

# Fuse Master EASY FIRE HIGH TEMPERATURE ENAMELS

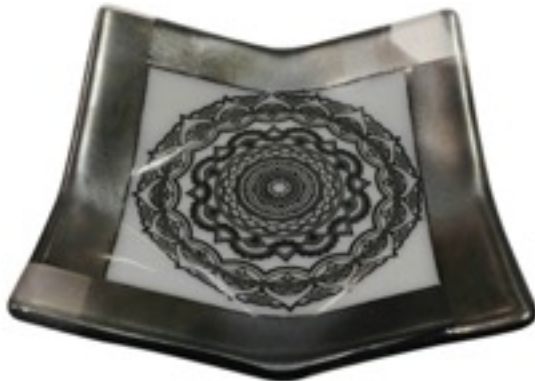
Facts

Tips

Tricks

## A GUIDE TO FUSEMASTER E-Z FIRE ENAMELS

*Artwork by Tanya Veit*



First, what are enamels? Enamels are used for surface decoration on glass & metals. They can be painted, sifted, airbrushed, silk screened and even used as water colors. Enamels are typically formed of metal oxides and fluxes. Simply put, fluxes are the agents used to bond the enamels to the glass and the metal oxides provide the coloring. The advantage of using enamels for decoration is the strong color density and when mixed with a medium, the ability to paint on glass effortlessly. E-Z fire enamels are lead-free and are compatible with Bullseye, 90 COE, 96 COE and float glass. The following are my results from testing including tips and tricks. I am sharing them with you however, I am still discovering as well. Enjoy. ,

- Tanya Veit

# WHICH DO I CHOOSE?

There are a lot of enamel brands on the market. It can be confusing on which to choose. Being the owner of a glass distribution company as well, I struggle with which enamels to bring into our inventory. I want our customers and students to be successful. I have used most manufacturers in many different applications. I have found there are positives and negatives with almost every brand. As a glass artist, I have absolutely found my favorite, the E-Z fire enamels. To date, I have had zero problems firing the reds, oranges, yellows etc. The hot colors have always given me trouble in some way or another with every brand. If any of you have used enamels, you know the frustration I am referring to. I found when we would contact the manufacturers for help we would receive the usual answers:

- 1.) Vent your kiln to 1000 degrees to allow color to mature through oxygen
- 2.) Make sure your kiln has not been contaminated by firing other metals
- 3.) Pre-fire your enamels to 1100 and then fire them again

Although we tell our customers the same, I always pray for each one that their hot colors turn out and we do not hear from them again! Unfortunately, more often than not, we are answering more and more e-mails helping our customers trouble shooting through firing problems with certain colors. So, I started testing many lines. If they were not tried and true with all colors in most kiln environments, we decided not to carry the line. So, this left us with nothing. I heard about the new E-Z fire enamels from a fellow glass artist and instructor, Paul Messink. Paul has been to AAE many times to teach so I decided to sit in on his class when he told me he would be using the new E-Z fire enamels.



**Student Project:  
Created by Patty  
Arenburg at AAE.**

I was shocked at the ease of use with the E-X fire enamels and even more impressed with the results. I decided to use them in my upcoming screen printing class so I had some testing to do. Every single student that used the E-Z fire in my class came out with a brilliant and vibrant project. Colors matured beautifully and they were so vibrant! No venting, no pre-firing, no problems!



**Project made with Lt.  
Red E-Z fire enamels.  
Tile created by Erin  
McArthur at AAE.**

# Firing Characteristics & Tips



E-Z Fire enamels are opaque and the manufacturer states the colors mature at 1380F and hold their color up to 1650. This very high temp will open up quite a few doors for us artists. These enamels can replace many of the paints that cannot be used at casting and hi-temp fusing techniques (such as raking) since many brands do not hold their colors at that temp. I was able to get the colors to mature at 1150. They were not as glossy and more matte but this paved the way for me to slump and fire the enamels to high gloss at the same time. This was done on the Mandala plate example on page 1 of this handout. Here are high points of my discoveries:

- A-14 was by far the best mixing medium I found to use with these enamels. This can be found here at AAE Glass <https://www.aaeglass.com/a-14-enamel-painting-screenprinting-enamel-2oz-bottle.html> The enamel particles mixed well with this medium and the material was very smooth and uniform. Easy application as well. Great for screen printing and hand painting.
- I used a 50/50 mix of water and alcohol and diluted the enamels to a very watery “water-color-like” consistency. I was able to paint Papyrus and Bullseye Thinfire like watercolors as demonstrated in my Lithograph video.
- The firing schedules I am providing on the next page worked well for surface application. You can clear cap the enamels, I also found. I found the colors held a shade more vibrant if I pre-fired the enamels to 1100 degrees and THEN clear capped and full fused on a separate firing. If you do this, full fuse at the lowest temp possible. Again, it is NOT necessary to pre-fire when clear capping but the colors did remain a shade more vibrant when doing so.
- Red, yellows & oranges needed no venting, no pre-firing and no extra care. Just fire and you will love the results!
- If you are going for a lighter shade of any color, mix more A-14 in to dilute the color a tad.
- The hot colors mix well so far. Definitely make test tiles when mixing colors before firing on a final project. For example, Red + White does not make pink. It makes white. However, Red + Orange did create a beautiful Orangy-Peachy color. Take one day just to make sample tiles. Knowledge is power.
- Chromium Green does not turn glossy after firing. It is a matte color.
- Lt. Purple will darken any color.
- Mixing White is a new color. It is used to lighten colors.

# Firing Schedules

I cannot stress to you enough that you have to run your own tests in your own kilns. You will notice the clear capping/full fuse schedule is very low. This was the temp I found to maintain the color best while capping and full fusing. All schedules are in Fahrenheit:

## **Surface application Schedule for an 10" x 10" or under that is 6mm thick:**

350 DPH - 1100 - Hold 20 min.  
600 - 1380 - Hold 10 min.  
Full - 900 or 950 - Hold 90 min.  
100 - 700 Hold 01 min.  
OFF

## **Slump and Fire on Enamels at the same time. Bullseye square slumper mold used. 10x10 panel 6mm thick:**

300 DPH - 1000 - Hold 30 min.  
600 - 1240 - Hold 20 min.  
Full - 900 or 950 - Hold 90 min.  
100 - 700 Hold 01 min.  
OFF

## **Pre-fire for clear capping. Single sheet of glass 10x10 3mm thick:**

300 DPH - 1100 - Hold 15 min.  
Full - 900 or 950 - Hold 45 min.  
100 - 700 Hold 01 min.  
OFF

## **Full Fuse Clear Capping Enamels. 10x10 6mm thick:**

350 DPH - 1000 - Hold 30 min.  
60 - 1255 - Hold 60 min.  
600- 1445 - Hold 45 min. (test this in your kiln!)  
Full to 900 or 950 Hold 90 min.  
100 - 700 Hold 01 min.  
OFF

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