



### *Serpentine Basics*

*Add “wavy” rods, stringers, noodles, and ribbons to your design “vocabulary” with Colour de Verre’s Serpentine Formers.*



Artists and craftspeople often speak about a “design vocabulary,” the materials and techniques they use in creating their artwork. For many glass artists, that is limited to sheet glass and frit. A few people add rods, noodles, and stringers to their work, but usually as rulings and borders.

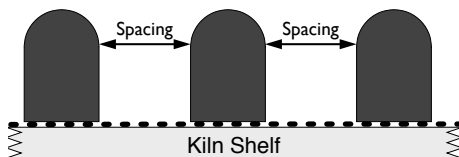
Colour de Verre’s Serpentine Formers enable artists to add to their design vocabulary, letting them create glass “waves” from rods, noodles, and stringers. These can be used alone, or in combination with “frit balls” and Colour

de Verre castings.

Our formers are specially designed with added height to let the user determine how deep to make the waves’ curves. The formers are intentionally separate to give the artist maximal flexibility and creative options..

### **Preparing the Formers**

This is one of the few times we don’t recommend Hotline Primo Primer™ to be used on our designs. The formers are much denser than other Colour de Verre molds and Primo doesn’t absorb well. Instead use a traditional primer (Hotline Hi-Fire Shelf Primer or Bullseye Shelf Primer). Apply according to the manufacturer’s instructions. If you prefer, ZYP Boron Nitride Lubricat™ spray can be used instead. See our website’s Project Ideas section for information on applying Lubricat.



### **Setting Up the Formers**

Place a kiln shelf on your workbench and protect it with a piece of ThinFire™ or shelf primer

(again, follow the manufacturer’s instructions).

Place the primed formers parallel to one another on the kiln shelf. For a gentle, generic wave, the spacing between the formers can be determined by adding the width of the former to the glass thickness. For example: Suppose you are using the ½” formers and a glass rod. Add ½” (the width of the former) to ¼” (the diameter of the rod) to get ¾”. The spacing between the formers should be ¾”.



While this method creates the classic wavy form, users are encouraged to vary the spacing to achieve other effects. One can also mix former sizes. For example, using one larger, medium, and small former results in a great looking “squiggle.”

Cut the rods to a length to span the formers. A great tool for this is a wheel tile nipper.

### *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**

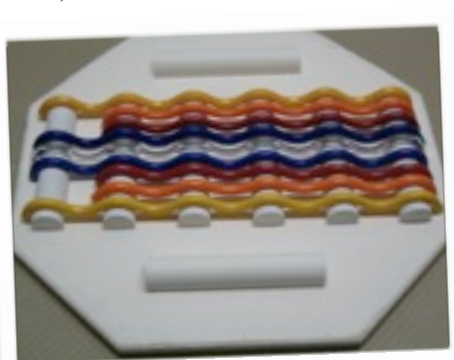
- ✓ Large, Medium, and/or Small Serpentine Formers
- ✓ Mosaic tile nipper
- ✓ Priming brush

### **Supplies**

- ✓ Shelf primer or ZYP Lubricat
- ✓ Glass rods, noodles, or stringers

### Firing the Formers

The perfect firing schedule depends on many factors including the kiln type (side or top elements), glass color, if the glass is transparent or opal, glass COE, rod thickness, etc.



The only way to discover the perfect schedule for your kiln is by observing the results at critical points. This means that you will need to open the hot kiln and look at the rods. This is not as scary as it might sound but certain precautions must be taken. *When opening a hot kiln it is essential to wear eye protection, heat proof gloves, and nonflammable clothing. Only open the kiln's door or lid one or two inches – only wide enough to see the rods. A flashlight reduces the need to open the door or lid wide.*

Program the kiln with the schedule titled “Former Firing Schedule.” After each hold, carefully open the lid or door and observe if the rods have started to bend. If the rods have not started to bend, let the kiln firing program proceed. When the right shape is reached, close the door or lid and shut off the kiln. Do not vent.

Make note of the hottest temperature reached and use it as a target temperature in future firings.

### Reusing the Formers

After firing, inspect the formers. If the kiln wash is undamaged, the formers can be reused without

### Former Firing Schedule\*

Segment	Ramp	Temperature	Check, hold, then check again
1	400°F/220°C	1240°F/670°C	10-15 minutes
2	400°F/220°C	1250°F/675°C	10-15 minutes
3	400°F/220°C	1260°F/680°C	10-15 minutes
4	400°F/220°C	1270°F/685°C	10-15 minutes
5	400°F/220°C	1280°F/690°C	10-15 minutes

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

### Sheet Glass Fusing Schedule\*

Segment	Ramp	Temperature	Hold
1	250°F/135°C	1200°F/650°C	30 minutes
2	250°F/135°C	1410-1420°F/765-770°C	10 minutes
3	AFAP	960°F/515°C	60 minutes
4	100°F/60°C	700°F/370°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.

### Tacking Schedule\*

Segment	Ramp	Temperature	Hold
1	200°F/110°C	1200°F/650°C	30 minutes
2	200°F/110°C	1260-1275°F/680-690°C	10-20 minutes
3	AFAP	960°F/515°C	60-90 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.

### Slumping Schedule\*

Segment	Ramp	Temperature	Hold
1	100°F/60°C	200°F/95°C	15 minutes
2	100°F/60°C	400°F/205°C	10 minutes
3	150°F/85°C	1250°F/675°C	10-20 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

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

repriming. If the kiln wash has been scraped and chipped, remove the old kiln wash with a Scotch-Brite™ pad and reapply new kiln wash.

### Incorporating the Waves

The wavy rods, stringers, and noodles can be used to embellish plates, platters, bowls, and boxes. They can be combined with castings from other Colour de Verre molds. Rod and frit balls are also a perfect complement. (See “Making Rod and Frit Balls” sidebar.)



Create a rectangular or round glass panel by fusing together two sheets of glass using the “Sheet Glass Fusing Schedule.” Tack fuse castings, wavy rods, and frit balls, to the panels with the “Tacking Schedule” and form the final piece using the “Slumping Schedule.”



### Making Rod and Frit Balls



Little glass spheres can be made easily from either frit or rods. Nipped up rods create perfect spheres that have a tendency to be optically perfect. Protect a kiln shelf with a coat of kiln wash or piece of ThinFire™. To make frit balls, scatter medium and coarse mesh frit on the kiln shelf making sure none of the pieces touch one another. To use

rods, nip the rods into 1/8” to 1/4” pieces and stand them on end. Fire the kiln to 1420°F (770°C) for 20 to 30 minutes. Let the kiln cool with no venting.

The surface tension causes the liquid glass to pull into almost perfect spheres. Wonderful results can also be obtained by using clear/colored Dual Tone frits.

