Things were fine the way they were. Nobody needed some hotshot new “fixer” boss. Especially not one who’s not only younger than you but also has a poster of a shark taking a seal out of the air on their office wall and a framed picture of Gordon Gekko on their desk. “Next item,” says Jodie. “Contracting manufacturers. We can get cheaper shampoo if we switch to a foreign firm. And what’s this about sending three batches back because they failed our color standards? Why are we still using these guys?” “We’ve been dealing with them for twenty years,” you tell her. “We’ve got a great relationship. These guys have been good to us.” “Business isn’t about friends,” Jodie says. “You’re either a shark or you’re a seal. I want a list of ten other shampoo manufacturers ranked on price and turnaround time by EOW. Next item…”

There are almost 4,000[1] shampoo manufacturers in China alone. That’s a lot of sharks in the water. Which means that if, as a manufacturer, you aren’t able to deliver shampoos that consistently meet personal care product designer standards, you could end up losing contracts and clients to other manufacturers who do. In addition, each time a batch is rejected, you have to eat the cost. Not only does this include the direct ingredients, but also the plastic bottles, the printed labels, the time, labor, and power spent in production, and the cost of delivery itself. To prevent this, it’s essential to implement rigorous quality control standards[2] for foam stability, detergency, conditioning, eye irritancy—and color.

In a crowded marketplace, it's important to meet designer standards. Image Credit: Flickr User beverlyislike. (CC BY 2.0)

Narrow Standards for Shampoo Color Necessitate Accurate Quality Control

Color is one of the most important points of differentiation between competing shampoos, due to customer perception. When setting their color standards, shampoo companies take into account consumer preference testing, the predominant palates of the year and decade, and comparative distance from competing products. This combination of factors results in narrowly defined tolerances for acceptability.

Making shampoo isn't playing horseshoes, and given such rigorous color standards, almost isn't good enough. Unfortunately, human perception of color, even when compared to printed standards, is by nature subjective and imperfect. Variations in texture and illumination can cause people to misidentify color from printed standards or between samples. When simply eyeballing a sample under the fluorescent light of the warehouse, a quality control inspector may approve a shampoo that the client's inspector, viewing a bottle under incandescent or LED illumination will later reject. With such costly ramifications for misidentification, it's necessary to implement objective, instrument based color measurement protocols.

The human eye's subjectivity can misidentify color. Image Credit: Flickr User Claire Brosman (CC BY 2.0)

Spectrophotometers Eliminate Uncertainty in Color Measurement

By measuring the light transmitted through a sample, HunterLab's spectrophotometers can objectively assess color and return numerical values representing the hue, value, and chroma of the sample. By requesting numerical value standards from shampoo companies, instead of printed swatches or verbal description, manufacturers can obtain specific target colors to match. Then, during the quality control process before a batch is bottled, inspectors can measure the shampoo color using a spectrophotometer and compare the color numbers for the sample to the numbers that represent the target color. More importantly, if the numbers do not match they indicate which specific color attribute needs to be changed. This allows any potential errors to be corrected while the mixture is still in the compounding vat[3], preventing any waste of ingredients or packaging materials. Should the initial mix result in the wrong color, the spectrophotometric assay also allows chemists to adjust their formula for subsequent batches, maximizing the efficiency of the mixing process.

To determine which spectrophotometer is best used to measure your particular line of products, contact the experts at HunterLab.

1. "Shampoo Inspection and Quality Control," 2014, https://www.intouch-quality.com/blog/shampoo-inspection-quality-control
2. "Formulation and Evaluation of Shampoo," http://www.srmuniv.ac.in/sites/default/files/files/SHAMPOOS.pdf
3. "How Shampoos Are Made," http://chemistscorner.com/how-shampoos-are-made/