# Laser Decals on UF Ceramics Shop Glazes

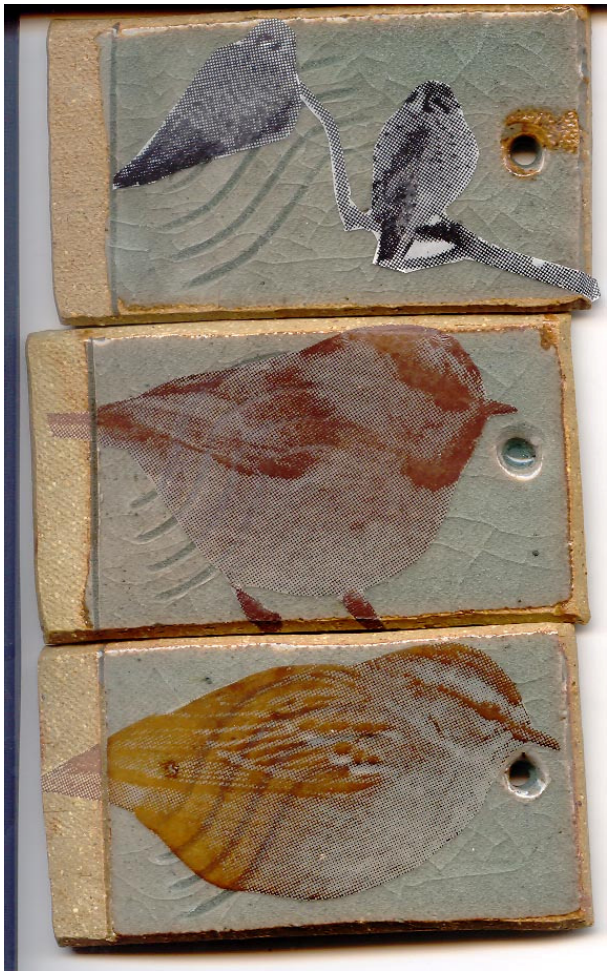
**Linda Arbuckle**

Unlike China paint decals, which are fluxed to fire to very low temperatures (cone 018-016/1320-1450 deg F or so), laser-printed decals are iron fused into the glaze surface. They need to be fired high enough to soften the glaze and allow the iron to melt in.

If you fire too low, the decal looks rough, rust-colored, and can be rubbed off on your fingers.

If you fire too high, the iron becomes more yellow and can be diffused into the glaze, lose definition, and eventually be absorbed. In the image below, top is unfired white-ground laser decal applied to cone 10 celadon. Middle is fired to cone 02. Bottom is fired to cone 2. In the bottom image, you can see the left side where the dot pattern in printing is finer, the iron is more melted into the glaze. The density of your decal may also influence how it fires. Below are some sample glazes we've tested with laser decals. Some glazes don't work well with re-firing lower, like Phil's White, but most are fine. We found our shop Alkaline Turquoise lowfire glaze (like Water Blue or Gill's Blue glaze) ate the iron color unless it was fired quite low. Majolica is very stable and has a wide firing latitude.

Handout on making laser decals on the HANDOUTS page of my web site: http://lindaarbuckle.com



| Shop Glaze | Fires to cone… | Laser decal suggested cone | Notes |
|---|---|---|---|
| Phil's White | 10 | NOT suggested. Bubbles at lower temps | |
| Celadon | 10 | 02-2 | At cone 02 iron image is a bit matt. At cone 2 thinner areas may be dissolved to a yellow color. |
| Shino, Pink Shino | 10 | 02-1 | Works well. |
| Emily Purple | 10 | 02 | Works well. |
| Deb's Clear | 03 | 07 | |
| Ron Meyer's Clear | 03 | 07 | |
| Majolica (white) | 03 | 07-05 | |
| Alkaline Turquoise | 03 | 09 | At cone 07 the iron image is yellow and very dissolved into the glaze. Fire 09 or lower on very alkaline glazes |

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| **Alkaline Turquoise c03** | |
|---|---|
| Frit 3134 | 35.5 |
| Dolomite | 1.5 |
| Silica | 13.2 |
| Nepheline syenite | 49.8 |
| **TOTAL** | **100** |
| + copper carb | 4.8 |
| + bentonite | 2 |

| **Deb's Clear c03** | |
|---|---|
| Frit 3134 | 30 |
| Frit 3195 | 45 |
| EPK | 25 |
| TOTAL | 100 |
| Apply thinly. Cloudy and bubbled if thick. | |

| Majolica Arbuckle c 03 | |
|---|---|
| Frit 3124 | 65.8 |
| EPK | 10.8 |
| Nepheline syenite | 6.2 |
| Minspar 200 Feldspar | 17.3 |
| **TOTAL** | **100.1** |
| +Bentonite | 2 |
| +Tin oxide | 4 |
| +Zircopax | 8 |

| **Choy Blue Celadon c10 reduction** | |
|---|---|
| Custer feldspar | 54 |
| Whiting | 6.6 |
| Silica | 21.8 |
| Georgia Kaolin | 4.3 |
| Strontium carbonate | 13.3 |
| **TOTAL** | **100** |
| +RIO | 2.1 |
| +bentonite | 2 |

| **Emily Purple c10** | |
|---|---|
| Potash feldspar | 41 |
| Gerstley borate | 12 |
| Dolomite | 7 |
| Talc theoretical | 15 |
| Kentucky OM #4 | 5 |
| Silica | 20 |
| **TOTAL** | **100** |
| +Cobalt oxide | 2 |
| +Bentonite | 2 |
| +Tin oxide | 2 |

| **Gustin Shino c10 reduction** | |
|---|---|
| Nepheline syenite | 45 |
| Spodumene | 15 |
| OM-4 ball clay | 15 |
| Kona F-4 feldspar | 11 |
| EPK kaolin | 10 |
| Soda ash | 4 |
| **TOTAL** | **100** |
| For Pink Shino add 8% 6020 pink Mason stain. Lovely salmon-to-orange if reduced. Donut-icing pink if oxidized. Looks great next to saturated iron glazes or accented with Reeve Green. | |

| **Phil's White c 10 Matte** | |
|---|---|
| Kona F-4 feldspar | 51 |
| Dolomite | 15.6 |
| Magnesium carbonate | 5.7 |
| EPK | 17.1 |
| Silica | 10.6 |
| **TOTAL** | **100** |
| +Zircopax | 10 |
| **This glaze is NOT good for use w/laser decals. At low temps (c02-2) it bubbles and make poor surface.** | |