

# Smart Spectrophotometers Help the Coffee Industry Increase Accuracy of Color Measurements

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The United States is home to some of the most avid coffee drinkers in the world. About 64 percent of adults in the U.S. say that they drink at least one cup of coffee every single day.<sup>1</sup> While this is great news for [the coffee industry](#), it also presents a potential challenge for coffee manufacturers. To meet this daily high demand for both quantity and quality, manufacturers have to make sure that their products are as consistent and delicious as possible. Just one bad experience with unevenly-roasted beans could impact a customer's perception of the product in the future.

This is why color quality control is essential for the coffee industry. Color is often closely tied to the roast level and flavor of the coffee, so having a consistent batch of beans is important. But what's the best way to ensure color consistency in your coffee products? You may consider using a smart spectrophotometer that's specifically designed to measure the color of textured samples like whole and ground coffee beans. When you use a smart spectrophotometer, you'll not only get the most accurate color measurements possible, you may also save yourself a significant amount of time and effort in the process.

## Measuring the Color of Coffee Samples Isn't Always Fast or Simple

Although color quality control is an essential step in the coffee manufacturing process, that doesn't necessarily mean that measuring the color of coffee is easy or quick. In fact, there are a number of challenges that coffee manufacturers face when they try to analyze the color of their beans. Here are just a few of these potential hurdles:

- **Inaccurate Analysis:** If you use the naked eye alone to analyze the color of your beans or ground coffee products, you may misinterpret your product's color. This is because the perception of color is subjective between different people and because certain environmental factors (like lighting) can make the color appear [darker or lighter](#) than it really is.
- **Sample Sizes That Are Too Small:** A small sample of coffee may not accurately reflect the color of the entire batch. For example, if some of your coffee beans were closer to the roasting heat source than others, then those beans will likely be darker in color.<sup>2</sup> If you only measure the color of those beans, then you may end up throwing out the entire batch because you believe all of the beans were over-roasted. In general, measuring a larger sample of your coffee product will provide you with more accurate results because it will be more reflective of the entire batch.
- **Time-Consuming Measurements:** Even if you use a spectrophotometer to analyze the color of your products, many standard benchtop and portable instruments are only capable of taking small area measurements of a sample. This means that you can only analyze the color of a few beans or coffee grounds at a time. To determine whether the entire batch falls within your color tolerance, you would have to take multiple measurements of many small coffee samples and average these separate measurements to get your final color consistency results. This process takes a great deal of time and effort.
- **Sample Holders Need to Be Replaced:** Standard spectrophotometers also often come with sample holders that include a glass or plastic covering designed to protect the

sample inside from touching the instrument's sensor. The problem with these types of holders is that they can become scratched or contaminated with product over time, and this may impact your color measurement results. You have to replace these holders frequently in order to ensure that you're getting accurate measurements every time.

Full article with photos available here:

<https://www.hunterlab.com/blog/color-food-industry/smart-spectrophotometers-help-the-coffee-industry-increase-accuracy-of-color-measurements/>