Application Note - Measuring Deep Black Color

Setting a New Standard for Black: Accurate Black Evaluation and Full-Spectrum Color Measurement

Advanced black evaluation and full-spectrum color measurement for consistent quality control

Issues and background

When evaluating black, brightness alone is not enough, hue and undertone also influence the final appearance. Because L*, a*, and b* values must be assessed separately, defining black quality often becomes complex and inconsistent. This makes it challenging for manufacturers to maintain reliable standards, especially when working with deep-black materials that are difficult to measure accurately.

Solution

To overcome this complexity, we introduce an advanced measurement approach that consolidates these parameters into a unified index. By integrating brightness (Blackness), hue-adjusted depth (Jetness), and undertone direction (Undertone), this solution provides a comprehensive evaluation of black. This eliminates the need for manual interpretation and ensures accuracy across all color samples.

Benefits

With this innovative index, manufacturers and designers gain a reliable standard for assessing black quality. The result is improved consistency in production, enhanced design precision, and greater confidence in meeting customer expectations. Ultimately, this approach transforms black from a subjective concept into a measurable benchmark for premium aesthetics.

Deep black creates true value

Black has long been recognized as the symbol of high-end design. To capture its true essence, we've added an index that quantifies black with unprecedented precision. This proprietary metric evaluates Blackness (brightness), Jetness (depth of black considering hue), and Undertone (direction and tone of color) to deliver a comprehensive measure of color quality.

By transforming the complexity of L*, a*, and b* values into a single, meaningful indicator, our solution empowers designers and manufacturers to achieve the perfect black, enhancing product aesthetics and elevating brand value.

The future of color measurement, in one device

Konica Minolta's high-performance measurement system enables precise quality control for black samples with extremely low reflectance, an area traditionally considered challenging.
We offer a solution that handles both black evaluation and standard color measurement. From pure white to deep black, one instrument covers the full spectrum, ensuring efficiency and cost-effectiveness without compromise.
Our spectrophotometers CM-26dG series, CM-17d series and CM-25cG also feature Blackness, Jetness, and Undertone indexes for accurate deep-black evaluation.
This unique capability positions Konica Minolta as a leader in the industrial color measurement market, delivering superior flexibility and performance for manufacturers who demand excellence.

Spectrophotometer CM-17d

The right solution for your workflow

Konica Minolta provides flexible measurement solutions that adapt to your specific requirements, whether it's sample types or quality control methods. Our portfolio includes the portable spectrophotometers CM-17d, CM-26dG and CM-25cG, as well as the benchtop spectrophotometers CM-36dG and CM-3700A Plus, supporting a wide range of applications.
With compatibility for 45°/0° geometry and d8 SCE, our instrument ensures precise and reliable color evaluation across diverse standards. This versatility allows manufacturers to streamline operations and maintain consistent quality, all with a single trusted partner.

Our instrument line-up

Measure color and gloss at the same time

CM-26dG

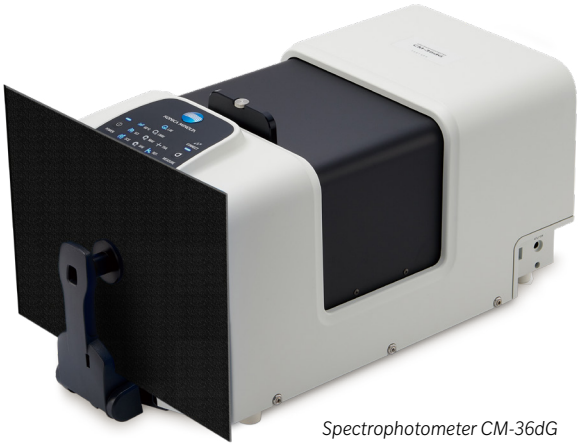
CM-25cG

CM-36dG

Measure color with precision

CM-17d

CM-3700A Plus



Spectrophotometer CM-36dG