Despite the emergence of digital technologies, printed media still plays a vital role and gives us opportunities for visual communication unmatched by digital alternatives.
Image Source: Unsplash user Annie Spratt

In an age of digital media, it can sometimes be easy to forget the simple pleasure of sitting down with a magazine, book, catalog, or newspaper. There is something special about having an object in your hands, feeling the paper, and seeing images exactly the way they were meant to be viewed. After all, paper and ink ensure that every viewer sees the same photographs and illustrations without the slight color variations inherent to screens, making them irreplaceable when image quality is a top priority. Whether it's giving customers an exact representation of a product color, creating an artist catalog, or showcasing the carefully chosen colors of a designer's latest collection, there is nothing quite like printed media.

Of course, the quality of printed media depends on the quality of the ingredients, particularly ink. As The Stothard Group says, "The very simple reality of producing ink is that the customer is buying color."[1] Those colors must be both accurate and consistent, allowing for print media customers to create exact reproductions of photographs and illustrations again and again throughout the run of a particular product as well as in potential future reprints. While it is easy to recognize the importance of ink color quality when producing media such as artist catalogs or coffee table books, even mass-produced, everyday items like magazines depend on color consistency for marketability.

[Magazines] are normally going to be laid out next to each other on shelving in a shop. If the ink is even a slightly different color, whether a different hue or too light or two dark, it will be instantly noticeable and reduces the perceived quality of the product being sold. If the colors dull from magazine to magazine, they will not be as vibrant on the shelves and therefore not as appealing to a customer.

Indeed, despite the move toward digital media, printers are "under more pressure to produce highly accurate color" than ever before.[2] "Commercially acceptable color has been redefined over the last decade," says Steve Miller, color systems technology manager for Kohl and Madden, the commercial inks division of Sun Chemical. "Printers are being pushed hard by brand owners to match colors

precisely. This has given rise to the use of spectrophotometers and color-matching software, which provide tighter tolerance on measurements."

Spectrophotometric measurement of ink color ensures accurate, consistent printing that enhances the quality and appeal of printed media.
Image Source: Pexels user Noe Araujo

Putting a Number on Ink Color

Modern spectrophotometric instrumentation ensures that ink producers maintain the highest standard of color quality control throughout manufacturing by providing extraordinary insight into product behavior via objective, quantifiable color data. "Instrumental color measurement has had the greatest effect on the demands of the ink industry," says Don Matthiesen, director of marketing at Environmental Inks and Coatings. "Quality programs emphasize statistical quality control, hence the need to put a number on color measurement."

Spectrophotometers are designed to analyze **reflected or transmitted color** and translate color information into specialized color space data, such as CIE L*a*b*or Hunter Lab values. Today's sophisticated spectrophotometers are able to rapidly and economically produce highly accurate readings of both liquid and solid inks using versatile optical geometries. Although spectrophotometers give you the ability to analyze **even the smallest sample**, they also offer innovative solutions for measuring the color of large quantities of ink to ensure appropriate coloration. If you are working with a large liquid batch, for example, you may elect to **use a flow-through cell** that allows you to take multiple readings as the sample moves through the cell to create an average that represents the entire batch. By comparing the sample to a color standard, operators can instantly identify whether it falls within the acceptable color range, ensuring batch-to-batch and lot-to-lot consistency. Additionally, the data provided by spectrophotometric can be used to create a historical archive of color information, giving you access to **vital historical color and process information**. This allows you to both evaluate formulation and manufacturing processes over time while simultaneously allowing you to easily recreate past colors with extraordinary accuracy.

Instrumental color measurement gives ink producers the ability to easily confirm color matches and facilitates the creation of new ink formulations developed in response to customer requests.
Image Source: Unsplash user Annie Spratt

Facilitating Color Matching and Creating Color Standards

Historically, one of the most difficult tasks with the ink and printing industries has been color matching. Without an objective basis for color evaluation, both ink producers and printing companies **had to rely on visual assessment**, which is inherently subjective and prone to inaccuracy. Spectrophotometers changed that by distilling color information to objective, numerical data that acts as **a universal language**, facilitating both color communication and color matching. Today, spectrophotometric data allows you to confirm that an ink conforms to the parameters requested by a printer, ensuring an exact color match. If a requested color isn't within an ink producer's existing library of colors, the information provided by instrumental color measurement can be used to tailor new formulations to meet the needs of customers without time-consuming and costly trial and error.

But spectrophotometers also allow you to go beyond simply color matching; it allows you to **create a complete color standards program** with your customers. "Printers are looking for colors that match their customers' expectation," says Michael Impastato, vice president of market development at Flint Ink Corp."This involves more than color matching. [T]he printer and the ink maker must establish a good color standards program. The color standards have to be agreed upon by all parties: the customer, printer, and ink maker. These 'approved' standards become the bible." Spectrophotometric color measurement allows all parties to define their color standards and verify adherence to those standards to ensure accuracy and consistency at every stage of the production process.

HunterLab Quality

HunterLab has been at the forefront of color measurement technology for over 60 years. Our commitment to ongoing innovation has led us to create an impressive lineup of portable, benchtop,

and in-line spectrophotometers that combine cutting-edge technologies with user-friendly designs. These remarkable instruments give you unprecedented insight into your product, allow you to implement color quality control programs of the highest standard, and provide the objective data you need to establish comprehensive color standards. **Contact us** to learn more about our renowned spectrophotometers, versatile color measurement software packages, and world-class customer support services.

1. "How to Measure the Color of Ink?" February 8, 2016, http://www.colourmeasure.com/knowledge-base/2016-02-08-how-to-measure-the-colour-of-ink
2. "Color Matching and QC," October 21, 2005, http://www.inkworldmagazine.com/issues/2004-08/view_features/color-matching-and-qc