Hair gloss treatments offer an effective new way to repair damaged hair and add a youthful appearance to dull locks, yet without proper haze and color measurement, many formulations fall short in creating the appearance that consumers desire. While harsh permanent dyes open the hair shaft to remove natural hair pigments and insert new color pigments, hair gloss provides a protective coating to the outer layer of the hair follicle to improve both color and shine. This coating must be developed to either match or enhance the existing color by providing a clear coating which maintains the proper reflectance and color values. Color measurement instrumentation that monitors both color and haze is therefore essential for developing a high-quality hair care product.

Whether creating a color matching formulation or a clear gloss treatment, understanding the relationship between color and haze and monitoring both can improve the production and quality of the product. While hair gloss coatings are designed to give hair a healthy shine and improve the reflective quality, contamination and formulation errors often lead to a cloudy or hazy appearance, translating to dull hair. Since the cloudy or hazy appearance of the product is often undetectable to the human eye and only recognizable after application, spectrophotometric analysis is critical during the formulation process.

Developing hair gloss products is both an art and a science, which requires the right color measurement technology to ensure proper transparency and predictable results. Spectrophotometers that are designed to measure both transmission color and haze provide the data needed to ensure proper formulation and meet the quality standards consumers demand. Now, simultaneous color and haze measurement is expanding the possibilities for quality control in the hair care industry.

Formulating Hair Care Products to Meet Consumer Demands

Hair gloss treatments are formulated with specialized ingredients which specifically protect hair and improve appearance and shine. These formulations are complex and include a variety of additives that are used to enhance color quality, texture, and appearance. From plant-based ingredients that make the hair softer and shinier to wheat proteins that coat the hair follicle and protect color, formulations are always changing to keep up with market trends. Chemists must continually monitor formulations to ensure the proper balance in color and haze and maintain the performance quality of the product. Spectrophotometers provide objective data that simplifies the formulation process, creating an efficient method for quality production.

Spectrophotometric transmission color measurement facilitates accurate color matching in transparent and semi-transparent liquids. This advanced technology can detect even the slightest variances in color, helping to ensure accurate product formulation. However, while color matching is important for quality and consistency in hair gloss products, the primary function of these treatments—both clear and tinted—is to enhance both the base color of the hair and provide additional shine. Haze measurement is therefore critical in order to monitor any signs of cloudiness or haziness, which can affect the appearance of the product.

Hair gloss should be clear and radiant, but particles suspended in the substance, such as pigment particles or contaminants, can interfere with product clarity. Since additives are necessary for product functioning and performance, specifically monitoring haze along with color during formulation is necessary to create a balance in product functionality and appearance. Measuring both of these values independently, however, is time-consuming, compromises efficiency of quality control, and potentially delays detection of unwanted variation. But thanks to advancements in spectrophotometric technology, it is now possible to measure color and haze simultaneously for a more rigorous, economical, and user-friendly quality control process.

Full article with photos available here:

https://www.hunterlab.com/blog/color-chemical-industry/simultaneous-color-and-haze-measurements-simplifies-quality-control-in-hair-gloss-treatments/