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EPOXY & FIBERGLASS FLOORING, SEAMLESS FIBERGLASS WALL SYSTEMS, SEALERS, HIGH PERFORMANCE COATING SYSTEMS, AND INDUSTRIAL CLEANERS

INDUSTRIAL FLOORING TECHNOLOGY SERIES- #4 COLOR WHAT IS IT, HOW TO DEFINE IT

So here we are putting a medium gray epoxy on a parts warehouse floor for a distributor of heavy equipment parts located on the other side of the state. The "Design Consultant" asks us if we can make the color a little "peachier" …and more "inviting".. I repeat the mantra "The customer is always right.. the customer is always right." So now what the heck am I going to do to satisfy him, I thought? I dreaded that I'd next hear the term "Fen Shui" as we talked over the phone, while he tried to describe what he wanted. After many road trips to the job, we got it. Fortunately today we can be a bit more objectively quantative in what we want. This means we can define what we want and get it. Good. Ok How?

WHAT IS COLOR

Color is the COMBINATION of the light source, the colored thingie, and what your eye sees. Change the light source and the color changes. The same thing could very well look WAY different in sunlight vs under incandescent light bulbs. The spectrum of the light is different and so the light reflected from the object will reflect differently. This means the same color paint out of the same bucket can look different under different lights. Eyes also differ between people in their ability to see color and color changes. One person may see a GIANT difference in color, while the other person can't see any difference. It happens. Also the ability to see a color change in a lighter color is WAY easier than in a dark color for everyone. It's just how eyes work.

TECHNOLOGY TO THE RESCUE.

In the early 1970's this issue got more and more critical for the larger paint companies especially for ones with different locations making the same colors. To standardize, color spectrophotometers were brought in to "measure" color against standards. Color is defined as being either 3 or 4 dimensional. And this is easy to understand. One dimension is the dark light scale- black to white. Another is the red-green scale the other is the blue-yellow scale and the last is the gloss. 4 dimensions and NO Rod Serling! Works for me.

Now take a look at the included spectrophotometer chart.

"A" is the color we are trying to hit-the bullseye for color.

"B" is the color batch we presently have. On the red-green scale, the color is a little too red (dare I say "peachier?") than the standard. On the blue yellow scale we are VERY close to the standard.

"C" shows us where we are on the light-dark scale. We are a little darker than standard – the zero mark.

“D”- dE- is an overall measure of “how far we are away from the standard on all measures”.

dE is a great indicator for an over all match. Generally a dE under 1.0 is a VERY good match and in the darker colors nearly no one would see any differences. For the lighter colors a dE under 0.5 is usually considered a very good match. We check every batch of an existing floor coating spectrophotometricly against a color standard in the computer. We want to be between 0.5 and 1.0. for standard work and under 0.5 for critical color matches.

HOW TO SPECIFY COLOR

In most cases our standard colors are suitable for the floors we do. That’s why they are standard. Occasionally a color match is needed. We find that Sherman Williams has a great fanfold of colors. Pick one and we can usually match our epoxies to it. You can give us a thing- say a business logo- for a color match. We once did a Fire Engine Red floor for Pierce Manufacturing, color matched to their fire trucks. They gave me a red side mirror off a fire engine and asked me to color match to it- ok I did have to give it back….right….If we need to match something on site our spectrophotometer is quite portable. We can travel to your site, take a reading of say, an existing floor coating, and match it. You can ask us our opinion of color schemes but it is up to the customer to pick what they like. I think Harley Davidson Orange is totally appropriate for all areas. Others might disagree.

INTERESTING THINGS

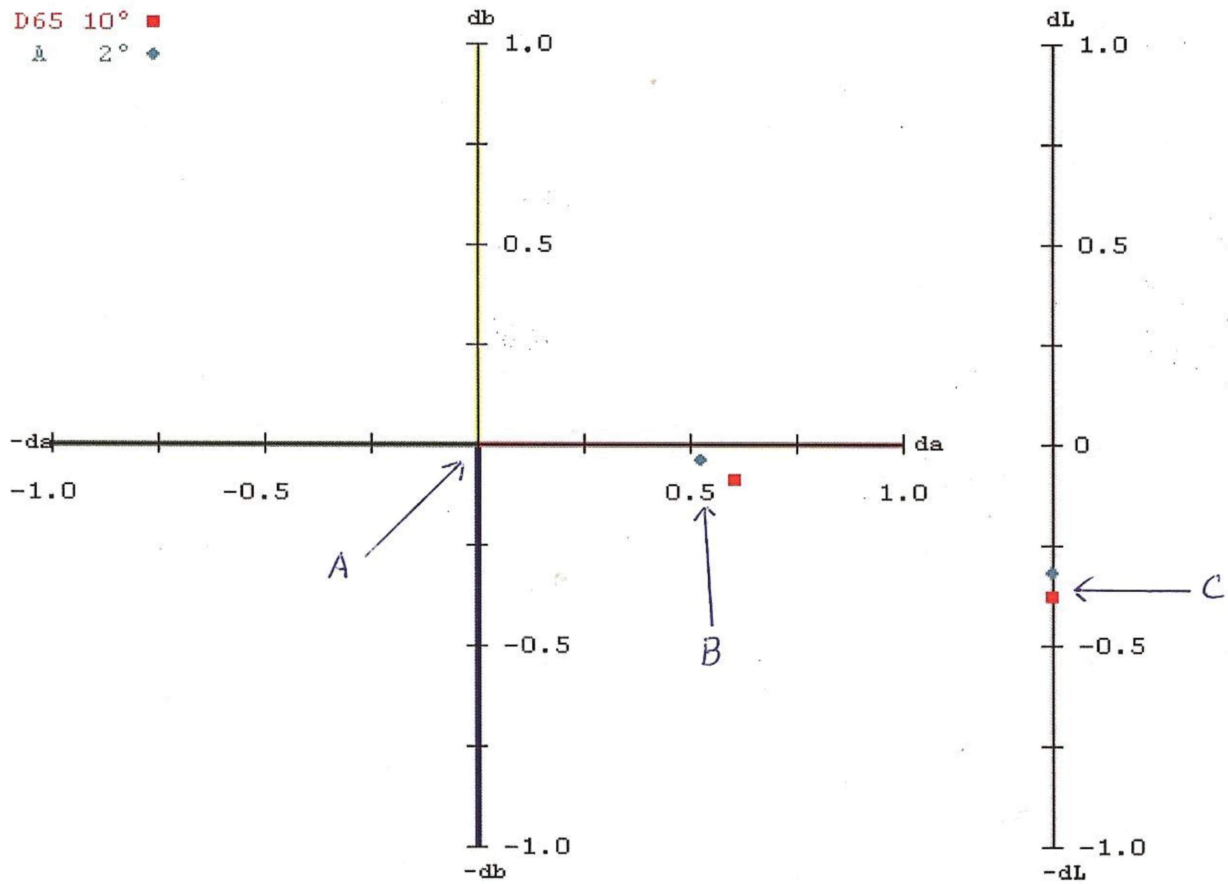
1. Color matching is as much of a art as a science. Epoxy materials are especially fun to work with. Both the Epoxy and the amine hardener impart a color to the batch and this can, and often does, vary with the batch of incoming material. Often the color changes when the material cures so color matches have to be with the two components together and the sample cured before testing can begin.
2. If you want a really “white white” the amber/yellow cast imparted by the amine hardener can sometimes be overcome with a slight addition of blue. If this “white” is critical use a urethane material whose resins are more “water white and clear”.
3. Deep colors may not be possible as the amount of pigment needed to get a really deep color will dilute the resins and diminish their end use properties.
4. There is an effect called metamerism where the color of two samples looks the same under one light and different under another light. To be exact it’s useful to check a match on site as well as in the lab. Of course if the customer changes lights, the match might also change.
5. If there will be a lot of UV containing light, use a urethane. All epoxies will yellow to a varying extent in UV light.

Tom Hennessy ChE
I hope this helps.

Georgeism # 24
Give someone a smile. It’s fun it’s free and it will do you good

Dr. Bruno Lange GmbH & Co. KG

Photometer - Messgeräte - Reagenzien



Reference name : ANC LAST BATCH

Sample name :

D

Reference :		D65 10°		A 2°	
L*	81.22	dE*	0.72	dE*	0.62
a*	0.09	dL*	-0.38	dL*	-0.32
b*	15.61	da*	0.60	da*	0.53
C*	15.61	db*	-0.09	db*	-0.04
hab	89.68	dC*	-0.07	dC*	0.04
		dH*	-0.61	dH*	-0.53

Sample :	
L*	80.84
a*	0.69
b*	15.52
C*	15.54
hab	87.45

Metamerism : 0.11

Date : 2/10/2009

Time : 8:00:37 AM