

## **Fusing Glass and Precious Metal Clay!**

Outlined below are a few simple techniques, first starting with how to fuse the glass together to make fantastic cabochons and then moving on to setting the pieces and firing them into the Precious Metal Clay. And finally how to torch fire Dichroic glass directly into Precious Metal Clay! Yes you can torch fire it!

### **Fusing Glass.**

Dichroic means "two colours" a primary hue that is seen when viewed head on and a second colour that is seen as light is reflected from the lower layer, because the colours change as the glass moves from a direct view through a 45 degree angle, dichroic gives a vibrant energy and colour to jewellery specially when set against a silver background.

When fusing any glass it is important that you use only glass that has the same coefficient of expansion this means that when two pieces or more of glass are fused together their expansion and contraction rates must parallel each other, that is the pieces must expand equally when warmed and contract equally when cooled. If the pieces do not have the same COE, then this will put stress on the glass and I'm afraid breakages will happen.

As the Dichroic glass has a COE of 90 any other glass used with it has to be same. To start your fused cabochon decide which back ground colour you are going to use as the base any colour can be used although black will show off the Dichroic best. Cut the base to shape using a good glass cutter one preferably with an oil well in it for smoother cutting. Please wear goggles at all times when cutting glass, small bits can easily fly off. Cutting the Dichroic is a little bit harder as it is much thicker and glass nibbles will be needed to bite off small chunks, alternatively the Dichroic glass noodles are easier to use, the colours are amazing and they are much easier to cut, you can just snap them off.

Place your Dichroic on top of the plain glass and place onto a firing sheet and onto a kiln shelf, the firing paper will stop the glass from sticking to the shelf or kiln wash can be used.

### **Firing the glass**

These times and temperatures have been designed specifically for use with the SC2 kiln, if using another kiln please check the manufactures guidelines.

Programme the kiln to go up to 900c in 1 hour, (check the manual for the ramping instructions) and hold at 900c for 10 mins, once finished turn the kiln off and allow to cool naturally, no peeking! Do not open the kiln at all until completely cooled down to below 80c, the kiln shelf can then be taken out and the pieces left until they can be handled.

The glass pieces should have now melted together and the edges nicely rounded off, so it doesn't matter too much if your cutting isn't perfect.

There are all different types of glass that can be used, and different ways in which glass comes. Interesting effects can be achieved by using Stringers, these are long thin coloured pieces of glass, almost like spaghetti which can be broken up and used to create lines and geometric forms across your design.

Glass also comes in tiny fragments called Frit, again which comes in all sorts of colours and can be sprinkled on to create an interesting effect.

And of course there are hundreds of different colours of plain glass including pearlescent's, iridescent's, opaques, translucent, all sorts, so experiment with them and see what can be achieved.

### **Setting the glass into Precious Metal Clay.**

When setting glass into Precious Metal Clay always use Precious Metal Clay+ or 3, never Regular as the timing is too long. And it's really very easy to do, there are just a couple of important things to remember; \*Always make your bezel setting for the glass a little bit bigger than the actual glass piece, if there's not enough room around the glass when the Precious Metal Clay shrinks it will either cause the Precious Metal Clay to break in places or crack the glass itself.

\*Make sure any joins are done really well, as the Precious Metal Clay shrinks around the glass any weaknesses will be pulled apart.

When using a translucent glass don't put Precious Metal Clay underneath it, as you won't be able to polish Precious Metal Clay and it will stay white, and it's not such an effective look.

\*Wipe off any Precious Metal Clay on the glass before firing as it won't come off once fired.

### **Firing the glass and Precious Metal Clay.**

Place all of the glass and Precious Metal Clay pieces onto the firing paper as used to fuse the glass, or straight onto kiln wash, if using Precious Metal Clay+ fire at the normal full speed up to 800c and hold for 30 minutes, for Precious Metal Clay3 it can be fired between 600 and 800c again for 30 minutes.

Once the firing is complete crash cool the pieces by opening the kiln door and allowing the temperature to drop to 570c, no less than this! This prevents devitrification or clouding of some older types of glass. Close the kiln door again and allow to cool down completely until the pieces are cool enough to handle. Do not peek! Once you've shut the kiln door, if the glass cools down too quickly in this phase it will crack.

Once fired you will notice that the glass will have bulged slightly around any Precious Metal Clay that has

been laid on top of it, this is where the Precious Metal Clay has shrunk around the near molten glass. To polish, all pieces with glass inserts have to be hand polished I'm afraid, putting them in the barrel polisher gives the glass surface a pitted appearance so is best avoided. So brush with a brass brush or dremmel first and go over with polishing papers, or once brushed a polishing wheel can be used.

### **Torch Firing Dichroic Glass into Precious Metal Clay.**

Yes it can be done, setting Dichroic glass on it's own in to Precious Metal Clay is very simple. Dichroic glass is much more heat tolerant than normal glass, and this is because it is made of layers that were originally bonded together at a very high temperature, making it much more versatile to use. Therefore unlike other types of glass it can take direct heat, be heated up very quickly and also cooled down very quickly without to many adverse effects.

When setting the Dichroic in to the Precious Metal Clay again make the bezel setting a little bigger than the piece of glass allowing room for the shrinkage, I would tend only to use Precious Metal Clay+ for this, and follow the same rules used when setting a cabochon.

### **Firing.**

Place the piece onto a piece of firing paper if any glass is showing on the under side of the item, otherwise it can be placed directly on to the kiln shelf. Light the torch and start to fire as normal concentrating on the Precious Metal Clay and not so much on the glass, as you do not want to melt the glass only fuse the silver. As you continue to fire the edges of the glass may start to round off slightly, keep firing until you are certain that the silver is properly fused together, if the glass starts to discolour slightly pull the flame away slightly so the heat is less intense, but keep firing until the silver is fused.

Some colours will discolour slightly during the process, but it is only slightly and will not take anything away from their vibrancy, but be careful not to melt the glass, as this will spoil the effect.

Once fired allow to cool down naturally which should take about 15 minutes, and again for the best effects the pieces should be hand polished.

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