

Inexpensive Fade Anodizing

written by:

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Many people have questioned how to get a 'fade' or gradient anodize. This finish is often seen on paintball guns and other items that are anodized mainly for cosmetic purposes. What is different between fade anodizing and standard solid color anodizing? The only difference lies in the dyeing; there is no difference in the preparation or anodizing.

This tutorial assumes that you have a working knowledge of anodizing and are currently able to produce consistent solid color finishes. I personally use products from Caswell Plating (www.caswellplating.com) and their Low Current Density (LCD) method of anodizing to achieve the following results.

For this tutorial, I chose to fade a Spyder Imagine paintball marker. Paintball guns seem to be a popular choice for fade anodizing, and having a gun done professionally can cost over \$200. Here is an example of a professionally anodized faded paintball gun. Notice the smooth gradient from the yellow tip of the barrel to the red flames. This smooth color gradient is what we are trying to achieve.



What you will need:

- Working anodizing kit
- Anodizing dyes, mixed according to directions
- Bleach (NaOCl)
- Anodizing Sealer or boiling water to seal parts

As you can see, there are no special parts needed. That's right, you likely have everything you need; there is no need for expensive airbrushes, servo motors, etc... Through experimenting with various dyeing methods, I've found that the human hand is amazingly keen at accomplishing a very smooth color gradient in a very short time. The only additional item necessary is bleach, which is used to remove unwanted dye from the part before sealing in case of accidents.

Now for the meat of the procedure. The parts should be prepped and anodized as you regularly would. You will need to prepare your dye bath in a large enough container to fully submerge your part in the direction of the fade. Although there has been much debate on this, I prefer to dye the parts at a low temperature, somewhere around 68-75 degrees F. Many professional anodizing dyes

are recommended to be used at 110-140 F. I have found that the lower dye temperature slightly slows the absorption process, allowing you to achieve smoother gradients with less practice. This is just a matter of personal preference.

When dyeing the part, I prefer to start with the lightest color of the fade first. **The only real trick is to always keep the part in motion.** Dunk the part in and out of the dye in the direction of the fade. Do not let the part sit stationary in the dye for more than 5-10 seconds at a time; this will cause harsh lines to develop in your fade. The longer a region is submersed in the dye, the darker and richer that color will become. Usually you will start to see the color developing within the first minute, and the part will be as dark as it can be in less than 15 minutes. However, dyeing times will vary with bath temperature and other variables. Once you have your light color faded on the part as you want it, rinse the part in **cold** water to remove any excess dye. Do not rinse in warm or hot water, you may start prematurely sealing the part.

If you have accidentally dyed farther along the part than you expected, or if you have any dye in areas you do not want, household bleach mixed with water will remove the unwanted dye. Mix about ½ cup bleach per gallon of water. Submersing the entire part in the bleach water will quickly remove all of the dye. To remove dye from select areas, you may use a cotton swab, Q-tip, or a spray bottle. The spray bottle will help to give a smoother gradient. Be sure to thoroughly rinse all parts after they have been bleached to prevent contamination of your dye.

Now, on to the darker color of the fade. Using the same method as before, you want to submerge your part in the dye bath, continually dunking the part in and out to keep it in motion. Again, as you see the fade developing you may want to rinse the part in cold water to ensure that the dye is being absorbed and not just sitting on the surface. Once the desired fade is achieved, seal the parts as you normally would.

Although the above method only describes a two-color fade, it can easily be used to achieve a fade with 3, 4, or more colors. To achieve multi color fades, you should start in the center of the part, working your way outwards. After each color, remove the unwanted colors with bleach and rinse thoroughly between each step to avoid dye contamination.

Below is a picture of the Spyder paintball marker faded from blue to silver using this method. Notice the green cylinder above the gun. This was the original color of the gun before re-anodizing. In the 2 pictures, both sides of the part can be seen, clearly showing the smoothness of the gradient, or fade, thus accomplishing the original goal of a quality fade anodized finish with minimal extra investments in equipment.





Although this method does require a person to be present during the entire 10-20 minutes necessary to complete the dyeing, there is minimal added equipment or chemical cost. However, there is virtually no limit to the possibility of color combinations achievable with this method. When compared to other methods, I find this the preferred method for short-runs and completely custom anodizing for beginners and pros alike.