

## Glass Colors

(Used on Float Glass or 90 and 96 COE)

### What are Glass Colors:

**Colors for Earth** is proud to introduce our "Fired Glass Color" line. 27 of the colors are lead-free (non-toxic) and we have 2 colors that have a health warning. These colors are vibrant just like our translucent underglaze color line. The names and numbers of the glass line coordinate with our current product line so that you can easily create your glass projects to match your ceramic ones.

They are in a powder formula that is mixed with our GM300 Glass Color Medium. By mixing with medium it will insure an opaque glossy finish. The 27 colors are non-toxic/food safe. Do not use the 2 colors that have a health warning on any surface that will be in touch with food or drink.

The colors can be used on most types of glass including COE 90 and COE 96 as well as float (window) glass. They also can be used as an overglaze on glazed ceramic pieces. We have a Black Outline and White Outline which will allow you to create different looks.

When the colors are thinned they can be brushed, sponged, sprayed or applied with a pen or gizmo. The dry colors can also be sifted over the glass for different techniques. Firing is cone 015-016 or from 1500° to 1525° in a ceramic or a glass kiln. Our glass colors hold their color to a much higher temperature when used on ceramic or porcelain bisque.



This project features our NON-TOXIC Red and Orange as well as a mixed color by combining two powders together.

### Instructions for using Glass Colors:

- Cleaning Glass:** Clean both sides of the glass by scrubbing with powdered cleanser such as Comet. Rinse well. You will need to determine the correct side of the glass to paint on by watching the way the water comes off the glass. One side will sheet off and the other tends to bead up and fall off. You want to paint on the side that sheets off. When correct side is determined, dry with lint free paper towel keeping the correct side up. After cleaning, handle glass by the edges only, or use paper towel as your fingerprints will show after firing.
- Place glass over pattern. Any line art can be used as a pattern, wall paper, fabric, even a page from a coloring book.
- Tracing Pattern:** Place Black or White Outline in squeeze bottle with fine tip or in Gizmo. Practice outlining on a scrap glass or tile to get the hang of it and a consistent flow of product. When ready, outline pattern. Keep tip clean from drips or build-up of color by wiping it off on a damp sponge or paper towel. When bottle is not in use you can leave it tip down in a damp sponge for a short amount of time, or clean tip with plunger and place cap on bottle to keep it from drying out. You can also add your signature with the outline color.
- Using a palette knife place a small amount of color on tile or in paint well.
- Mixing Colors:** Add a few drops of GM300 Glass Color Medium. Mix with either palette knife or brush, continue to add a drop or two and mix until you have the thickness of cream. The mixed colors should be thin enough to flatten out when applied to the glass. If the color is too thick and your brush marks don't smooth out, add a drop of water to thin. If the colors are too thin they will tend to run when you are applying them to the glass. You can add a bit more powder to thicken. Remember to mix only what you will use at that time and discard any that is left.
- Applying Color:** Using a soft (Taklon) liner brush, load brush fully and drip, puddle, etc. in the center of the outlined area and push the color to the outline using the tip of the brush. Try not to go over your outlining. You can raise the glass up and look at it to see if you have an even coverage and touching the outline. You can also use a light table/board to work on which will show you if the colors are solid and filled in and touching your outline.
- Intermixing Colors:** All non-toxic colors can be intermixed to achieve additional shades of colors. And colors with health warning can be mixed for different shades also.



8. **Two Color Blending:** If you want 2 colors on an area to show shading, you flow on the first color where the shading would be an area, and then add the second color where the highlight would be while the first color is still wet so that the 2 colors meet. Then, with the tip of the brush while the colors are wet, "squiggle" or "pat" the colors together to create shading or highlights on the area.



Other advanced shading techniques can be found in our "Class in a Bags".

9. Allow design to dry. 1-2 hours.
10. **Firing:** Glass can be placed on a kiln washed shelf or in a prepared glass sagger of choice with the painted side up. Glass should be the same diameter as the sagger or a little smaller, but never larger than the sagger.
11. **Kiln Setter Kiln:** In a ceramic kiln with a kiln setter, fire to witness cone 015 or 1525 degrees. Leave peep holes closed during firing. Vent lid a quarter inch during the entire firing and cooling cycle. The colors will mature at a cone 016 but in most kilns an 015 will give a much better surface. The G310 Vermillion and G318 Pumpkin require an 015 firing to develop the color. You may need to test your kiln to see which cone gives you the better surface.
12. **Electronic Kilns:** Usually offer two options for firing. You can program them to fire to a specific cone at a medium speed or you can override this and use the ramp feature. If you find programming for cone firing does not work on your kiln, use the ramp mode. (Check your manual for complete details on how to use this feature.) This will allow you to program to a certain temperature and "ramp" the rate up by so many degrees per hour. I would suggest that when firing single layer glass, you use 400-500° increase per hour to maturity with no hold (soak) time at the end of the firing cycle.

We suggest the following schedule when fusing two or more layers of float glass or when firing a fused piece for the second time. This is a very slow schedule and will enable gasses to escape to prevent bubbles, also it will prevent cracking in a second firing.

- Firing segment #1 300F per hour hold at 500F for 10 minutes  
 #2 300F per hour hold at 900F for 10 minutes  
 #3 400F per hour to 1480°  
 #4 Cool and hold at 900F for 5 minutes  
 #5 Cool at 250° per hour and hold again at 800° for 5 minutes  
 #6 Off



The above is offered as a suggestion, a starting point, and you will need to adjust for your kiln. Float glass will mature at 1450° in some kilns and need as much as 1550° in other kilns. Glass Colors have a wide firing range, 1400° to 1800°. The upper end of this range is much hotter than glass can withstand, it will melt into a puddle!

The above is offered as a suggestion, a starting point, and you will need to adjust for your kiln. Float glass will mature at 1450° in some kilns and need as much as 1550° in other kilns.

Glass Colors have a wide firing range, 1400° to 1800°. The upper end of this range is much hotter than glass can withstand, it will melt into a puddle!

We fire in a ceramic kiln equipped with a kiln setter, using an 015 setter cone. Prop the lid of the kiln open 1/2 inch and turn all switches to low for 30 minutes. At the end of the 30 minutes, turn all switches to medium for another 45 minutes. At the end of this time, remove the prop and turn all switches to high. When firing is finished, allow kiln to cool naturally until the ware is cold.

\*As you know firing temperature is governed by a combination of time and temperature and all kilns are different. Always use witness cones (shelf cones) to determine the actual temperature. Firing any material, especially glass, is an art. Age of the kiln and placement in kiln will affect the results. Top shelf is usually hotter than lower shelves. If you are new to firing glass, we suggest that you experiment with undecorated glass and the sagger you intend to use before firing a decorated piece.

**Do not remove glass until it is completely cool.**

13. **Outlining with Gold:** Liquid Bright Gold can be substituted for the Black or White outliners.
- Fill the Gold Pen with a drop of liquid gold and complete pattern outlines.
  - Clean pen with Lacquer Thinner or Essence.
  - Allow outlines to dry before filling in the colors. Decorate in same manner as described above.
  - Firing is the same as usual.
  - What to do if colors have overlapped on to the gold and discolor. Leave piece in sagger, do not remove after 1st firing. Re-apply gold and fire to witness cone 018 for a gold firing or manufactures recommended cone.

14. **Sifting Technique:** Select several different leaves from your yard or garden. Silk leaves can be used also and work just as well as the "real" ones! Ferns, chrysanthemum leaves or weeds with interesting shapes make great patterns.

Squeeze on a few drops of the Painting Oil or cooking oil onto the glass and rub over the glass surface using your fingers. You should try for a light even coat, not too heavy.

Position your leaves in a pleasing pattern. Press down so they lay as flat as possible and contact the oiled surface. You can change your pattern as many times as you wish until you are happy with the design. If the oil is not even after you change your pattern, just rub it again with the fingers.

Now select three or four powdered colors and the fun begins.

Use a tea strainer and with a palette knife, add the powder to strainer that you think you will need to lightly cover the area you want to cover. Start with the lightest color and build up to the darkest. Hold the strainer over the glass where you want this color and gently stir the powder in the strainer with the palette knife or a brush. You can also tap on the strainer to release the powder.

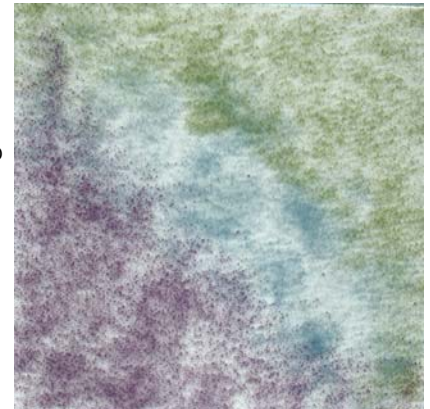
Select your next darkest color and repeat above, allowing the two colors to overlap. Finish with your darkest color. You will not need solid coverage for your leaves to show. One color can be dusted over another to allow your colors to blend. If you do not have the complete glass covered with leaves, just taper the color to nothing on the blank areas of the glass.

Carefully remove all your leaves. You can use a needle tool to lift a leaf edge. Try not to smear your design as you progress.

Place the glass, color side up, on a sagger of your choice.

Fire is the same as above. Do not open kiln until it is completely cool to the touch.

15. **Sparkle Colors:** There are 3 colors of sparkle, GS-501 White Sparkle, GS-502 Copper Sparkle and GS-503 Gold Sparkle. These color can be used alone or added to any other glass color. When added to other colors they are food safe. When used alone and mixed with glass medium they are a rough surface and not recommended for food surfaces. Refer to web site for techniques.



3 Colors Sprinkled over glass.

Project below features our Red and Orange colors that have a health warning.

