COLOUR de VERRE

REUSABLE MOLDS FOR GLASS CASTING


Glass Courtesy of Uroboros

Box Basics

This project sheet provides the reader with all the basics – fill weights, schedules, and techniques – for using Colour de Verre's box base and lid casting molds. The resulting objects can "stand alone" or can be embellished with other Colour de Verre designs.

Each design consists of two molds. One mold – the larger of the two – is used to cast the box base. The other mold; the lid.

For a successful casting, there are three important steps to remember:

- Prime the mold correctly.
- Heat the molds no faster than 300°F (165°C) per hour.
- Don't rush the annealing schedule. The controlled cooling of the kiln prevents internal stresses from cracking the piece.

Getting Started

Always start the same way: Clean your Colour de Verre molds with a stiff, nylon brush to remove any old kiln wash. (This step can be skipped if the mold is brand new.) 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.


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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 15 minutes, the active ingredients will cake on the container's bottom. Make sure to stir these sediments back into solution.


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Apply the Primo Primer™ with a soft artist's brush and use a hair dryer to completely dry each coat before applying the next. The mold should be totally dry before filling.

Filling the Molds

The molds are intended to be used with COE 96 or COE 90 art glass. Colour de Verre molds should not be used with borosilicate, Pyrex, or float glass. At the temperatures necessary to melt the later glass formulations, the kiln wash starts loosing its effectiveness.

The designs can be filled with any frit mesh, billets, casting rocks, glass pebbles, sheet glass – broken or cut-to-fit, "nipped" rods, or a combination of these forms. For

Tools

- ✓ A Colour de Verre Box Lid and Base mold set
- ✓ Large primer brush
- ✓ Digital scale
- ✓ Two small, plastic containers
- ✓ Diamond pad or grinder

Supplies

- ✓ Hotline Primo Primer™
- ✓ Assorted frits, sheet glass, billets, casting rocks, etc.

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Technical sheet courtesy of Colour de Verre™

larger glass formats like billets and casting rocks, we suggest that the "hold" at the maximum temperature be increased to give the glass a chance to conform to the mold.

The table below lists how much glass (in grams) should be arranged in each design's base and lid. We often refer to these weights as "fill weights."

Design	Base	Lid
3½" Round	295	115
4x5" Rectangle	450	220
6" Elliptical	375	180
5" Kidney	385	180

Place a container on the digital scale. Zero the scale and measure out the frit for the base. If your scale doesn't have a zero or tare function, simply account for the container's weight in your measurements. With a second container, repeat the process weighing out enough frit for the design's lid. Carefully pour the weighed glass into the primed molds. When casting, glass spurs can be formed when the hot glass – as it melts and compacts – drags down the mold's interior. To reduce or eliminate spurs, mound the glass towards the design's center. Fine frit produces fewer spurs than larger frit or cut sheet glass. Spurs can be ground and the pieces fire polished.

For projects where different types of glass is combined, it is often easier to weigh the glass in the mold.

Place an empty mold on the scale, zero the scale, and fill the mold directly stopping when the fill weight is reached.


Glass Courtesy of Uroboros

When arranging larger glass frit or cut glass pieces in the molds, load and arrange the glass gently as the sharp edges can scrap away the kiln wash from the mold. This could contaminate the glass or cause the casting to stick.

Firing the Molds

Place the two filled molds into the kiln. Use the Casting Schedule below as a guide. Don't rush the schedule's slow cooling ramp as this allows for proper annealing. Also note that the schedules need to be modified for kiln load, COE, and glass color. Heating element position can also effect firings. Use lower temperatures when using a lid element kiln.


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Another factor is whether the glass is opal or transparent. For opal glass, reduce firing temperature by 25°F (15°C) and use shorter hold times. Opal glass has a tendency to

Casting Schedule*

Segment	Ramp	Temperature	Hold
1	300°F/165°C	1250°F/675°C	30 minutes
2	300°F/165°C	1410-1430°F/765-775°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

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

Fire Polish Schedule*

Segment	Ramp	Temperature	Hold
1	200°F/110°C	1300-1325°F/705-715°C	10-20 minutes
2	AFAP	960°F/515°C	90 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.

absorb more heat. These high, prolonged temperatures can make the kiln wash difficult to remove from the mold. If this occurs, fine sandpaper or a dry, non-scratch, nylon, kitchen scouring pad, e.g. Scotch-Brite™, can be used to remove stubborn kiln wash.


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Fire Polishing

With any casting process, there is a chance for glass spurs to develop. If the casting has any spurs, remove with a power grinder or a diamond pad. Clean and re-prime the molds, and place the smoothed piece into the freshly primed mold. Re-fire the piece according the to Fire Polish Schedule.