Fused and Draped Butter Dish Set

Fusible Glass and Food Safety:

Creative Paradise Inc.

Since a butter dish will typically come into contact with food of some kind (most likely butter), we feel it's wise to begin this tutorial by first talking about the relative food safety of most fusible glass.

Colored fusible glass gets its coloring primarily through the addition of specific chemical compounds. Some of these compounds, while safe to touch, fuse, and otherwise interact with externally, are not safe for consumption. Whenever a glass piece comes in contact with food, especially if that food is hot or liquid, those compounds could possibly leech out and into the food. This is why the majority of glass manufacturers generally recommend that you cap any fused glass projects you intend to have come in contact with food with a layer of clear, as clear glass does not contain these compounds.

Since the fusing process does alter the glass from the initial manufacturer's state, if you intend to sell or otherwise distribute your pieces it becomes your responsibility to determine how food safe they are. A local chemistry lab should be able to test your pieces for you. The primary compounds of concern are Lead and Cadmium.

For more information we recommend Bullseye's Food Safety Document, which you can find by clicking here.

For this two-part butter dish, the domed top is less of a concern as it will typically not interact much with what's stored under it. **For the frit cast base, however, we do recommend beginning your frit cast with at least a full layer of Clear frit if you're planning on making a functional dish**. The piece made in this tutorial is for display only, so it lacks this clear layer.

Creating the Domed Lid:

Materials:
- GM148 Butter Dish Top
- COE96 Glass (See Right)
- Suitable Glass Separator (Spray-On ZYP recommended)
- Glass Cutting Supplies
- Kiln Shelf Paper
- 1/8" Thick Fiber Paper

Glass Colors:
- Sheet Glass:
  - Pale Purple
  - Pale Blue
  - Sea Green
  - Clear

While any fusible compatible sheet glass will work for this project, we recommend using transparent colors for the center pieces that form the lid's top, as it makes aligning the two patterns required much easier.

It is also important to note that the pieces found in **Pattern 1** on **Page 3** must be used as the Base Layer and those found in **Pattern 2** on **Page 3** must be used as the top layer. The seam lines formed by the pieces in **Pattern 2** need to be facing away from the mold during draping as they can cause stress cracks if fired directly against the mold.

Featured Molds:

GM148 Butter Dish Top

LF118 Butter Dish Base

Fusing the Lid:

Begin by preparing the mold thoroughly with glass separator. We recommend spray-on ZYP. **If using a spray-on separator, make sure to wear a mask while applying.**

Set the mold aside and allow the separator to dry while you cut the glass pieces for the patterns. Start by cutting the pieces labeled in **Pattern 1** on **Page 3** and arrange them on a suitably sized sheet of Kiln Shelf Paper as indicated in **Diagram 1** below (**Image 1**). When printing the Patterns, make sure to print at "Actual Size" or 100%.

Cut out the pieces labeled in **Pattern 2** on **Page 3** and arrange them as indicated in both **Diagram 2** below and **Image 2** to the right on top of the Base Layer on the Kiln Shelf Paper. **Diagram 3** below shows what the two Pattern layers should look like when assembled.

If you'd like to add a handle to your lid, cut a 1/2" x 2.75" strip of Clear glass and top it with 1/2" wide pieces of other colors from your base layer as shown in **Image 3**. Place it on the Kiln Shelf Paper with the rest of the lid, though far enough away that the two will not touch during firing.

Carefully move the Kiln Shelf Paper with the glass to a level shelf in the kiln and fire using the suggested schedule in **Table 1** below or your own preferred Full Fuse. This can be fired at the same time as the frit-filled mold for the base, so if you'd like to fire them together, skip to **Page 5** to fill your base mold, then proceed with firing.

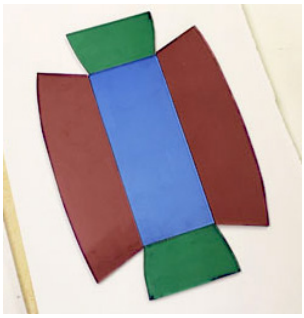


Image 1: The cut pieces of Pattern 1 arranged on Kiln Shelf Paper.

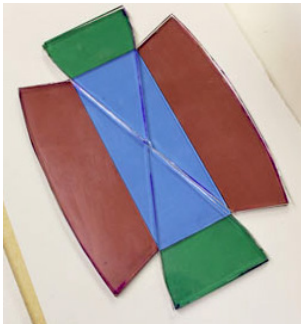


Image 2: The cut pieces of Pattern 1 and Pattern 2 stacked together.

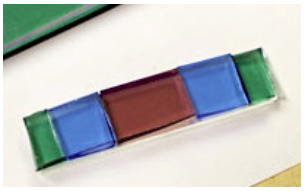


Image 3: Small strips of color for the handle.

Table 1: Full Fuse*

Seg.	Rate	Temp (°F)	Hold
1	275	1000	10
2	275	1225	30
3	275	1300	10
4	275	1465	05
5	9999	950**	60
6	100	800	01

*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 how to do that, click here to see our Important Firing Notes!

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

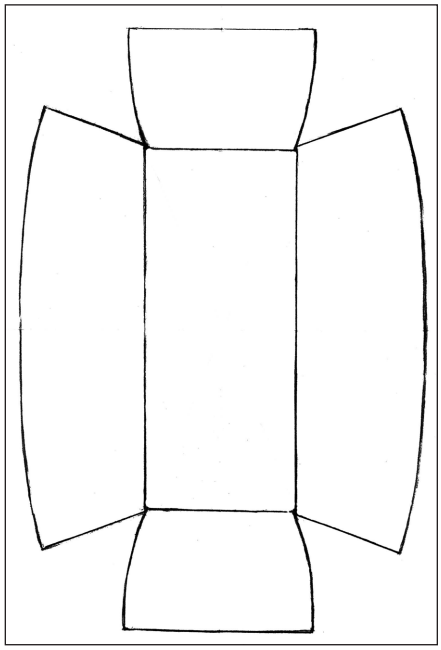


Diagram 1
Pattern 1 Arrangement

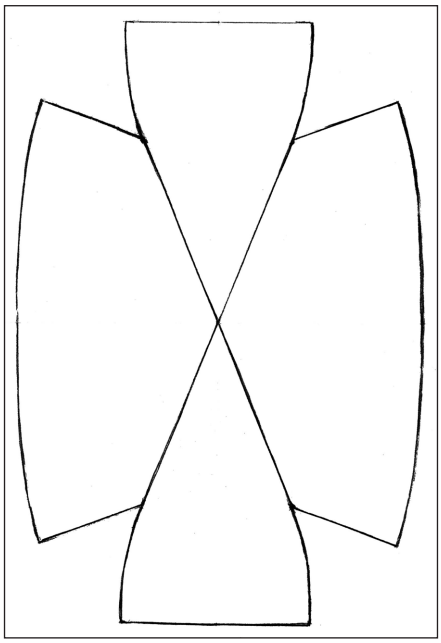


Diagram 2
Pattern 2 Arrangement

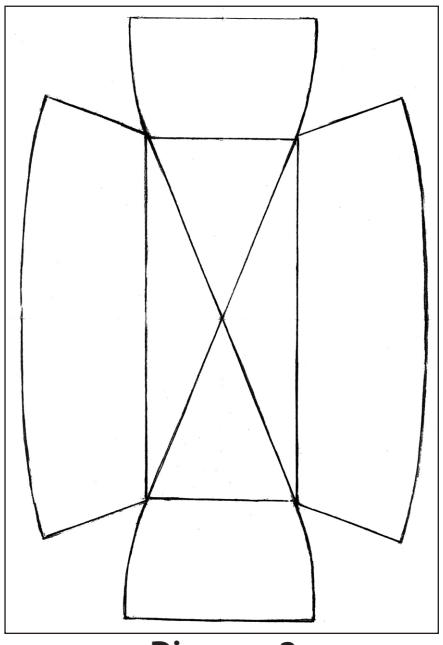
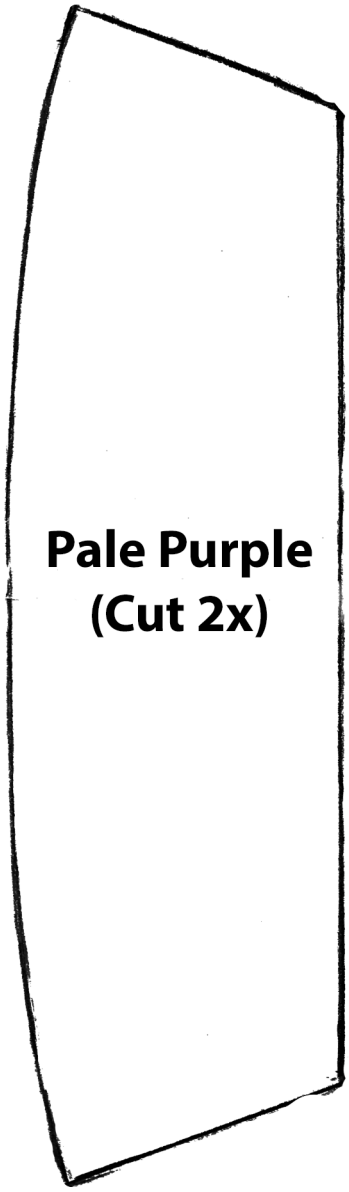
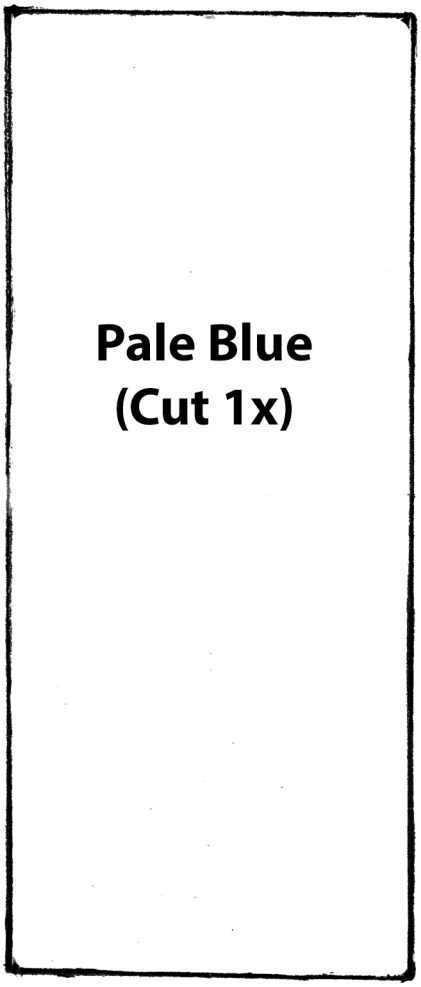


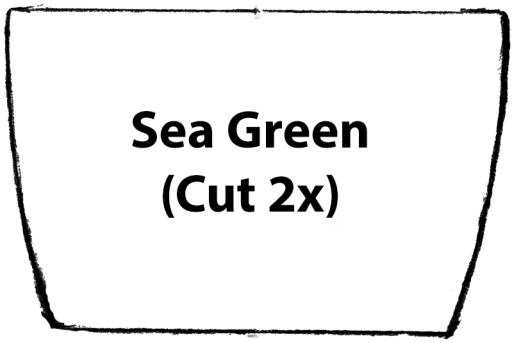
Diagram 2
Pattern 1 and Pattern 2 Layered

*Diagrams at roughly 37.5% size

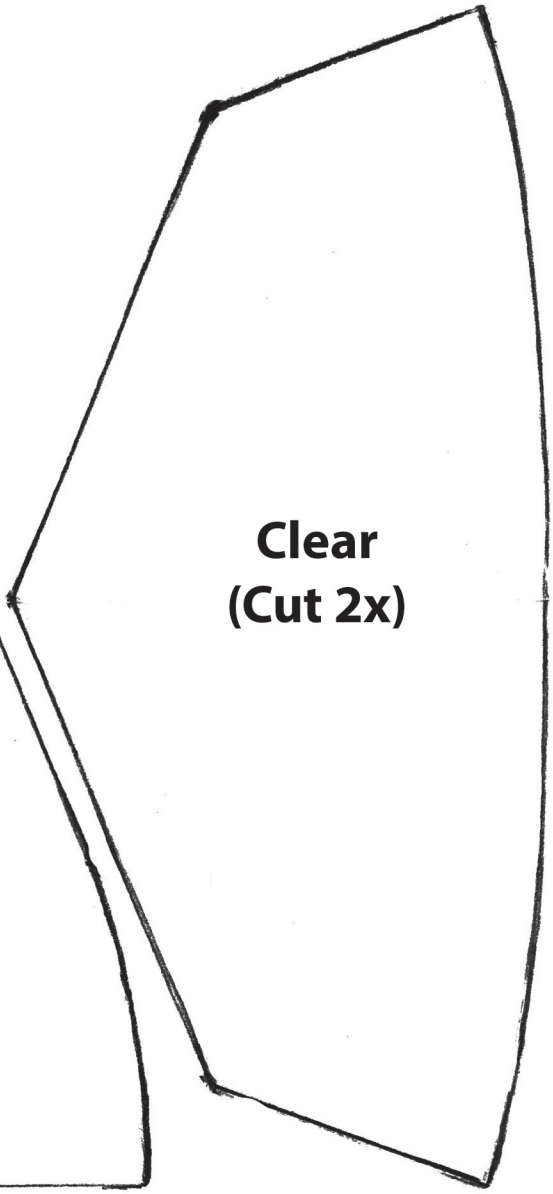
Butter Dish Top Patterns:

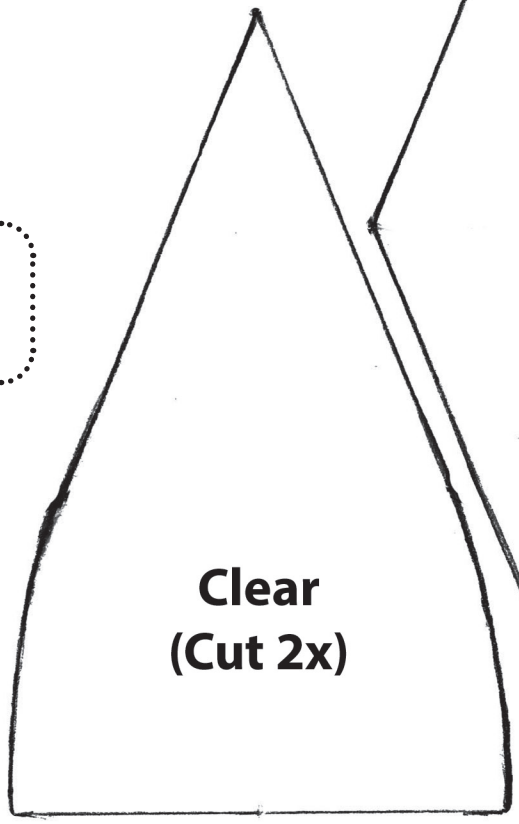






Pattern 1
(Purple, Blue, Green)





Pattern 2
(Clear)

When printing, make sure to print "Actual Size"/100%

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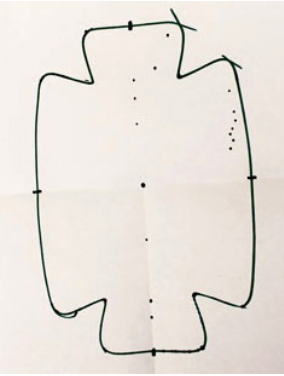

Image 4: The traced and marked shape of the glass.

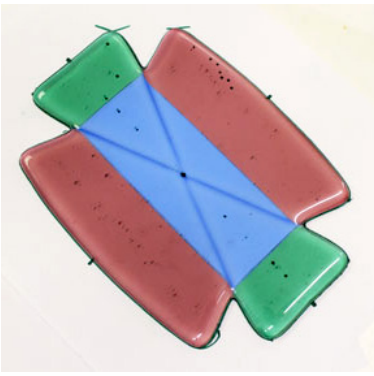

Image 5: The fused glass atop the marked outline.

Cutting each pattern piece perfectly symmetrically can be difficult, so your fused blank may be slightly asymmetrical. To find the center of your blank after fusing, place it onto a piece of paper and trace around the outer edge of the glass. Draw any distinguishing marks found on the glass (such as bubbles) directly where they would be on the tracing. This will help you reposition the glass on the tracing later.

Fold the paper with the tracing in half vertically and horizontally so that the long and short edges of your traced lid shape match up. While folding, you can hold the paper in front of a lit window or lightbox to make sure the lines match. Make a mark on the paper where each folded line intersects your traced outline to find the halfway point of each side, and another mark where the two folded lines intersect each other to find the center (**Image 4**). Place the glass back onto the traced outline, using your previous marks to align it properly, and make corresponding halfway and center marks directly onto the glass with Sharpie or other suitable marker (**Image 5**).

Draping the Lid:

Once the separator on the mold is dry, use a pencil to make three light marks over the center indicators at either end of the mold as well as the center indicator in the very center (**Image 6**). This will help you align the glass properly for draping, as the carved indicators can be difficult to see through the glass. Pencil also erases from ceramic quite easily, so if you make a mistake simply erase, reapply separator, and retry!

Image 6: Primed mold with pencil marks

Place the fused glass blank onto the primed and marked mold with the rounded side facing up. Align the center marks on the mold with the center marks previously made on the blank (**Image 7**). Carefully move the mold with the glass onto a level shelf in the kiln.

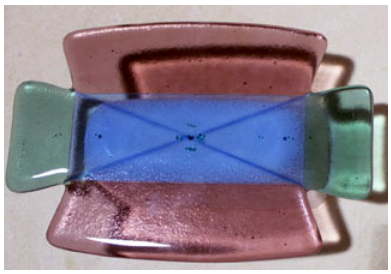

Image 7: Marked blank on mold

To add the handle, cut three pieces of 1/8" Thick Fiber Paper into 1/2" x 1", 1/2" x 3/4", and 1/2" x 1/2" strips. Stack the Fiber Paper onto the center mark of the glass beginning with the smallest piece, then the middle-sized piece, and ending with the largest piece to create an inverted staircase shape (**Image 8**). Fiber Paper will leave a mark on the glass when fired, which is why the smallest piece is on the bottom. Carefully balance the previously fired 1/2" x 2.75" handle blank atop the stack (**Image 9**).

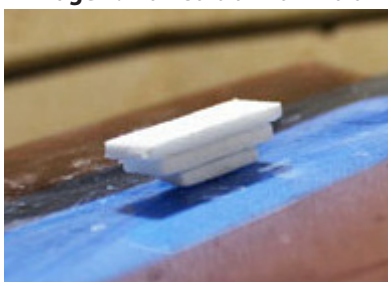

Image 8: Stacked Fiber Paper for draping handle

Once everything is aligned and balanced, Drape using the suggested schedule in **Table 2** or your own preferred Draping schedule.

Table 2: Drape*

Seg.	Rate	Temp (°F)	Hold
1	220	1000	20
2	200	1150	15
3	200	1250	15
4	9999	950**	90
5	825	825	05
6	100	500	05

*Before firing, it's important to know your kiln. For tips on how to do that, click here to see our Important Firing Notes!

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

Image 9: Glass with handle ready to drape in kiln

Frit Casting the Base:

Materials:
- LF118 Butter Dish Base
- COE96 Glass (See Right)
- Suitable Glass Separator (Spray-On ZYP recommended)
- Frit Placement Tools

*When picking your own colors, a good tip is to use opaque colors that relate to the transparent colors of your lid.

Glass:*
- F2 Fine Frits:
  - Lilac Opal
  - Cobalt Transparent
- F3 Medium Frits:
  - Pastel Green Opal
  - Pale Purple Transparent
  - Hydrangea Opal
  - Clear

Begin by preparing the mold thoroughly with glass separator in the same manner as the GM148 as detailed on **Page 2**. If using fill weights, place the mold on a scale and note its empty weight (**Image 10**).

Image 10: Empty primed mold atop scale.

As long as your glass is all fusible and compatible, any type can be used to fill the base, from sheet glass to stringers. However, as mentioned previously, if making a functional butter dish we strongly recommend beginning with a full layer of Clear for food safety purposes. The example here is simply for display, and therefore doesn't start with such a layer.

Once your separator is dry you can begin adding glass. If using fill weights, doing this on a scale can be helpful. For this display-only example, about 28 grams (1 oz) each of F2 Lilac Opal and F2 Cobalt Transparent were placed randomly in a layer on the bottom of the mold. Next, about 57 grams (2 oz) each of F3 Pale Purple Transparent and F3 Hydrangea Opal were scattered in a layer on top of the previously placed F2 frits. This layer was then backed by a full layer of F3 Pastel Green, or about 227 grams (8 oz), covering the entire bottom of the mold. The colored frit was then backed with F3 Clear until full, or around 510 grams (18 oz) (**Image 11**).

Image 11: Frit-filled mold atop scale.

Once filled, transfer the mold onto short kiln posts on a level shelf in the kiln to help with airflow. Angle the posts so that the majority of each post remains outside the mold to avoid uneven heating (**Image 12**). Fire using the suggested schedule in **Table 1** on **Page 2** or your own preferred Full Fuse. The base and the initial glass for the lid can be fused in the same kiln load.

Image 12: Filled mold on kiln posts in the kiln

Allow the kiln to cool naturally and demold the glass. If you have any residual separator sticking to the glass, you can remove it by gently scrubbing with a stiff-bristled (not wire) brush and some warm water. Once cleaned, display and enjoy!