



Frit Casting Basics

Creative Paradise Inc.

This guide will walk you through the basics of frit casting with a particular emphasis on smaller molds such as the "Holey" series. We refer to any mold with a post(s) to create a hole in the finished glass a "Holey" mold.

What is Frit Casting?:

Frit casting is the process of filling a shaped mold with small pieces of glass, known as frit, then firing it so that the frit melts and re-forms to take the shape of the mold. It's a relatively straightforward process with a lot of space for individualization and customization. As long as all the glass used to fill the mold is fusible and compatible, any types, colors, opacities, and sizes can be used.

Frit castings can be simple or complex (in both shape and detail), large or small, and can be used on their own or in conjunction with other glass or fusing techniques for stunning results. The only limitations for frit castings are the mold and your imagination!



Example from LF45 Mini_Disks



Example from LF255 Lg Sea Turtle



Examples of LF251 Faceted Flake



Example from LF140 Fossils

Glass Separator:

It is **crucial** to thoroughly coat **any** mold with suitable glass separator (sometimes called mold release) before adding any glass. Separator prevents glass from sticking to the mold as it fires, which allows the glass to release from the mold after firing. Without enough glass separator the glass can stick to or otherwise damage the mold once it finishes firing.

Kiln Wash and other clay-based separators can work, but we strongly recommend Boron Nitride-based separators like ZYP to prime our molds. If using a different boron nitride separator, please note that we have found that Slide's "Hi Temp" version does not work well with our molds. **We strongly suggest only using ZYP on the LF58 Holely Peace and the LF77 Holely Peace Trio molds.**

Though ZYP does now come in a brushable liquid form, we still prefer the spray-on version. To apply spray-on separator, shake the can well before use and be sure to wear a mask or other respiratory protection. Hold the can upright during application to ensure proper distribution. Several light coats with a short wait between each is preferable to a single heavy coat. Turn the mold as you spray to coat the mold cavity at all angles, paying close attention to the post(s).

If you have a mold that has a clay-based separator already on it you can change easily to ZYP. Since ZYP isn't water soluble, brush off any excess old primer then apply the ZYP directly on top. You will need to re-coat with ZYP before any subsequent firings.

Going from ZYP to a clay-based separator is more difficult, as the ZYP will resist it and not adhere to the mold. To make this transition you must first completely remove the ZYP. You can remove ZYP with a sanding cloth or rubbing alcohol (though take care not to saturate the mold and to give it plenty of time to dry).



Image 1: Applying spray-on ZYP to LF121 Lily Pad.

Image 2:



Image 2: Filled using only fine grain frit. Note the many small bubbles and foggy appearance.

Fill Weights and Filling:

Any kinds of fusible compatible glass can be used as long as the pieces are small enough and care is taken during filling to avoid removing any separator from the mold. When using frit, note that while smaller grain sizes are great for details, they tend to create many small bubbles that lead to reduced clarity in the final piece (Image 2). Larger grain sizes produce better clarity (Image 3) though aren't quite as good for details. For detailed pieces that still come out clear, we suggest using smaller grain sizes for details then filling the rest of the mold with medium or larger grains, or even nipped sheet glass.

As you fill it's important to keep in mind which side of the mold will be facing the viewer after firing. For most **untextured** molds, the frit facing **upwards** in the mold will face the viewer, as in the [LF62 Holey Heart](#) used for **Images 2-5** on this page. However for most **textured** molds like the [LF111 Dragonfly](#), the frit facing **downwards** in the mold will face the end viewer.

When firing, if firing to a full fuse, molds must be filled with glass equivalent to two standard layers (6mm) uniformly across the mold. This weight is the **fill weight**. Too little glass and it will shrink during firing and not fill the mold cavity. Too much and it may not fuse completely or it may overflow the mold.

Do note there is flexibility! For thicker castings you can add more frit, while for lighter, thinner castings you can use less.

Using a tack fire schedule is recommended for lighter castings. There is no recommended fill weight for a tack fire, but we suggest filling the mold uniformly at least 1/4" full of glass. Tack fired pieces make great jewelry as they weigh considerably less than thicker full fused pieces.

Image 3:



Image 3: Filled using only medium grain frit. Still bubbles, but much clearer overall.

Finishing and Firing:

Once the mold is filled, use a small brush to sweep the frit away from the mold edges and post (if present) and mound it towards the center (Images 4 & 5). This allows the frit to melt and roll down the edges of the mold, preventing burrs on the final piece.

For firing, the most important part of any schedule is the kiln. Many kilns fire differently, so it's vital to know yours. If you have a suitable schedule you've used many times with your kiln use that! Our suggested schedules are always just that- suggested. Adjust and edit them as needed to suit your kiln.

Occasionally castings can come out a bit dull, especially if their front side was against the mold during firing. Placing them dull side up on a treated kiln shelf or sheet of kiln shelf paper and fire polishing them can bring back a bit of shine. Do note that for textured castings this can also make them lose detail, so if choosing to fire polish a textured casting, take care.

We've included basic full fuse and fire polish schedules in **Tables 1 and 2** below, with a note on how to adjust **Table 1** to a basic tack fire as well.

Table 1: Basic Full Fuse

Seg.	Rate	Temp (°F)	Hold
1	300	1150	45
2	150	1300	20
3	400	1460*	10
4	9999	950**	60

* For a basic tack fire, adjust this to 1410°F

Table 2: Basic Fire Polish

Seg.	Rate	Temp (°F)	Hold
1	400	1000	20
2	9999	1300	05*
3	9999	950**	60

* Do not hold at this temp for too long, as castings may lose detail.

** If using COE90, adjust these temps to 900°F

Image 4:



Image 4: Before brushing frit away from edges and post

Image 5:



Image 5: After brushing frit away from edges and post

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Image 6:



Additional Notes for Holey Molds:

- Take extra care when preparing the mold with separator, being sure to cover every angle, particularly around the post(s).
- Be sure to give any separator ample time to dry before adding any glass to the mold.
- Be sure the top(s) of the post(s) are clear of any glass before firing. After firing, wait until both mold and glass are completely cool, then invert over a soft surface such as a towel. If the glass doesn't fall, give it a gentle thump on the back
- Never try to pry the glass lose from the mold, as this may cause the post(s) to snap off.



Stringing Concentric Pendants:

Molds of suitable size and shape such as the [LF138](#) and [LF139](#) Geometric Hoops (shown in all images on this page) can be strung together into concentric pendants. Refer to the steps below for the basic steps to string these "pendants within pendants."

You will need one small pendant, one large pendant, a length of cord or string, one small spacing bead, and one larger finishing bead.

Step 1:



Thread the cord through the small pendant, then thread both ends through the small spacer bead. Slide the bead down to the top of the pendant.

Step 2:



Slip the larger pendant between both ends of the cord and slide it down to rest on top of the bead.

Step 3:



For optional extra security, tie a small knot in the cord just above the larger pendant.

Step 4:



Thread the large bead onto both ends of the cord and down to the large pendant. If you tied a knot, a large enough bead can be used to hide it.

Image 7:



To string a single pendant, simply follow **Step 1**. Or, for additional security, tie a knot first and hide it with the bead as in **Steps 3-4**.

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Example Project – Dotted Teardrop Pendant:

Image 8:

Materials:

- LF57 Holy Tear
- COE96 Glass (See Right)
- Suitable Glass Separator
- Frit Placement Tools
- Mosaic Nippers

Suggested Glass:

- F3 Medium Frits:
 - Hydrangea Opal
 - Turquoise Blue Opal
- White Rods

Begin by preparing the mold with suitable separator. As discussed on **Page 1**, we recommend spray-on ZYP. If using an aerosol separator, be sure to wear a mask during application. For any separator, make sure it is completely dry before adding any glass.

To precisely follow the recommended fill weight (22g for the LF57), place the mold atop a scale on a flat surface (**Image 9**). The mold can then be filled on or off the scale as desired:

- To fill **on the scale**, zero the scale before adding any glass. Once the readout on the scale equals the desired fill weight, the mold is full (**Image 13**).
- To fill **off the scale**, make a note of the mold weight and then remove it from the scale and add glass until its total weight equals the mold weight plus the desired fill weight.

Start adding glass by filling one half of the mold with F3 Hydrangea Opal and the other half with F3 Turquoise Blue Opal. Remember that for this particular mold the glass facing upwards in the mold will be the glass facing the viewer of the final pendant.

Stand a White Rod upright on a flat surface and use mosaic nippers to nip off thin disks from the end (**Image 10**). These nipped pieces work great to create dots or spots for any project (**Image 11**). Place them as desired into the frit in the mold (**Image 12**).

Once the mold is full (**Image 13**), transfer it to a level shelf in the kiln and fire using the suggested schedule in **Table 1** (identical to **Table 1** on **Page 2**) or your own preferred full fuse schedule.

Image 9:



Image 10:



Image 11:



Image 12:



Image 13:



LF57 Holy Tear Drop

Mold: 3.5" L x 3" W
Cavity: 2.75" L x 2" W
Fill Weight: 22 grams

Image 14:

Remember this is just one way to fill the mold! As long as all your glass is fusible and compatible you can use any colors, shapes, and/or opacities.

Table 1: Full Fuse *

Seg.	Rate	Temp (°F)	Hold
1	300	1150	45
2	150	1300	20
3	400	1460	10
4	9999	950**	60

** If using COE90, adjust this to 900°F

*Before firing, it's important to know your kiln to see if you need to adjust our suggested schedules for your use. For tips on that, [for](#)