



Different clients will have different demands when it comes to color quality control of powder coating. Image credit: Flickr user www.stormclad.co.uk (CC BY 2.0)

You have three hundred air conditioner housings in storage containers in the yard. “Sorry, we can’t take them,” says the client rep. “I personally feel like gray is gray, but I have to do things by the book. I know it’s a pain to rework, but the units have to meet specifications in order for me to accept them. Can you take care of it? Thanks.” She drives away, tires kicking rocks and dust, and there are still three hundred housings in the yard. Fishing your phone from your pocket, you dial. “Bill? We’re gonna need to do some rearranging.”

Not all purchasers of powder coated products are so picky about their colors; many clients are happy to choose from pre-mixed options or generic swatches. As a result, spectrophotometric analysis as a method of color quality control has not yet saturated the market. But for owners and operators of powder coating lines who are looking for a competitive edge, spectrophotometry represents a way to stand out while expanding your operations.

Color Precision Provides Opportunities for Powder Coating Lines

If you hope to take on clients with rigorous color quality control standards, spectrophotometric analysis is already essential since without this capability, you’ll be unable to compete for bids.¹

And since powder coating is now being chosen over traditional liquid VOC paint due to its economic, environmental, mechanical, safety, and efficiency advantages,² we’re seeing more and more applications that once used liquid paint beginning convert—including applications for a number of designer and specialty products. Companies like Austrian furniture designer Finima³ have already made the switch to powder coating, and winning bids for similar high-end applications will require you to have delicate control over product color—as well as the ability to offer unique color configurations.



Is this banana yellow, or Nilla Wafer yellow? A spectrophotometer could tell. Image Credit: Flickr User: Travis Ekmark. ([CC BY 2.0](#))

Spectrophotometric Superiority in Color Quality Control

The challenge, of course, is that color variability is common during powder coating applications. Many variables beyond the color of the pigment and the gloss of the finish affect the product's appearance, including the depth of the film, the opacity of the coating, the cleanliness of the application chamber, the quality of pretreatment, the baking temperature and duration, and even cross-contamination from improper color changeovers.⁴ So passive color control is essentially ineffective.

And while active methods of color quality control do exist beyond spectrophotometry—whether you ship samples to your client or perform visual inspections—spectrophotometric analysis far outperforms these methods in both accuracy and efficiency. Shipping samples to your client, for instance, eventually guarantees approval, but each batch must be prepared individually, wasting resources that could be spent elsewhere.

A visual comparison of product to standard test panel lets you approximate whether a color is correct, but this method, too, is subject to error. Lighting also plays an immense role in color perception—a perfect match under fluorescent factory lamps could fail by several shades in daylight, LED, or incandescent lighting.

But spectrophotometers such as [HunterLab's LabScan XE](#) can objectively determine the appearance characteristics of the standard coating compared to the product coating and can even simulate how the appearance would change if different illumination were used.

Spectrophotometers control lighting conditions when measuring samples, removing the possibility of error due to differing conditions. Numerical analysis also lets you test for uniformity of application across your products so that you can identify minute variations.



Designers may specify unusual hues not commonly prepared. Image Credit: Flickr user Katie Spence. [\(CC BY 2.0\)](#)

Staying Competitive with Spectrophotometers

If you send a finished batch of products in the wrong color to one of your clients, you'll ultimately be on the hook for failure to deliver. At best, this means adjusting your schedule to recoat the products—at worst, it could require the purchase and coating of new products. When combined with the logistics of rearranging a busy production schedule, each failure has the potential to significantly impact your company's bottom line.⁵

Spectrophotometers can qualify your powder coating company for contracts with clients who have exacting color requirements, increasing your potential market share. These instruments are an efficient way to ensure product approval and can reduce waste and rework. For more information on the right spectrophotometric system for your production process, [contact the experts at HunterLab](#). We're a leading manufacturer of both benchtop and handheld spectrophotometers for [the paint and coatings industry](#) and are proud to offer unparalleled customer support.

1. "An Introduction To Powder Coating Quality Control Testing," November 2016, <http://www.reliantfinishingsystems.com/an-introduction-to-powder-coating-quality-control-testing/>
2. "Powder Coating Vs Paint – What You Need to Know," 2017, <http://www.spartaengineering.com/powder-coating/>

3. "Case study: Wet paints – a thing of the past for Austrian furniture maker," 2017, https://www.dsm.com/markets/paint/en_US/technologies/technology-powder/uralac-ultra/markets_and_case_studies/finima-case-study.html
4. "Powder Coating 101 – Top 10 Field Issues," August 2013, <http://www.materialstoday.com/powder-applications/features/powder-coating-101-top-10-field-issues/>
5. "Calculating and controlling your powder coating operational costs," September 2013, <http://powdercc.com/pdf/Calculating%20and%20controlling%20your%20powder%20coating%20operational%20costs.pdf>