



### *Sea Life Forms using Billets and Dichroic Glass*

*This project sheet is really two project sheets in one. It tells how to make beautiful sea forms plus how to cast pieces using billets and "casting rocks".*



Billets and casting rocks are large glass pieces. They result in castings with few or no trapped air bubbles. Yes, billets and other large formats are available in "water clear," but why not experiment with choices like Cork, Light Celadon, Electric Blue, Amber, Rhubarb, and Cilantro.

Always start by giving your mold four to five thin, even coats of

only primer we recommend because it doesn't obscure the mold's fine details and the glass won't stick and ruin the mold. The primer is purchased as a dry powder. Mix the primer powder using one part primer to four parts water. (A kitchen tablespoon measure and a glass jelly jar with lid are great tools for this.)

Use a soft brush to apply the primer and a hair dryer to completely dry each coat before applying the next. (Details and hints are given in our "Tricks of the Trade" project sheet on our website.)

Each mold has a fill weight that appears on the packaging. This is the amount of glass that it takes properly fill the mold. If the packaging has been discarded, the fill weights can be found on Colour de Verre's website.



Below are two sets of instructions. One set is for using billets. The other; casting rocks.

### **Using Billets**

Billets are large, thick, glass tiles that are intended for glass casting. They are about 1" (25 mm) thick and are, more often than not, square or rectangular.

Surprisingly, the same tools used to cut sheet glass are used to cut billets. To cut a billet, first, put on your safety glasses. Use a straight-edge and a glass cutter to score a line. Next, put on a set of heavy work gloves. Cradle the billet, scored side down, in the palm of one hand. Using a standard hammer, start tapping the billet on the surface opposite the score. A crack will develop and the billet will split into two pieces. The pieces might have to be split again to fit into the mold you are using. To get the clearest castings, it is best to use as few billet pieces in the mold as possible.

There are two ways to reach the mold's fill weight. The first is just to mix-and-match billet pieces until their total weight is equal to—or close to—the fill weight. (With these larger molds, it is fine if your fill weight is a bit light or heavy.) Since the highest casting clarity is



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Technical sheet courtesy of Colour de Verre™

### **Tools**

- ✓ Conch, Sea Snail, Seahorse & Shell Dish, Japanese Scallop, and/or Starfish molds.
- ✓ Broad, soft primer brush
- ✓ Hammer, Glass Cutter
- ✓ Balance or digital scale
- ✓ Heavy Gloves, Safety Glasses

### **Supplies**

- ✓ Hotline Primo Primer™
- ✓ Billets or Casting Rocks
- ✓ Clear, dichroic glass sheet (optional)

obtained by using the fewest pieces, it is best to cut a single billet piece that is equal to the fill weight.

Below is the method to calculate where to cut a billet to obtain a piece of a specific weight. This method works with square and rectangular billets:

1. Weigh the billet on a gram scale. We will call the result BW, for billet weight.
2. Measure the billet's length in inches or centimeters. It works either way. We will call this BL for billet length.
3. FW is the mold's fill weight. Again, you will find this on the mold's packaging or on our website.
4. Pull out your calculator and enter the following:  
$$FW / BW \times BL =$$
5. Note the calculator's result and measure this far down the billet and make your score.

6. If the billet does not fit in the mold, cut it into smaller pieces to stack in the mold.

### Using "Casting Rocks"

Casting Rocks are large and small glass chunks. If one is nervous about cutting billets, this is a perfect way to go. Mix-and-match rock pieces until the mold's fill weight is reached.

### Firing

Place the filled molds into the kiln. Make sure to leave room between the molds and kiln walls for the heat to circulate.

Fire the molds according to the following schedule:

#### COE 96\* First Firing

- Seg 1 200°F (110°C)/hour to 1430-1450°F (775-785°C), Hold 60 minutes
  - Seg 2 AFAP (As Fast As Possible) to 960°F (515°C), no venting. Hold 60 minutes.
  - Seg 3 60°F (35°C)/hour to 400°F (200°C)
  - Seg 4 Off, cool kiln, no venting
- \* 25°F (15°C) hotter for COE 90

If you have any spurs or spikes on the edges of your casting, use a grinder or diamond pad to remove them. If you *don't* intend to back the finished casting with dichroic glass, fire polish the pieces in a 1300°F (705°C) kiln if needed. Remove old primer, re-prime mold, place the casting in the mold, and follow the "First Firing" schedule for annealing.

### Backing with Dichroic Glass

You also may wish to back the piece with clear dichroic glass. This produces wonderful castings that look as if they are lit from within.

To add the dichroic glass backing: Place a small piece of dichroic glass – coating side up – on your workbench. Use a marker to trace the bottom edge of the sea form onto the dichroic glass. Turn over the dichroic sheet and use a glass cutter to score the shape.



Remove all the kiln primer from the mold and reapply new Hotline Primo Primer™. Place the casting into mold and top it with the dichroic glass piece.





Re-fire the piece according the schedule:

### COE 96\* Second Firing

- Seg 1 200°F (110°C)/hour to 1410-1430°F (765-775°C), Hold 30 minutes
  - Seg 2 AFAP (As Fast As Possible) to 960°F (515°C), no venting. Hold 60 minutes.
  - Seg 3 60°F (35°C)/hour to 400°F (200°C)
  - Seg 4 Off, cool kiln, no venting
- \* 25°F (15°C) hotter for COE 90



Cast shell dish made using Colour de Verre's Seahorse and Shell Mold, Aquamarine billet, and dichroic glass backing.

### Following Up

Thoroughly clean the mold with a stiff, nylon brush between every firing to remove all the old primer. Avoid breathing any dust by wearing a proper dust mask. If correctly primed and fired, a Colour de Verre mold will yield many castings.