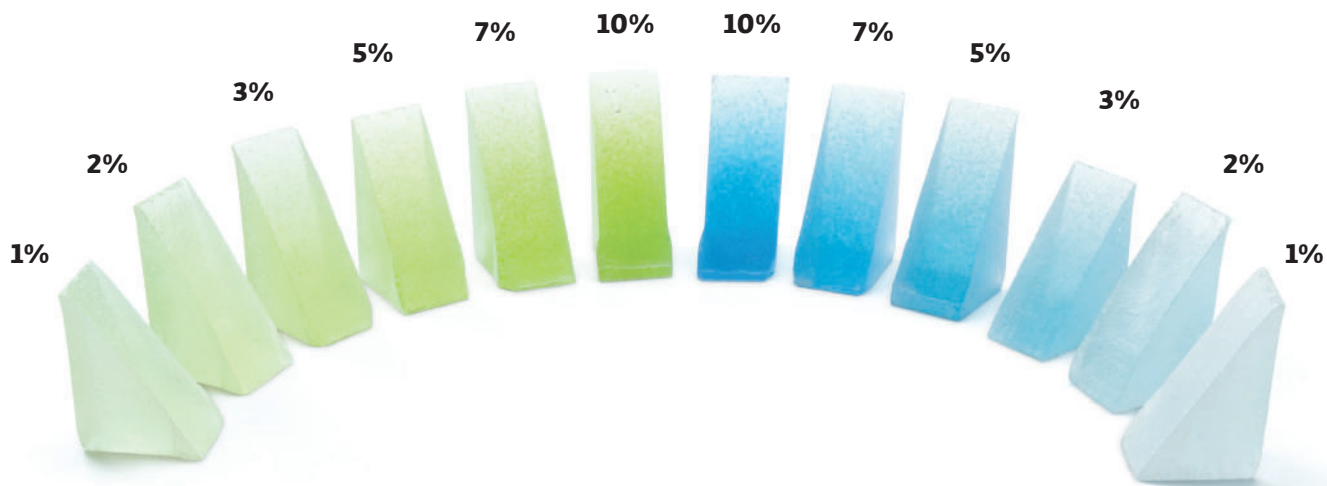


# ⊕ Frit Tinting



Kiln-cast samples of tinted frit

Frit tinting is a method that allows one to create specific color blends for kilncasting and pâte de verre. The process involves “tinting” or coloring clear glass by adhering colored powder (-0008) to larger-grained Clear frit (001101-0001, -0002, -0003) and then firing the mixture in a mold. By conducting careful tests with this method, you can learn to manipulate color saturation and translucence in frit-cast pieces with predictable results.

Both opalescent and transparent colored powders can be used for this process, and colored powders can be mixed to further extend one’s palette. A surprisingly small amount of Bullseye powder will add substantial color to clear frit.

The image above shows the saturation resulting from various ratios of powder to frit. Note that the samples were cast as wedges, which allow the color to be viewed at different thicknesses. All of the samples were made with Clear medium frit (001101-0002). One series was mixed with Spring Green powder (001426-0008) and the other with Turquoise Blue (001116-0008). The percentage of colored powder to clear frit is indicated.

## CHOOSING THE FRIT

Choose the percentage of colored powder (-0008) you want.

It may be useful to make your own set of sample wedges to help accurately predict results. Next, select the grain size of Clear base frit to accomplish the look you desire. Note: the grain size will have a significant visual impact on the finished casting.

**-0001 (fine)** will tend to trap many small bubbles during the firing process. This will give the finished casting an opalescent appearance, even when Crystal Clear (001401-0001) is used.

**-0002 (medium)** will trap larger and slightly fewer bubbles than are trapped when using -0001. The result will be a homogenous blend with good light transmission.

**-0003 (coarse)** will create fewer but larger bubbles than the mixes made with -0001 and -0002, and the final casting will appear to be less blended. Each grain of -0003 will seem to retain its shape and be “coated” in color.

## WEIGHING THE FRIT

Once the weight of the glass needed to fill the mold has been determined\* the proportionate weights of frit and powder must be calculated, based on the percentage of color desired. For example, if the mold requires a total of 500 grams of glass, and the color is to be a 3% tint of Spring Green powder (001426-0008) with Clear frit (001101-0002):

Calculate that 3% of 500 grams is 15 grams ( $500 \times 0.03$ ).

Therefore, filling the mold will take:

**15 grams of Spring Green (001426-0008) powder, plus 485 grams of Clear frit (001101-0002), for a total of 500 grams.**

Weigh out the amounts of powder and frit needed in separate containers. The Clear container should have a lid and be large enough to allow for thorough mixing.

## MIXING THE FRIT

Using a spray bottle filled with water, lightly mist the Clear frit. Close the lid and shake vigorously to coat every piece of glass with water. Next, sprinkle the colored powder evenly over the top of the wet frit. Shake vigorously until each piece of frit is covered with powder. Even a small percentage of powder should be mixed with the base frit evenly.

Load the mold with the damp frit mixture and fire promptly. If the mixture is left to sit for an extended period of time, the powder can separate from the base frit. For this reason, it is best not to make more of the mixture than is needed for any one firing.

## SURFACES

You can achieve a wide array of surfaces when using frit as the casting medium. Fired to a low temperature, frits can be simply sintered together (made coherent, not melted) to produce a crusty/grainy surface. When fired hotter, the cast surface will become more glossy and smooth. After firing, surfaces can be altered further by employing the same coldworking methods applied to other types of kilnformed glass.

\*To calculate how much glass will fill a mold, see page 5 of [TipSheet 5: Bullseye Box Casting](#) at [bullseyeglass.com](http://bullseyeglass.com).

### Tools and supplies you will need:

- Frit
- Powder
- A spray bottle filled with water
- A mold (appropriate for kilncasting)
- A gram scale
- Containers for weighing and mixing the powder and frit.



Susan Longini, *Pieced Quilt Triptych*, 2005. Pâte de verre, 36" x 11" x 2" (91 x 28 x 5 cm) installed. Photo: Keay Edwards.

Longini fired her tinted components to a low temperature, retaining a delicate, granular appearance.



Steven Easton, *Snow Queen's Realm II* (detail), 2005. Pâte de verre, 5" x 36" x 84" (13 x 91 x 213 cm) installed. Photo: Mark Johnston.

Easton fired his tinted components to a higher temperature, then coldworked them, giving them translucency and a lustrous surface.