“Hey, Bill!” asks the juvenile sporting goods salesman. “Can I have the pool table? Nobody’s gonna buy it.” Bill sighs. Thirty-five more years until retirement. “Isn’t that your job, Pete?” he asks. “Selling pool tables?” Pete runs his hand through his hair to smooth down his cowlick. It immediately sticks right back up. “I can sell the other pool tables fine,” he says. “I sold three pool tables this morning. But nobody wants to buy this one. The legs are different colors. They come in and they say ‘I want a pool table,’ so I say ‘How about this one’ and they say ‘No, the legs are different colors.’ Then I show them another one and they buy that one. So can I just have this one? We’re never gonna sell it.” I’m too old for this, thinks Bill. And I’m only twenty-six. “No,” he says. “Sell the pool table, Pete. You can start by dusting it off. Call me if you need me.” “Where are you going?” Pete asks. “To go call the manufacturer and yell at them for sending us a pool table with different colored legs,” says Bill. “Will that help?” asks Pete. “No,” says Bill. “But it’ll make me feel better.”

An off-colored leg would ruin the way this dark cherry blends with its surroundings. Image Credit: Flickr User dr.coop (CC BY 2.0)

**Customers Expect Repeatable Colors in Wood Products**

When customers are shopping for quality wood products, they pay attention to color. So, when you're manufacturing pool tables, cabinetry, furniture, wood paneling, and other quality wood products, it's important to meet color specifications. Implementing color tolerance standards for each product is the first step towards repeatable results and increased customer satisfaction.

Repeatability is essential when filling orders, either for individual customers or large distributors. The end customer will expect a wood product that is about the same color as the display model they saw in a store, or the picture they saw online or in a catalog. Color is one of the most direct impressions a customer will have of a wood product. Based on color[1], they will decide if a product is suitable or not. So, as a manufacturer, you must be able to make each product in a line out of the same color wood.

Simply making each piece in a product line out of the same species tree is not sufficient to entirely control color. Different minerals and chemicals[2] in water, soil, and air in the tree's environment can affect the final color of its wood. Also, various stresses in the life of the tree—such a strong wind events, droughts, or fires—can affect the wood's color as well. Not only does the natural color of wood differ, but differences in stain application and environment can alter the color of wood as well. So, trusting to species and stain to create repeatable colors in your wood products is a good way to build a pool table with different color legs.

Institutions like universities, schools, and libraries, who buy a lot of the same wooden chairs, expect those chairs to all be the same color. Image Credit: Flickr User Susan Smith. (CC BY 2.0)

**Spectrophotometers Ensure Color Repeatability in Wood Products**

The best way to guarantee repeatable colors in wood products manufacturing is by the implementing an objective color quality control system. For each product, an acceptable range of colors must be chosen. These colors can then be translated into numerical coordinates on a color scale like the CIE L*a*b* system. After the wood is stained, quality control engineers should scan it with a spectrophotometer. These instruments determine the color of an object on an objective, numerical scale by observing reflected light. Engineers then compare this number to the standard. Then they pass acceptably colored wood into production, and incorrectly colored wood back to be recolored.

When measuring the color of wood with a spectrophotometer, it's important to note that wood naturally possesses color variation in its grain. A certain amount of variation is expected, and an inherent part of the product. To measure around this[3], it's best to take a series of observations with the instrument of different areas of the base color, not the grain. When averaged together, this sample of the base color provides an accurate measurement of the overall color. While this may sound onerous for the quality control engineer, a handheld instrument can record these observations in seconds. The instrument can then produce an average measurement based on built-in algorithms, delivering results with machinelike rapidity and accuracy.

Any instrument is only as good as its operator, and so it's important to educate your quality control engineers on the proper methodology for spectrophotometric measurements. With over six decades of experience making spectrophotometers for industry applications, HunterLab can teach your personnel what they need to know in order to quickly and accurately measure your wood products. To learn which instrument is best for your particular process, contact the experts at HunterLab today.


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