



This week, I received a call from a manufacturing client who was struggling with a lack of customer satisfaction for one of their artist-quality acrylic paints. Apparently, the color on the bottles didn't accurately reflect what the dried paint looked like by daylight, and the customers were demanding more precise labeling.

The problem, of course, is that this is an industry-wide issue.

In this case, I was able to help the client via a paradigm shift. By asking "what if?," we came up with a solution that revolutionized their acrylic paint labels. I provided the client with the spectral analysis tools required to accomplish the task, and we journeyed into the artistic unknown.

Why Acrylic Paint Labeling Must Change

The problem with paint, of course, is that it dries. Most of the time, the dry shade differs (sometimes significantly) from the wet shade in the bottle, and differs yet again from the color swatch printed on the bottle label. Further complicating matters, the lighting under which the finished piece of art is displayed often renders the perceived color different yet again.

This presents a challenge when you are trying to advertise your product in color charts and catalogs (and, of course, in the bottle) and need to meet the high standards for artist-grade colors.

If labeling were to change, there is a largely open market to gain and the potential for a huge amount of brand loyalty. And if you're a new manufacturer of acrylic paints and need to establish your reputation, a better label could set you apart. Spectrophotometry is the tool needed to break into this new market and enable a labeling revolution.



Color swatches on

acrylic paints rarely display the dry paint shade with accuracy. Image credit: Flickr user Jim Winstead (CC BY [2.0](#))

Spectrophotometry Facilitates a Change in Acrylic Paint Labeling

Paint colors change appearance under different lighting conditions because a different spectrum of wavelength intensity is being bounced off the paint in each circumstance. The amount of specular and diffuse reflection bouncing off a painted canvas in broad daylight, for example, is different than that which is reflected off the same canvas under a fluorescent bulb. While the pigment remains the same, our eyes [interpret it differently](#).

Current paint swatches are completely uniform rectangles of color that approximate how the paint will look when used on a common artist's medium under undefined lighting conditions. But

spectrophotometers with 45/0 ° optics can be used to accurately measure, say, the perceived colors on canvas under daylight conditions in order to print a more accurate bottle label.

My suggestion to our client was to test their paint colors on canvas in daylight—and to take photographs of the results. These images could then be used in place of the generic color swatches currently printed on each bottle label.

But while this seems simple, it is important that the color of the resulting images still matches the color of the canvas. Using camera equipment with a flash or exposing the canvas to any accidental shading makes this process challenging—the canvas will appear more or less illuminated in the photo than it would in reality. Spectrophotometry is the answer to this problem since it can quantify the paint color on canvas using CIE L^*a^*b coordinates. These coordinates are then set as the color standard that the photograph must match, which will help the photographer fine-tune his lighting conditions.

Spectrophotometers are equipped to deliver consistent standard illuminants, which ensure that measured colors are consistent and accurate. It's important to note, though, that to create a standard by which all your paint colors can be judged, you must be sure to use the same illumination spectrum and intensities. For example, all measurements might be taken using D65 illuminant, which mimics daylight conditions.

Acrylic paint manufacturers can be inspired by this new application of spectral analysis technology. Creating a completely new standard for acrylic paint labeling makes purchasing more straightforward for consumers, significantly improving their experience. Hunter Lab has industry experience in helping paint manufacturers achieve precision and accuracy through spectrophotometry. [Contact us to learn more](#) about which tools might be most useful for your business.