



He's looking mad, today. Well, he looks mad every day, that's his look, mad, but today he looks like he means it. "Scott!" he shouts. It isn't even 8 AM yet. "Yessir?" I ask. "Scott, do I look like a fool to you?" he asks. "No sir," I say. "You look mad. That's your look. Mad." This was all so much easier back when he was just making rap music. But you try telling him fashion was a bad idea. "I am mad!" he shouts. "My warm brown cotton/nylon Meggings line don't look warm brown to me. They look cool brown! I can't sell cool brown cotton/nylon Meggings, Scott! I'm gonna look like a fool!" "You don't look like a fool," I try. "You look mad." But he's not even listening anymore. "We gotta send it back," he's telling himself. "We gotta send the whole shipment back. Why would they send me cool brown? Why would they play me like that?" He drops his sunglasses to his nose and stares me in the eyes. "Scott," he asks. "Do people not take me seriously?"

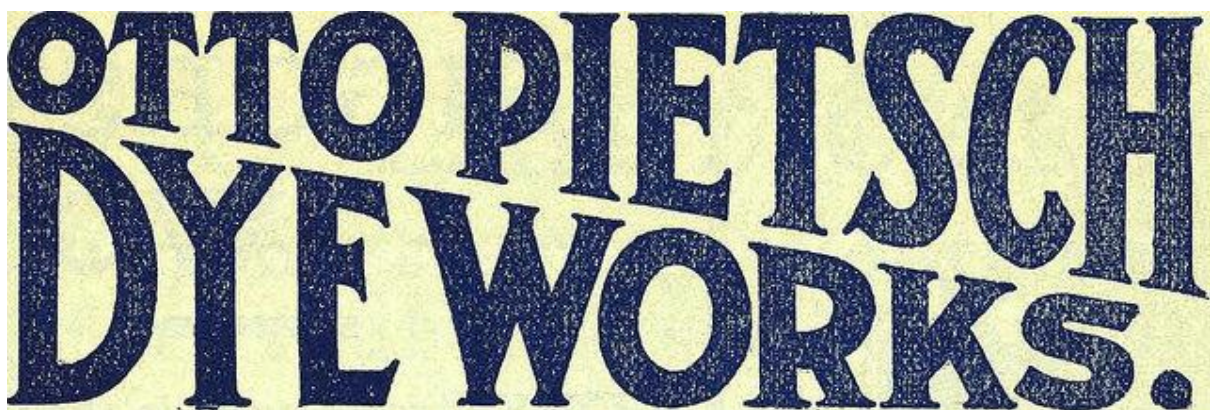
Garment manufacturers take the color of the clothing they produce seriously because their clients take the color of their clothing seriously. Achieving correct, consistent color in blended natural and synthetic fibers is inherently difficult. So serious garment manufacturers incorporate objective, spectrophotometric color measurement into their manufacturing process. Because until you put a number on it, there's no real way to tell what a designer wants when they say warm brown.

The Dyeing Problems Posed by Blended Fabrics

Consider a common blend of natural cotton and synthetic nylon. At an atomic level, both materials comprise long polymer chains. But while cotton can absorb up to 25 times its weight in water, nylon will absorb only about 10 times its weight¹. Each material in the blend will absorb different amounts of dye-carrying liquid. A fabric producer can make accommodations for this difference in a perfectly consistent fabric blend, but the world of cotton and nylon blend fabrics is rarely, if ever, a perfect world.

The dye absorption capabilities of the different fabric materials can be affected by areas of dead or defective fibers, chemicals from earlier manufacturing steps that have not been fully rinsed out, and insoluble residue and impurities that are left in the fabric blend. Further, dye solvents are sensitive to different pH levels and contaminants, and dye solutions can vary in effectiveness and color saturation as a function of dye-to-liquid ratios and filtration problems².

As a result, careful measurement is essential to ensure that the dyeing process results in the target color. An appearance measurement using 45/0 or 0/45 geometry would best indicate the color exactly as the eye would view it. HunterLab's LabScanXE with its largest in class 1.75" diameter viewed area measures three times larger area than a typical spectrophotometer. HunterLab's EasyMatch QC software has built-in dye strength and shade sorting functions. Samples should be assessed before the garments are removed from dyeing phase, where adjustments can easily be made. After this step, garments that fail to meet the color tolerances of clients can be returned. This wastes fabric, dye, time, electricity, and even gasoline (or jet fuel) if the garments are delivered to the client only to be rejected. Of course, garments rejected unpaid after delivery can be contested in court, but then you have to pay for lawyers and waste more time. Lawyers are very good at wasting time. At the end, you may have gotten your payment back only to lose it again to fees. This can dampen your relationship with your client and other clients they've spoken to. It's better to get the color right the first time, and the best way to do that is to measure samples with a spectrophotometer.



Otto Pietsch knows a thing or two about dyeing fabric. Image Credit: Flickr User Internet Archive Book Images ([CC BY 2.0](https://creativecommons.org/licenses/by/2.0/))

Color Measurement During Blended Fabric Production

Color measurement isn't brain surgery. A reasonable person can learn to operate a spectrophotometer without an advanced university degree. That said, variations in the [texture of fabric](#) can cause measurement errors if they are not taken into consideration.

It is important to use the proper instrument for your particular application and to use it correctly. Spectrophotometers can assist you with color control in each stage of the manufacturing process. What's more, they can be programmed to only accept samples with specific CIE LAB coordinates. This means that samples can be evaluated on a pass/fail basis and minimal training is required to operate the spectrophotometer. With over six decades of experience, the experts at HunterLab can help you find which instrument is ideal for your specific garments. They can also help [instruct your business in the proper use](#) of the machines and interpretation of the results. To learn which spectrophotometer will best help you cut down on wasted time and product, [get in touch with HunterLab today](#).

1. "Why is cotton more absorbent than nylon?," <http://home.howstuffworks.com/home-improvement/household-hints-tips/cleaning-organizing/question547.htm>
2. "Dyeing Defects/Faults | Causes of Dyeing Defects | Name of Dyeing Defects," 2012, <http://textilelearner.blogspot.ca/2012/08/dyeing-defects-faults-causes-of-dyeing.html>