



### Wafer-Thin Casting

Create extremely thin and delicate art pieces by casting powdered glass at extremely low temperatures.



With this technique, a thin layer of colored and clear powders are sifted into a mold. Then the filled mold is fired only to the point where the powders bind together. Too little heat-work, and the casting is too fragile. Too much heat-work, and the powders melt too much. As a result, surface tension causes the glass to “ball up” and all mold definition is lost.

Wafer-thin casting is an advanced technique as it requires the user to examine results of some initial firings and then to modify the firing schedules to obtain the optimal results. However, the artist will be rewarded by a casting with

fine detail, impressive look, and delicate feel.

### Choosing a Design

We believe this technique works best with our larger designs including:

- Aralia
- Cabbage Leaf
- Cloud Forest Magnolia
- Feather
- Kiwi Leaf
- Monstera
- Northwoods Maple
- Rain Forest Leaf
- Tropical Leaves



The Monstera is a bit more difficult than the other because of its large size.

### Priming the Mold

The molds must be primed so the glass doesn't adhere to the ceramic material from which the molds are made. We often suggest using a

traditional primer or ZYP. With this process ZYP works best.

The amount of ZYP to be sprayed on the mold depends on the mold's size. Using the Spray Time table, determine how many seconds of spray for your mold. 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, light coat spraying in a sweeping pattern across all the mold's cavities, spraying only as long as noted in the Spray Time table. Do not saturate the surface. If it is the first time ZYP has been applied to the mold, a second coat of the product should be applied.

### Spray Time

Design	Seconds of Spray
Aralia	4 to 5
Cabbage Leaf	4 to 5
Cloud Forest Magnolia	4 to 5
Feather	4 to 5
Kiwi Leaf	3 to 4
Monstera	7 to 8
Northwoods Maple	4 to 5
Rain Forest Leaf	3 to 4
Tropical Leaves	3 to 4
* Make sure to reference Monstera Leaf project sheet for special priming instructions	

### Tools

- ✓ Small artist's brushes
- ✓ Digital scale
- ✓ Sifter
- ✓ Small measuring spoons

### Supplies

- ✓ Glass powders
- ✓ ZYP BN Lubricant
- ✓ Colour de Verre mold



Castings are only about 2mm thick

### Fill Weight

Design	Wafer-Thin Fill Weight (grams)
Aralia	120
Cabbage Leaf	75 to 80
Cloud Forest Magnolia	75 to 100
Feather	75 to 85
Kiwi Leaf	50
Monsterea	170
Northwoods Maple	60 to 80
Rain Forest Leaf	30 to 35
Tropical Leaves	33 and 15

### Color Suggestions

Design	Veining	Leaf Body
Aralia	Kelly Green	Spring Green center, Canary Yellow and Orange midsection, Garnet Red tips
Cabbage Leaf	White Opal	Light Green outer edge, Canary Yellow bottom center, Spring Green body
Cloud Forest Magnolia	Black	Fuchsia center or edges, Spring Green and Kelly Green body
Kiwi Leaf	Black	Fuchsia or Marigold Yellow
Monsterea	Black	Kelly Green and Canary Yellow highlights
Northwoods Maple	Kelly Green	Combinations of Garnet Red, Orange, and, Marigold
Rain Forest Leaf	Spring Green	Canary Yellow with tops of Orange
Tropical Leaves	Kelly Green	Kelly Green and Canary Yellow

Before applying the second coat, let the mold dry for five minutes. Apply the second coat using the same technique, again, for the same time shown in the Spray Time table. In either case, let the mold dry for ten to fifteen minutes before filling. Again, the double coat of ZYP need be only applied the first time. Thereafter, only one coat is necessary.

For more information about ZYP, visit our website. Download and read *Priming with ZYP Spray* and watch *Priming with ZYP BN Lubricant*.

### Filling the molds

Usually with Colour de Verre molds, you are asked to weigh out an amount of frit to fill the mold. This amount is called the fill weight.

Since we are sifting multiple powders into the mold, it is more convenient and allows for more artistic freedom if the empty mold is

weighed and then reweighed as it is being filled. A fully filled mold will weigh as much as the mold PLUS the weight specified by the Wafer-Thin Fill Weight table below.



Start weighing the mold (in grams) and making note of it. (We find it very convenient to make this weight on the side of the mold using a pencil.

Half of the powder added to the mold will be colored. It will be added to the mold first. The second half or layer will be clear frit. It won't add color to the design, but will add structure and strength.

The first powder sifted into the mold will highlight the mold's details and veining. (We suggest dark colors for most of the designs, except for the Cabbage Leaf for which we suggest white.) Place your fine-mesh sifter on piece of clean paper. Load the sifter with spoon-sized amount of powder. Lift the sifter with your non-dominant hand (left hand if you are right-handed) and hold it over the mold. The sifter mesh should be fine enough such that no

## REUSABLE MOLDS FOR GLASS CASTING

powder drops through until the sifter is tapped slight by the fingers of your dominate hand. Dust the entire mold using this technique. Once the mold is dusted, gently tap the sides of the mold to cause the powder to drop into the veining and detail.



Next, powder will be added to color the body of the design. For this you can use one or more powder colors. As before, use the sifter to “paint” color onto the design. As powder is being added, occasionally reweigh the mold to



track the weight of powder being added. Once the amount of colored powder is around half of the Wafer-Thin Fill Weight, stop adding color powder.

Using a fine brush, dust away any colored powder that has landed on the mold’s top surface. Gently tap the sides of the mold, so that the colored frit that might be resting on sides of the mold’s cavity drop to the base of the cavity.

As mentioned before, a clear powder layer adds structure to the piece. Weigh the now partial filled mold. Subtract the weight of the empty mold from the weight of partially filled mold. The result is the amount of powder in the partially filled mold. In other words:



Partially filled mold weight  
- Empty mold weight

\_\_\_\_\_ = Amount of powder in mold

Then calculate how much clear powder needs to be added by subtracting the amount of powder in the mold from the wafer-thin fill weight.

Weight out the clear powder and evenly sift it over the entire cavity.

Using a fine brush, dust away any clear powder that has landed on the mold’s top surface. Gently tap the sides of the mold, so that the clear frit that might be resting on sides of the mold’s cavity drop to the base of the cavity.

### Firing

This technique requires careful observation of initial firings so a schedule can be developed that fits a particular kiln.

Start with the schedule supplied in the Casting Schedule table. When the mold and glass cools, examine

### Bullseye Casting Schedule

Segment	Ramp	Temperature	Hold
1	300°F/165°C	1270-1280°F/ 685-695°C	10 to 20 minutes
2	AFAP	900°F/482°C	30 minutes. Off

\*Schedule for Bullseye glass. For COE 96, decrease target temperature by 20°F/10°C. AFAP means “As Fast As Possible”, no venting. Anneal at 960°F/515°C.

### Slumping Schedule

Segment	Ramp	Temperature	Hold
1	300°F/165°C	1200°F/650°C	10 minutes
2	AFAP	900°F/482°C	30 minutes. Off

\*Schedule for Bullseye glass. For COE 96, decrease target temperature by 20°F/10°C. AFAP means “As Fast As Possible”, no venting. Anneal at 960°F/515°C.

the results. The powder should be melted together, however the back surface should still have a grainy surface.

If the glass particles did not fully fuse together increase the heat-work by either increasing the target temperature by 10°F (5°C) or by increasing the hold time by 10 minutes.

If the glass became too liquid and dramatically pulls away from the mold's inner edges, decrease the heat-work by either decreasing the target temperature by 10°F (5°C) or by decreasing the hold time by 10 minutes. It might take more than one firing and one set of adjustments to find the optimal schedule to obtain perfect results.

**Shaping**

Wafer-thin pieces don't make good functional pieces like bowls and plates. However, flat casting become much more lifelike by slumping pieces to give them a bit of a curl. Place the piece, texture side up on a primed slumping form and fire according to the schedule shown in the Slumping Schedule table.

**Reusing the Molds**

Clean mold thoroughly after each firing with a stiff, nylon bristle brush. Avoid breathing any dust by wearing a proper dust mask. Reapply primer before subsequent firings.



*Cloud Forest Magnolia*



*Northwoods Maple in fall colors*



*Our Rain Forest Leaf design is a favorite*



*Monstera in kelly green with yellow tips*



*The Tropical Leaves can be done in almost any color combination*



*Our Feather design looks elegant in white and black.*



*Some people think our Kiwi Leaf looks like an aspen leaf.*

If correctly primed and fired, a Colour de Verre mold will yield many castings.