Schwan-STABILO Cosmetics Case Study

Some of the world's largest corporations such as Schwan – Stabilo Cosmetics, Wal-Mart, Target Corp., General Motors Corp are imposing tougher standards on suppliers to ensure that their employees who are responsible for color quality control can discriminate between various shades of color. Suppliers in industries as varied as cosmetics, textile dyeing, plastic injection molding and printing are working to meet the higher standards required by major corporations that want to improve customer satisfaction, reduce waste and cut the time it takes to bring new products to market.

In the past, suppliers have improved the system of color communications largely by concentrating on the hardware used to communicate color standards, such as spectrophotometers that measure how closely colors match standards and light booths that provide standard illumination. But to achieve the requirements of the new standards, suppliers now need to address the human side of color perception. Companies are being asked to gauge whether the individuals they employ in such occupations as quality control personnel, printing press operators, chemists, and soft goods buyers have the appropriate level of color vision to perform their duties properly.

Deficiencies in color vision are much more prevalent than most people imagine: nearly one in every 12 males has some form of color vision defect. In addition, a number of factors can diminish a person's ability to distinguish between colors and shades, such as:

- Increasing age that causes discoloration of the lens and cornea
- Stress that increases blood pressure
- Certain medications
- Diseases
- Overexposure to ultraviolet light from daylight

In many instances, individual aren't even aware of their limitations in discriminating colors and subtle shades until expensive mistakes occur on the production line, in the shipping department or when placing large orders from samples. The result of poor color vision can be shipping

delays, returned goods, products made out-of-specification and customer complaints. Some industries where poor color discrimination can be particularly costly includes:

- Design, Fashion, Graphics, Interior, and Product
- Printing and Packaging
- Plastic manufacturing – Color Concentration and Molding
- Coating, Paints, and Inks
- Architectural Paint
- Textile Dyeing and Processing
- Cosmetics

Fortunately, companies can use a quick, inexpensive and effective test to accurately determine whether an individual is well suited for an occupation that requires sharp color vision. X-Rite, the world's largest manufacturer and designer of color measurement equipment and software solutions, offers the Farnsworth-Munsell 100-Hue Test that has been used for more than 60 years to distinguish between individuals who have poor, normal, or exceptional color vision. One of the most widely used tests in industries where color control is essential, the FM 100 Hue test is also used to detect medical conditions such as ocular disease, diabetes and Parkinson's disease.

"Over the last five years, our unit sales of the FM 100 Hue test have essentially doubled as companies have reacted to demands for better color communication," X-Rite Product Manager Art Schmehling said. "They see the FM Hue test as a cost-effective method to meet more stringent ISO and QS standards." Major corporations have been quick to direct vendors all along the supply chain to implement the test because it costs less than $800 for a kit. Due to its relatively low price, ease of use and accuracy, the test has become a standard for color vision assessment in a number of industries.

One customer of the FM 100 Hue test is Schwan-STABILO Cosmetics GMBH & Co., the leading private label manufacturer of cosmetic pencils worldwide. "In our COLOUR COSMETICS line, Schwan offers more than 10,000 colors and more than 200 textures that cover every possible cosmetics use," said Heidrun Crim, R&D Cosmetic Pencils at Schwan based in Heroldsberg, Germany. "To manufacture such a vast assortment of products, we have put into place rigorous processes to maintain our high quality standards in producing accurate and consistent colors." The FM 100 Hue test is one way that Schwan makes sure the exact colors of eye shadows match lipsticks that have been produced over fashion seasons.

While it has become a widely used tool for leading companies, the FM 100 Hue test also has been specified by the following standards:

- ASTM 1499-97 Standard guide for the selection, evaluation and training of observers
- ASTM 1729-96 Standard practice for visual appraisal of colors and color differences of diffusely-illuminated opaque materials
- AATCC EP9-2002 Visual assessment of color differences of textiles
- SPI PB-1 Visual evaluation of reflected color
- SAE J361 Procedure for visual evaluation of interior and exterior automotive trim
- TAPPI T515 Visual grading and color matching of paper

Individuals being assessed for color vision often can complete the FM 100 Hue test in less than 20 minutes, and a person can be trained on how to administer the test in about 5 -10 min. Because the test is quick and effective, companies will often test their employees annually to assess whether their sense of color discrimination has changed over time.

Simplicity is a hallmark of the FM 100 Hue test. The person administering the test gives the participant four trays holding a total of 85 color chips in random order. The chips have different hues, but identical lightness and chroma values. The object of the test is for the participant to arrange the chips in proper order by hue. The misplaced

chips are counted, with lower scores signifying better ability to discern color differences.

The results essentially tell the company two things: whether the participant has normal color vision and where the color discrimination issues are for the individuals. For those participants who have color vision defects, the test indicates where the color confusion lies, such as a weakness in perceiving red or green colors.

While the basic test has been relatively unchanged since its inception, X-Rite has made the administration of the test and resultant data gathering easy through use of software that is compatible with multiple operating systems. Translated in a number of languages, the software allows for great flexibility in the way data is stored, retrieved and output. Every FM 100 Hue test receives a certification label that confirms that the test has been inspected and approved under X-Rite's quality practices.

"While it takes a little more effort, companies that raise the bar on color communications are differentiating themselves from companies that have loose control over how their products look to the public," Schmehling said. "Overall, tools like the FM Hue 100 test help a company to keep its competitive advantage at a time when consumers are more demanding about the colors of the products that they purchase."

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