

When clients walk into a tattoo shop, they usually have a specific design idea in mind. To create this perfect tattoo, the tattoo artist must carefully select the right ink color for their clients. After all, a tattoo is permanent, so the ink must be high in quality and have excellent colorfastness; the ink should not only look great today, but remain vibrant decades after it's applied under the skin.

However, colorfastness and consistency aren't always easy for tattoo ink manufacturers to achieve, as inconsistencies in the manufacturing process as well as the types of raw materials used to create the ink can negatively impact the ink's appearance and quality. For example, tattoo ink can become too thin when too much alcohol is added to the formula, or the ink's color will fade after just a few years if there's not enough pigment in the mix.

This is why tattoo ink manufacturers should use a spectrophotometer to test their products for consistency and colorfastness throughout the manufacturing process. A spectrophotometer will help you identify even minor differences in color between one bottle of ink and the next, ensuring that your inks perform predictably and appear beautiful on every client.

Color Consistency and Fastness is a Sign of Tattoo Ink Quality

Despite the popularity of tattoos, the tattoo ink industry is still largely unregulated. While the FDA does occasionally investigate the quality and safety of inks, for the most part, the responsibility lies with manufacturers to ensure their products are safe, free of contaminants, and high in quality.¹ [A reliable color quality control protocol not only helps you identify possible contaminants in your inks, it also improves the overall quality and colorfastness of your products.](#)

Tattoo ink is made by mixing together a carrier and a colorant.² [The colorant is a pigment made from mineral or organic sources, while the carrier is a clear liquid that helps the skin absorb the pigment molecules. This includes liquids like witch hazel, alcohol or glycerin. The challenge that many ink manufacturers face is that the colorant and carrier ratios must be as precise as possible in order to maintain color consistency. For example, if the ink is too diluted with witch hazel or other carriers, then the ink will appear too light when it's applied under the skin. Likewise, when an artist has to complete a large tattoo over a period of multiple sessions, they need the ink colors to remain the same from one session to the next; any minor change in the formula could ruin the look of the final tattoo.](#)

In the tattoo industry, artists choose inks based on the manufacturer's reputation and perceived perception of quality. Many artists choose inks that come in a variety of colors, but most importantly, they expect these inks to perform predictably in their clients' skin. In general, low-quality tattoo inks are inconsistent in color and thinner or less permeable than high-quality inks. Meanwhile, the highest-quality tattoo inks are usually alcohol-based, relatively thick, and completely consistent in color from batch to batch.³ [By testing the quality of your own ink formulas using a spectrophotometer, you can improve your brand's perception of quality and create reliable ink products that will stay vibrant for decades.](#)

How to Ensure That Your Tattoo Inks Are Consistent in Color

To create tattoo inks that stand the test of time and appear consistent in color from bottle to bottle, it's critical to implement a rigorous color quality control protocol throughout manufacturing. First, consider the type of ink that you produce; a stable pigment-based ink requires slightly different color measurement methods than a pre-dispersed ink.⁴ [Here are a few of the differences you'll need to consider as you perform color quality control on your ink products:](#)

Stable Pigment-Based Inks

A stable pigment-based ink is comprised of large-particle pigments, meaning that these inks are much thicker than pre-dispersed inks. You may also only make a limited variety of colors in this ink style, as stable pigment-based inks are designed to be mixed or diluted by the tattoo artist to create custom colors in the tattoo shop. These two factors can impact your color quality control process significantly. First, the thickness of stable pigment-based ink can make it challenging to test under certain conditions. You need to use a color

measurement instrument that is specifically designed to test the color of [thick, opaque liquids](#)—if an instrument is better suited for thinner, more translucent inks, then it won't offer you the most accurate measurement of a stable pigment-based ink. Second, stable pigment-based inks are meant to be mixed together with other stable pigment-based inks, so you may need to test that your ink retains its brightness, even when mixed with other inks. For example, if a yellow ink is too diluted, it may not mix well with another ink color, like a bright red. You need to test that your stable inks are as saturated with color as possible in order to withstand further mixing and dilution in a tattoo shop.

Pre-Dispersed Inks

Pre-dispersed ink is comprised of pigments with much smaller particles, so these formulas tend to be thinner. These inks are also meant to be used straight out of the bottle—tattoo artists rarely, if ever, mix two different pre-dispersed inks together to create a custom color. This factor can complicate your color quality control process. You'll likely create multiple color options in this style of ink, and you'll need to test every one of them to ensure that they are consistent from bottle to bottle. This can be challenging for manufacturers, especially if you have hundreds of different ink colors in your product line. To solve this issue, you'll need to use a benchtop spectrophotometer that can store color standards for a large number of different ink products and take fast, accurate measurements to optimize efficiency. Using a spectrophotometer, you won't waste hours performing visual assessments on hundreds of different pre-dispersed inks and you'll be able to reliably tell the difference between each subtle color variation, from burnt umber to mandarin red.

Full article with photos available here: <https://www.hunterlab.com/blog/color-pharmaceuticals/the-importance-of-testing-the-color-consistency-of-tattoo-ink/>