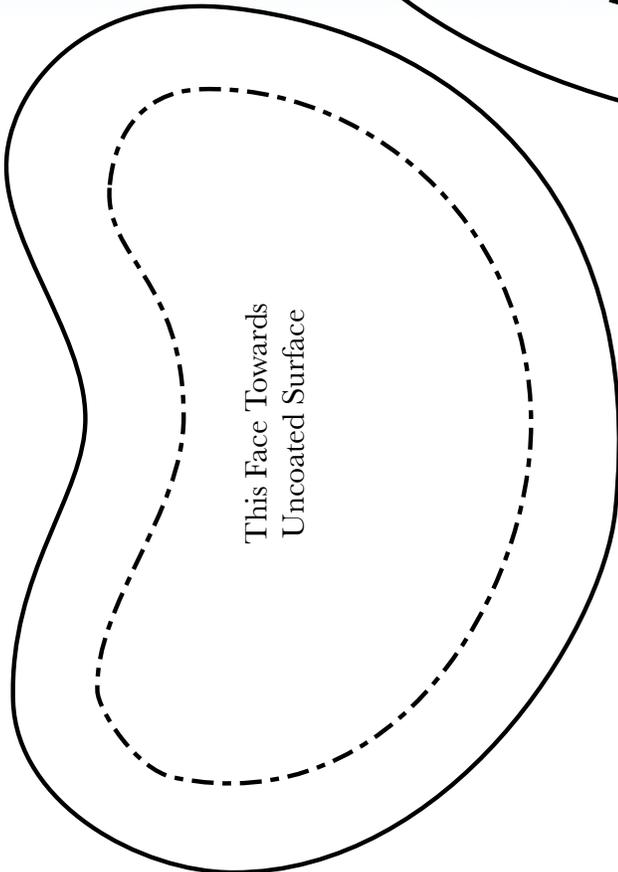
Give cast boxes a professional finish with the addition of feet. Use peel-and-stick, silicon cabinet bumpers, e.g. 3M Bumpon™, available from most hardware stores. This will also protect tabletops.

### Variations

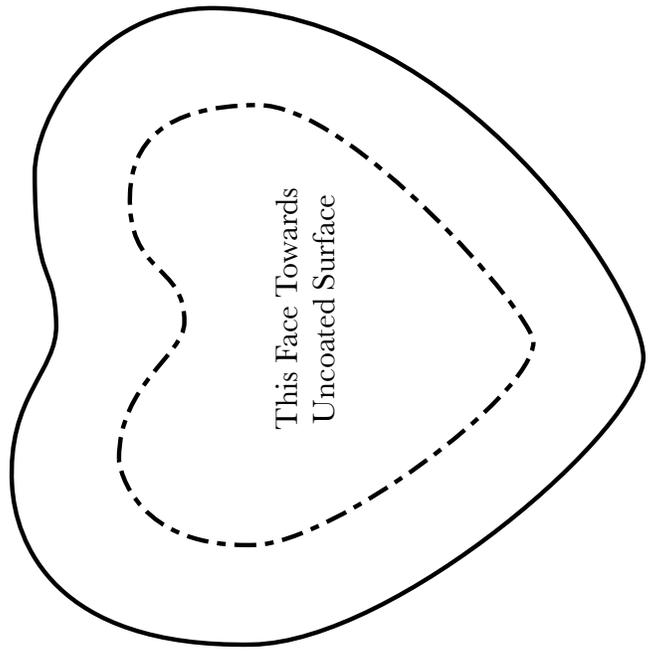
A variation is to use an interesting piece of art glass instead of the dichroic glass. Substitute medium Clear or other, complementary colored frit for the black frit. Again, cap with a double thickness of Clear sheet glass.



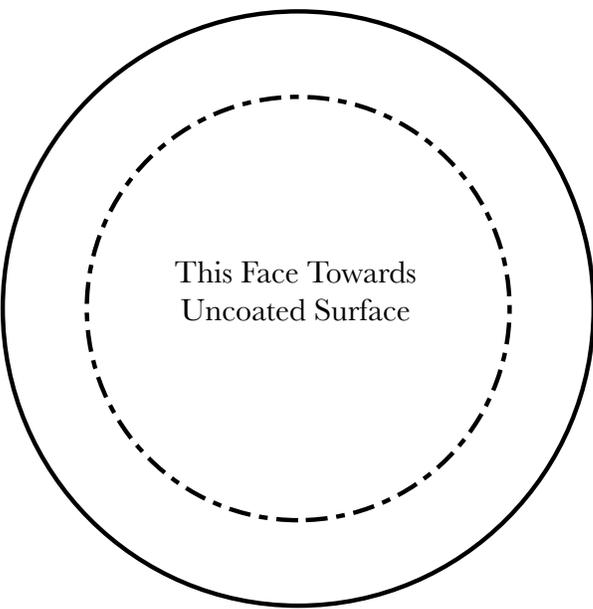
This Face Towards  
Uncoated Surface



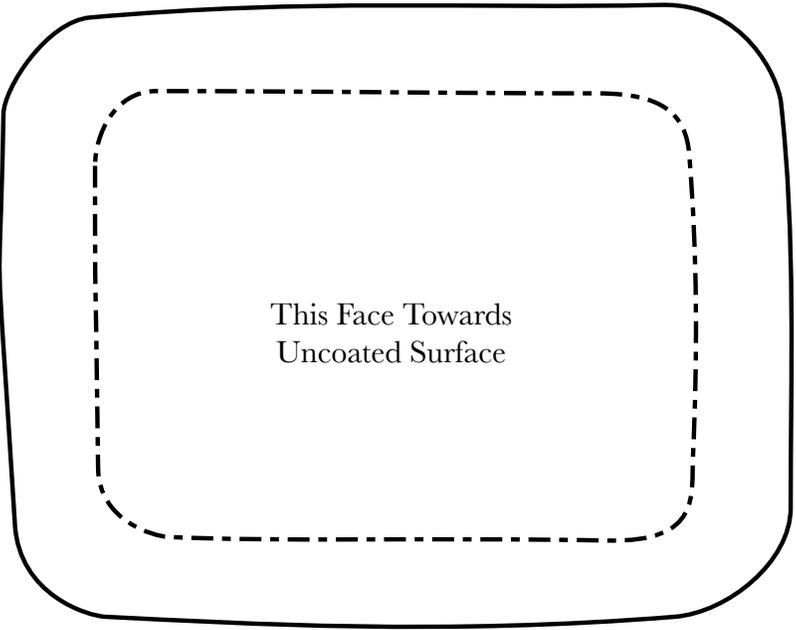
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