

The explosion of [interest in healthier living](#) and wariness of harmful chemicals has spurred public demand for products without artificial dyes across industries, from food to pharmaceuticals. Today, an increasing number of liquid cosmetic and household products such as soaps, cleansers, and laundry detergents are being produced to meet the needs of consumers who want to avoid coloring agents. For some, the interest is conscious and deliberate.¹ For others, the suggestion of cleanliness, purity, efficacy, and gentleness of colorless liquids is subconscious and draw consumers in on a visceral level. This increased desire for an absence of color demands enhanced precision in the analysis of colorless liquids.

Maintaining Colorlessness

Ensuring the clarity and colorlessness of liquids is an art in itself. Far from just a matter of not adding dyes, production colorless soaps, cleaners, and laundry detergents often requires a delicate balance of ingredients and processing methods to ensure a satisfying aesthetic appearance. Temperature fluctuation, imprecise formulation, and deterioration of sensitive ingredients such as fragrances can all create color variation, particularly yellowing, which can have a significant impact on the perception of quality amongst customers. However, small divergences from colorlessness can be extraordinarily difficult to perceive by human sight alone and these liquids are particularly susceptible to environmental influences on perception. Batch-to-batch variations are especially likely to be missed if you are viewing a sample in isolation. The advanced technology of spectrophotometric instrumentation allows you to analyze the liquid spectrally to consistently identify color variation without the interference of environmental factors or [subjectivity of human perception](#), ensuring consistency across manufacturing locations and between operators.

Transmitted Color Measurement

Diffuse sphere spectrophotometry provides an ideal apparatus by which to measure colorless liquid samples. Because clear, colorless liquids do not reflect color, they must be measured via transmittance. By analyzing the color transmitted by the liquid to produce quantifiable data, you can quickly and easily identify deviations from colorlessness. Typically, colorless liquids are analyzed using the APHA/Pt-Co/Hazen color scale, a color measurement method specifically designed to analyze “water whiteness.”²Originally designed to analyze wastewater, [the APHA scale is now used across industries to measure purity of colorless and near colorless liquids](#). By comparing the sample to a platinum-cobalt reference solution, spectrophotometric instrumentation provides objective spectral information and identifies even minute yellowness easily missed by the human eye, instantly alerting operators to deviations from the standard and allowing them to take corrective action. Ingredients such as fragrances may be measured individually before they are added to the primary formula to ensure that they will not interfere with colorlessness. Maintaining strict quality control via ongoing color measurement throughout the production process enables you to optimize accuracy, efficiency, and cost-savings.

Full article with photos available here:

<https://www.hunterlab.com/blog/color-measurement-2/maintaining-clarity-color-measurement-in-clear-liquid-soaps-cleansers-and-laundry-detergents/>