

# Computer Generated Ceramic Decals for Enamel

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Computer generated ceramic decals are the monochromatic (brown or black) "cousins" of the traditional screen printed decals used industrially to print logos & designs on mass produced items, like coffee mugs & commemorative plates. Thompson enamel sells some pre-printed color versions of these screen-printed decals in the following patterns. These are also monochromatic, however they are available in a variety of colors.

## Thompson Enamel Decals



Information on how to screen print your own multi-colored decals can be found at this website: <http://www.beldecals.com/create.cfm>.

### Decals in a Nutshell:

Metal oxides in various compositions create color in enamel & ceramic glazes. The various colors in decals are created by screen-printing layers of metal oxides onto a special non-absorbent (decal) paper. An acrylic topcoat is applied to the decal, the paper is then soaked in water and the decal (now bonded with the top-coat) slides off of the paper, onto your pre-enameled surface. The piece is then fired, burning off the topcoat & leaving the oxides, which slightly sink into the surface of the enamel, creating a permanent design on your enamel.

Computer generated decals must be printed with a laser printer. The ink in *most* laser printers contains 60-80% iron oxide, which creates a brown or black decal depending on the color of the surface that the enamel is applied to. Oranges & blues tend to create a black decal. Most other colors produce brown decals.

### Supplies Needed:

Laser printer

A design or photograph to print

Ceramic decal paper commercial grade

Plastic or glass dish for soaking decal

A brayer

Krylon **clear** acrylic gloss spray

<http://www.easyceramicdecals.com/>

### The Design:

Any image you can print on your computer can be made into a decal. This includes photographic images & text. A resolution of 300 dpi is sufficient. Any higher won't be noticed.

**Printing:**

It is essential that you print on the decal paper using a **laser** printer. Ink jet printers do not contain metal oxides, so the decal will not work.

Print your design on the glossy side of the decal paper. Once it is printed, try not to rub the decal on the paper. The decal paper is non-absorbent, which means that the ink is merely resting on the surface of the paper. Rubbing the paper could damage the design.

**Top Coat:**

This is a very crucial step. It is also the most variable step. The variables depend on the humidity in the studio & can only be learned from trial & error.

Once the topcoat is applied to the decal paper, it has a "shelf-life." The topcoat can either be too stretchy (if the decal is applied too soon) or too brittle (if the decal sits for too long after the topcoat has been applied).

In one of my studios, I could use the decal 20 minutes after I sprayed them, and I couldn't use them after I let them sit overnight (or they were too brittle & cracked). In another location, I had to let the decal sit overnight before I used it (or else the design would stretch & distort), & I was able to use these decals for up to a week before they were too brittle to use. So print extra sheets of decals & experiment to find your window of opportunity.

The topcoat I use is Krylon clear acrylic gloss spray paint, available at any hardware store. There are commercial decal topcoats available, however, I prefer to use the Krylon because it is easy to get.

The topcoat is sprayed directly onto the decal paper. You will be applying 6-8 very thin coats. It is very important that the first 2-3 applications are extremely light. If you overspray initially, you could cause the design to run & smudge. Keep applying thin coats until the surface of the paper is glossy.

**Important:** Spray the **entire** sheet of decal paper & *then* cut out the decal. If you cut out the decal & spray only the decal, you will seal the decal onto the paper & it will be **unusable!**

**Apply the Decal:**

*This is the same process you use to apply decals to model cars & airplanes.*

Prepare a shallow glass or plastic bowl with warm water. Cut out the decal from the sheet as you use each decal.

Submerge it in the water. Keep your hand on the decal while it is soaking to prevent it from curling & breaking. When you can easily slide the decal around the paper, it is ready to apply. Do not remove the decal from the paper yet!

Slightly dampen the surface of the enamel that is to receive the decal. Bring the decal paper right over the piece and rest it on the surface of the enamel. As you are holding down the decal, gently slide out the paper from underneath and slide the decal into place. Absorb any extra water on the surface (I use blue paper "shop towels"). Gently roll a brayer across the surface of the decal to further squeeze out additional moisture under the decal.

Let air dry *overnight*.

**Do not use a heat lamp** to dry the decal, this could cause bubbles under the surface & would cause a flawed decal.

**Important:**

Decals can only be applied to flat surfaces or simple curves (like tubing).

**Fire:**

Fire the piece until the enamel is glossy. The topcoat will burn off in the kiln. If you see the outline of the topcoat on the surface, the decal isn't fully adhered, and should be left in the kiln. When the piece has cooled, test the decal adhesion by lightly rubbing the surface with a wet finger. If the oxides smear, put it back into the kiln and re-fire (the smear will disappear).

Decals should be put on last. Repeated firing, will cause the decal oxides to sink into the enamel surface & the design will disappear altogether.