



## Sustainable Measures of Color Communication

### DyStar Ecology Solutions

SPECIFYING a desired color for a textile article represents one of the greatest challenges for the global supply chain. As a result, most major retailers and brands have implemented color management systems to respond to these challenges. In today's ecologically driven market, all management systems must be evaluated for sustainable practices. Opportunities to optimize exist in the areas of color creation and communication for the textile supply chain.

### Inspiration and Design

Textile design as it relates to color is traditionally considered as an artistic rather than scientific discipline. Color is inherently tied to emotion and we look to the artistic and passionate among us to specify what colors our customers will respond to best. Many in the design community are also passionate about improving the sustainability of the products they design. So there is great potential for creating change during the design phase.

The decisions made at the design phase greatly effect the later decisions made by the rest of the supply chain. So, during design we have the greatest potential for changing the output of the process. To make an impact on the process designers should begin to think of themselves as not only part of an artistic process, but also part of an engineering process. Most design decisions related to color will result in a chemical decision later in the chain. For example, something as simple as deciding to chose a bright pastel pink on cotton versus a duller shade most likely will result in the fabric being bleached as opposed to simply scoured. Bleaching will require more energy and chemicals to be used for the production of the fabric and will have a greater environmental impact.

As designers become more involved in the production decisions they dictate, they will need to be more aware of such things as: Achievability of different colors on different fibers, limitations of color selection based on restricted substances, colorfastness and dye performance to meet ecology standards.

Does this mean design should be compromised for the sake of sustainability? The answer is no for a lot of obvious reasons. However, the point is that if designers are decision makers, they should be as informed as possible regarding the effects of the decisions they make. Education and consultation with knowledgeable partners will be a key to making such sustainable design choices.

Inspiration for color comes from many sources. Most designers consult with professional trend services when designing color palettes. Once the correct colors are chosen, it is the job of the color standard provider to translate these inspirations into standards and communicate them to the market. However, there is potential to reduce the environmental impact of even this seemingly inert process. Color Solutions International produces trend inspirations in the form of regular updates to its customers. These trend inspirations are the result of our own evaluation of color trends



Photo 1

Photo 2

in the market based on the professional trend services and the input of our customer's desires. The designer can simply specify the color required by referencing the desired trend inspiration color and color standards can be produced from the fabric already prepared. This reduces the costly and wasteful process of lab dipping and color approval for each new color.

During the design process, there is often the need to reproduce palettes or display groups of colors. Working with color often results in a lot of printed paper. Working with color in a virtual environment can result in less waste due to printed materials. There are many software programs when used with color management practices allow the designer to visualize color without printing.



Photo 3



In addition to these commercial software programs, CSI offers its clients a web based virtual interface to allow color searching and display. (<http://www.csicolorsearch.com/>)

To complement the virtual use of color, CSI provides fabric based design tools. These design tools can be used to display palettes during the design process, but are a reusable alternative option to printing on paper.

## Certified Color Standards

One of the most critical elements of a state-of-the-art color communication system is the design, creation, and communication of a certified color standard. DyStar through its Color Solutions International business provides certified color standard programs along with communication tools and services to its many retail and brand customers.

Certified Color Standards are the combination of the reflectance data and a visual fabric reference for a given color. The spectral data is normally contained in a file format that



Photo 4

may also contain the necessary spectrophotometer setting along with other information pertaining to the color being specified. The visual reference should be individually quality controlled and traceable to eliminate unnecessary delays and lab dips. It should also be a size suitable for visual evaluation and large enough to fold and make an opaque sample for reading on a spectrophotometer large aperture port.

The use of a certified color standard will in itself reduce the environmental impact of color to the supply chain. It has been demonstrated that the use of a certified color standard program in combination with properly maintained spectrophotometers will reduce the number of submissions required to approve color. Also, properly communicating a color reduces the likelihood of delays in production. Delays in production often mean air shipment of fabric or garments which greatly increases the carbon footprint of the article being sold.

### What's in a lab dip?

While a lab dip is normally just a small dyeing of the article to be produced, it does have an environmental cost to

create and ship. If you think about it, the lab dip does not become part of the final article being sold. So, the lab dip in itself should be considered waste and waste is to be minimized or eliminated. For each lab dip, there is a cost and impact relating to: Fabric/Yarn/Fiber, Dyes/Chemicals, Water, Energy, Paperwork, Shipping, and Time.

Anything we can do as a supply chain to reduce these factors will reduce our environmental impact.

### A Certified Color standard communicates more than just the color.

At each stage of the color creation and quality control process, a color standard should be present. For this reason, a color standard can be used to communicate more than just the shade required. Retailers and Brands have found that the color standard is a good place to communicate their environmental policy to their supply chain. After all, the people who decide which dyes and chemicals that will go on your garments are the people formulating with the aid of a color standard.

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|---|---|
| <p><b>Dye Recipe</b></p> <p>Levafix<sup>®</sup> Amber CA 0.25%</p> <p>Levafix<sup>®</sup> Red CA 1.20%</p> <p>Levafix<sup>®</sup> Blue CA 0.75%</p>   | <p><b>Field: CustomerDescr</b></p>        |
| <p>Spectral Data in .qtx format provided by e-mail upon purchase of Color Standard</p>  | <p><b>Field: CustomerID</b></p>           |
| <p>Available upon request</p> <ul style="list-style-type: none"> <li>Engineered Formulas</li> <li>Technical Assistance</li> </ul> <p>www.colorsolutionsinternational.com<br/>(800) 962-6023</p> | <p><b>COLOR REFERENCE</b></p>             |
| <p>econfidence<sup>®</sup> from DyStar<sup>®</sup></p> <p>Color Solutions International</p>   | <p><b>NOT A VALID STANDARD IF CUT</b></p> |

Brands and retailers can work with their color standard provider to ensure that the dyes used to create the standard comply with their ecology policy. For example, CSI color standards are carrying the econfidence logo from DyStar as a way to assure that environmentally responsible dyes are used in the creation of the color standard. Wal-Mart has for several years has used their e2e, Earth to Earth, logo on their color standards to let their suppliers know that a color standard has been formulated with dyes approved for the Global Organic Textile Standard.

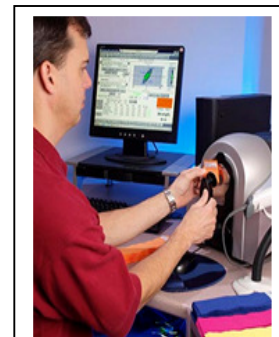


Photo 5



## Quality Control

For most modern color communication systems, when a standard is selected, it becomes the final color for the entire supply chain. However, for some companies, the responsibility for color management and design is shared. There is often a temptation to improve the color after the standard has been accepted. This can result in a color submission being rejected even if it matches the standard. In return, the dye house will create even more waste and delay the process trying to match a standard that does not exist. The sustainable practice is to create an achievable color standard and simply approve any lab or bulk submission that matches inside an agreed tolerance.

For years, many have seen time savings and economic benefits of communicating color electronically. The key factors for success are the creation of an achievable color standard and the use of properly calibrated and correlated spectrophotometers in the whole supply chain. Those that are capable of communicating electronically will have a competitive ecological advantage in the market as well.

Another practice that is gaining popularity for some major retailers is accreditation of dye houses. This process seeks to eliminate the lab dip and approval process altogether. The retailer works directly with dye houses that can demonstrate that they can consistently produce a shade that the retailer will accept. Once this capability is demonstrated, the dye house can self approve colors and produce fabrics with only a final approval needed to verify and not a series of lab and bulk submissions. Whether this model becomes a sustainable option will depend on how well the supply chain can work together.

Another important factor that affects the color communication process is the recent REACH legislation for the EU. These laws are driving the need for traceability and improved visibility with respect to the chemicals used in the production of textiles. In the future, it may be that communicating color is more than just measuring the color we produce. It may be about measuring the impact of the colors we create in an open and consumer driven environment.

For more information please contact: [www.dystar.com](http://www.dystar.com) ■