



In an increasingly paperless society, construction paper still holds its own. Image Source: Pexels user Pixabay

Paper was once called white gold. Its ubiquitous nature and seemingly endless demand fueled the pulp and paper industry around the globe as various paper forms became everyday essentials. But as the age of computers dawned, Frederick Wilfrid Lancaster’s concept of the paperless society, first imagined in the late 1970s, began to materialize. Computers were thrilling; data from 60 reams of paper could be stored on a 700 MB drive, facilitating data access and data portability while sidestepping concerns regarding deforestation. As TS Viswanathan, Managing Director of paper product company Subramaniam Brothers, writes, “In the 1990s, production of paper in the US in writing and printing grade was around 90 million tons, which has dipped to around 60 million tons; it is continuing to decline.”¹

And, yet, even as computers—in their many forms—come to largely supplant written forms of communication and data storage, there is something special about paper. “Paper is literally like a character in our life story, but it’s a character we haven’t paid a lot of attention to,” says Todd Stone, creative director with Carmer-Krasselt, an advertising agency that recently produced a series of TV ads promoting the benefits of paper. “When we see it and notice it, its ubiquity becomes apparent, but its importance becomes apparent too.”² Thomas Ehrlich and Ernestine Fu agree. “Paper allows complete creative freedom; there is unrestrained creative potential with a sheet of blank paper that we find liberating.”³

Indeed, there are some forms of paper that cannot be replicated by electronic simulacra. Chief among these is construction paper, which has no digital equivalent. With its unique texture and an endless array of colors, construction paper continues to offer possibilities for work and play computers cannot. But the production of construction paper can now benefit from [modern, computer-based color measurement technologies](#) to optimize color fastness and appeal in an increasingly paperless society.



Construction paper has played an essential role in everything from great works of art to classroom Valentine’s Day celebrations. Image Source: Pexels user Pixabay

The History of Construction Paper

Paper dates back thousands of years, but construction paper is a relatively recent development. In the late 1800s, the emergence of artificial dyes allowed for the production of vibrant “engine colored” papers, which mixed color into the pulp of the paper.⁴ Unlike coated papers, construction paper allowed for integrated, uniform coloration that could not be rubbed off. Its sturdy construction meant that the paper could be folded, perforated, and embroidered, making it ideal for children’s arts and crafts project while also acting as an integral part of elementary color theory in classrooms across the country.

However, children were not the only or even primary users of construction paper. These papers opened up new possibilities for artists who were previously limited to a restricted range of naturally-dyed papers that suffered from lack of diversity and vibrancy. Construction paper soon became a popular medium for both amateur and professional artists alike, with everyone from Gertrude Green to Chagall to Jackson Pollack using the material in their work in some way.

Color Challenges in Construction Paper

While the appeal of construction paper lies largely in its wide range of brilliant colors, those colors are inherently unstable. This can be readily observed in the dramatic color shifts of Ilya Bolotowsky’s collages, which obscure the artist’s intent, as well as the faded homemade Valentine’s Day cards of childhood. This color degradation is the result of UV interaction with the dyes as well as oxidized yellowing of lignin in the paper itself.

Although some artists intentionally seek out this color change, for most it acts as a barrier to construction paper use. As such, paper manufacturers have sought to improve color fastness in a

number of ways, including the use of sulphite pulp and acid-free processing. Today, some manufacturers offer both “regular” construction paper made of groundwood pulp and more expensive “fade resistant” sulphite papers designed to appeal to those who want to minimize color shifts over time.



Spectrophotometric color measurement allows paper manufacturers to perfect color resistance efforts. Image Source: Pexels user Pixabay

Improving Permanence with Color Measurement Technologies

Spectrophotometers play an essential role in the production of [all types of paper](#) by allowing for continuous color analysis at all stages of the production process. The color of raw materials and final products can be easily captured and distilled to [objective data](#) to ensure they fall into accepted color tolerances and produce papers that meet your standards. This data can be communicated across manufacturing facilities to ensure color consistency regardless of geographical location. For products whose primary source of appeal is color itself, this is a central component of product quality control.

Today’s [sophisticated color measurement technologies](#) are also vital for the development of improved color fastness in construction paper. Spectrophotometers give you the ability to determine the efficacy of fade-resistant efforts with the highest degree of precision. By taking baseline measurements and comparing them to measurements taken after varying lengths of UV exposure, you can closely monitor color behavior in response to environmental stressors and accurately quantify color shifts. This data can be correlated with process variables such as pulp and dye types as well as processing methods, allowing you to isolate and evaluate the impact of each variable. This data can then be used to improve fade resistance and produce papers that hold increased appeal for consumers.

HunterLab Innovation

HunterLab has been a pioneer in color measurement technologies for over 60 years. Today we offer a comprehensive line-up of [portable, benchtop, and inline spectrophotometers](#) developed for the needs of our customers in the paper industry. Our instruments give you the ability to monitor color behavior throughout the production process and alert you to unwanted color variations immediately, giving you the opportunity to take swift corrective action. Combining our spectrophotometers with [customizable color measurement software](#) also gives you all the tools you need to evaluate new processes as you seek to improve your products and optimize appeal. [Contact us](#) to learn more about our renowned instruments and let us help you perfect your manufacturing practices.

1. "Writing on the Wall for Paper Industry", <http://www.thehindubusinessline.com/opinion/indian-paper-industry-in-crisis/article9288555.ece>
2. "Take Note: The Paper Industry is Planning a Big Comeback", July 29, 2015, https://www.washingtonpost.com/local/paper-or-pixels-after-years-of-decline-the-paper-industry-tries-to-win-back-consumers-hearts/2015/07/29/c942d6f0-3213-11e5-97ae-30a30cca95d7_story.html?utm_term=.56b375744d63
3. "The 'Paperless Society' is Far from Paperless", September 24, 2014, <https://www.forbes.com/sites/ehrllichfu/2014/09/24/the-paperless-society-is-far-from-paperless/#5c40a6637088>
4. "Construction Paper: A Brief History of Impermanence", 1997, <http://cool.conservation-us.org/coolaic/sg/bpg/annual/v16/bp16-07.html>