

ColorProse™

Dec. 21, 2001

Communicating Color Expertise To Color Professionals Worldwide

9/2001

An Archroma Christmas Story

Last Christmas, a woman in our office received a gift package from her father. She waited until evening, took the gift home and opened it. Her father's gift was a very nice suit from a distinguished women's wear retailer, but our associate could not appreciate the gift for wondering if her poor father was colorblind!

In the incandescent lighting of her bedroom, the suit jacket and skirt were two distinctly different, highly uncomplimentary colors. The top was an attractive green, but the bottom can best be described as some kind of "purple-black" color.

Worried about how to approach her father about his failing vision, she decided to exchange the gift for something more visually attractive – that is, something she wouldn't be ashamed to wear.

The following morning, back in the office, she wanted to show the garment to several others to be sure that she wasn't being too tough on Dad. Pulling it out onto her desk, she was somewhat stunned to see the top and bottom matched very well.

Someone suggested that she look at the garment under a shading light where appearance in a variety of different lights could be viewed.

The observations were absolutely amazing and, clearly, the best example we at Archroma have ever seen of a highly metameric match making it to the retail floor!

Under CWF, like the light in her office, the top and bottom matched fairly well, both articles being a nice shade of dark green. Under incandescent, however, the mismatch was the same as in her bedroom.

From a technical point-of-view, what happened? Both top and bottom have the same fiber content. Both have the same country of origin, but clearly, the top and bottom were cut from fabric that was dyed with distinctly different dye combinations!



A Business of Clariant

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We can almost imagine that the only shade requirement was a good match under CWF lighting. Surely no one in the supply web ever looked at the two fabric sources in incandescent lighting, probably the most common light source in the majority of homes.

Remember, the one sure way to prevent metamerism is to be certain that all garment fabric of the same substrate is dyed with the same dyes. That's one reason some retail organizations are exploring specifying the dyes to be used or, at the very least, recommending specific dye combinations.

From a spectral point-of-view, the top and bottom reflectance curves are shown in the graph. (1 = top. 2 = bottom.) The strongly reflecting "red tail" of the bottoms shade between 640-700 nm provides a guaranteed departure from the top in redder light sources such as incandescent (A).

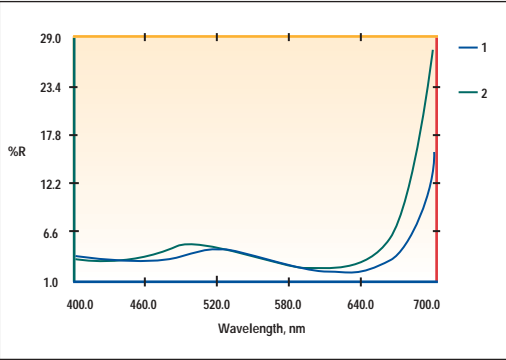


Figure 1 - Page down for larger version.

In terms of color difference, the DE CMC in Cool White Fluorescent (CWF) lighting is very good (0.49), but in incandescent (A), DE CMC is an abysmal 3.61. Graphically, the color difference in CWF and A is shown in the charts. In other light sources, the DE CMC is 1.39 in U30 and 1.07 in D65.

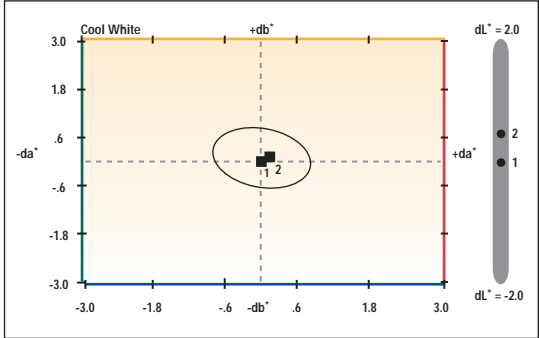


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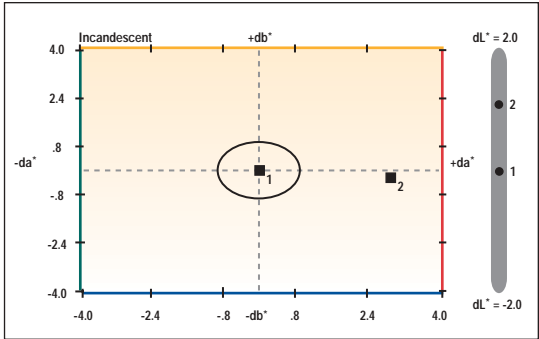


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The Christmas gift is the best (should we say worst?) example we've yet to see of highly metameric, mismatched coordinates slipping through the system and reaching a customer. It's tempting to speculate about the possible causes, but it's better to focus on prevention. Engineered Color Standards™ from Archroma Global Services are intended to help eliminate unpleasant "Christmas surprises."

Engineering promises formulations that meet retailer requirements with production-friendly combinations. Every standard is certified to tight tolerance against a master. Technical assistance is available from a global team of experts, and recommended dye formulas for various substrates and end-uses are convenient.

Merry Christmas from your team at Archroma Global Services, wishing you no metamerism surprises in the coming year...May all your reds be red, your greens be green and precision colors in-between!

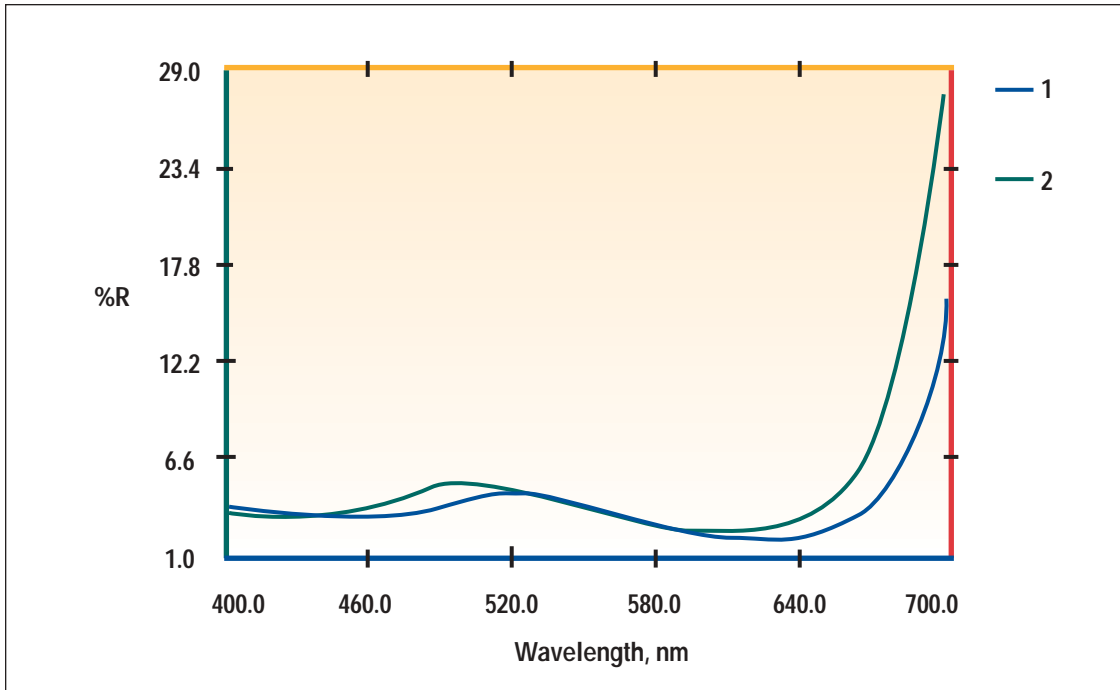


Figure 1

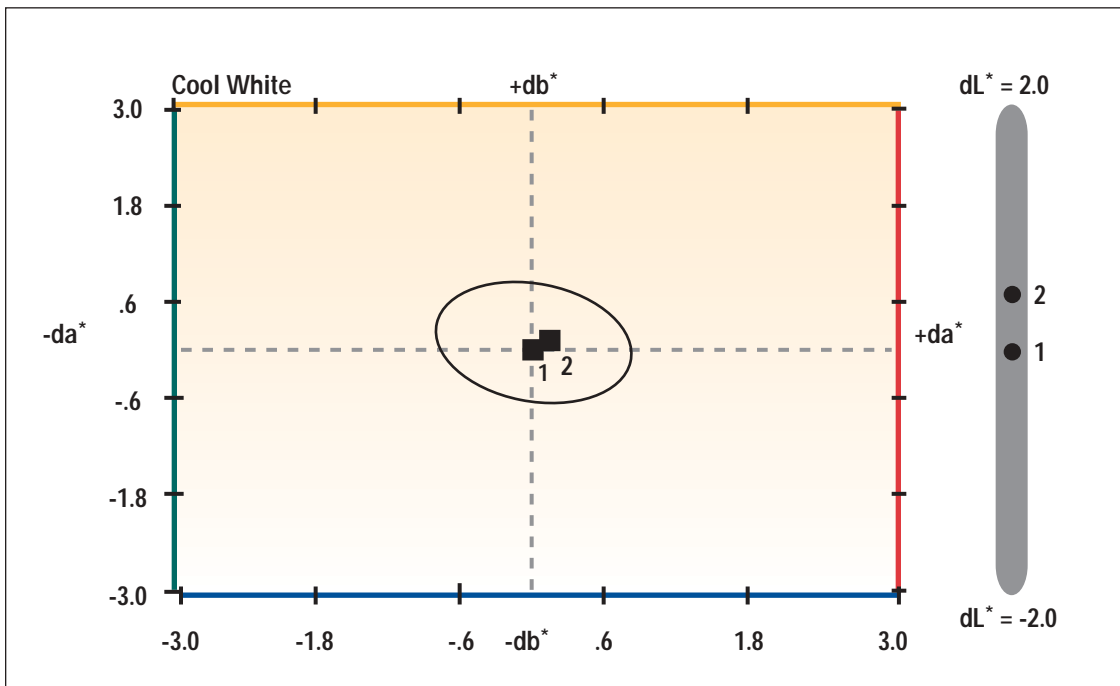


Figure 2

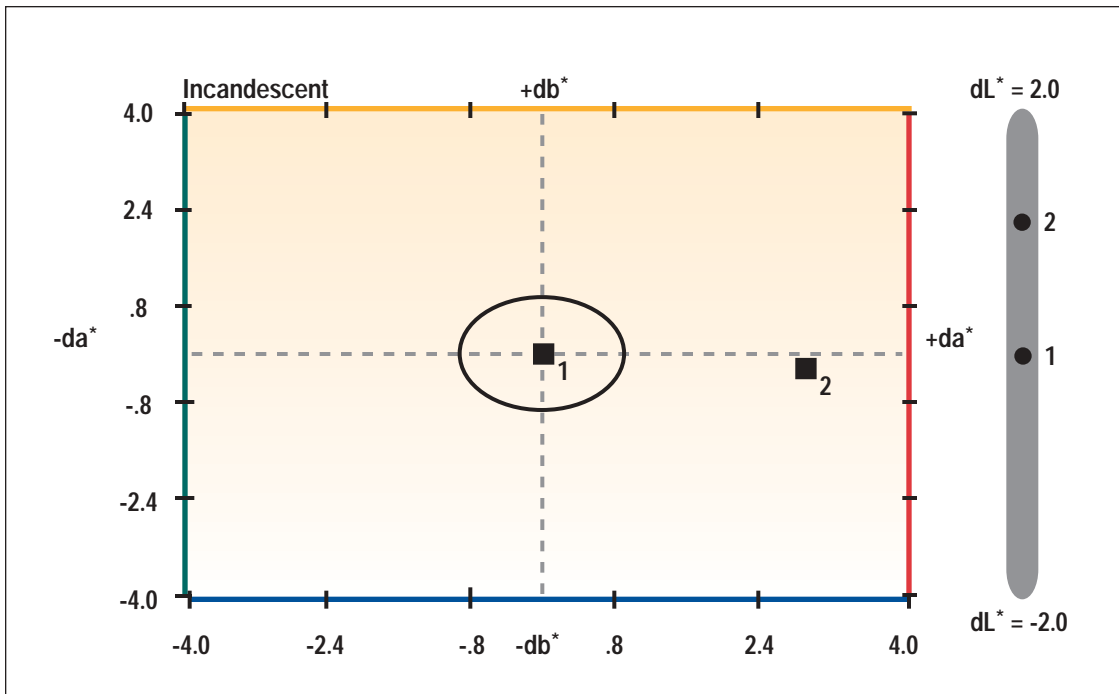


Figure 3