Watercolor Foundations
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kwiltse@whidbey.com • Kris Wiltse
PH: 425-231-4106

Paint Properties

Here's some info on paint properties and characteristics. Most every brand of paint print information on the side of each tube about the pigment it contains (as a number), the binder and lightfast rating. As you can see here, M Grahams Ultramarine blue has the highest lightfast rating. Probably all brands do unless it's cheap paint. Cheaper paints also contain fillers.

Here's a chart of lightfast ratings:

- I - Excellent
- II - Very Good
- III - Good
- IV - Fair
- V - Poor

If you're working in a sketchbook, lightfastness doesn't matter. It does matter if the painting will be exposed to light. I try to use lightfast pigments for artwork that will be hung on a wall.

To reiterate from the previous handout, Terms and Techniques, each pigment is, or a combination of these properties:

- **Opaque -** The pigment is dense, not allowing light to penetrate it to the surface of the paper and reflect back to your eye.
- **Semi-opaque -** Pigment is less dense allowing some light to penetrate to the paper.
- **Transparent -** The pigment particles allow light to pass through to the paper and reflect back to you eye. It's what gives watercolor its luminous quality. Transparent colors seem to glow.

- **Staining -** Pigments that that are so fine and dye-like that they penetrate the paper fibers, staining it. Staining colors are difficult to remove from the paper surface.
- **Granulating -** Pigments that are granular are composed of large particles. These particles settle into the paper wells making reticulating patterns and textures. Granulating pigments can be transparent.

The manufacturers will have opacity information on each pigment listed at their website. I use Daniel Smith and M. Graham websites to look up that information frequently.

Examples of paint pigments with particular properties:

- **Opaque**: M Graham Terra Rosa, DS Indian red and DS Venetian red.

- **Semi-Opaque:** Earth tones such as Burnt Sienna, Burnt Umber and Yellow ochre. Probably varies by manufacturer.

- **Transparent:** Alizarin crimson, all phthalos, Transparent pyrrole orange

- **Granulating:** Ultramarine blue, Red iron oxide, Manganese blue. Most earth colors.

- **Staining:** All the phthalos are staining. Though I understand Daniel Smith is coming out with a phthalo that is capable of being lifted.

You can test a pigments lifting capability by putting down a layer of paint, allowing it to dry, then wet a section of dried paint and try to pick it up with a thirsty brush. Staining pigments will stain the paper.

I generally don't pay much attention to pigment ID numbers unless I'm looking for a single pigment paint or am looking for a paint with no black in it. I plan to study it more. But I have gotten by with what I know.
Many pigments are mixes of other pigments. For example, Daniel Smith Moonglow is made up of three pigments. PG 18 (Viridian), PB 29 (Ultramarine blue), PR 177 (Anthraquinoid red). It's called a **convenience mix**. I do use them, but if you're just starting out with watercolor it's best to learn how to mix these colors yourself. Look them up, take note of what pigments are used, and try mixing your own. *If you Google "PB 29 pigment" information will come up. Also Handprint.com has the information.*
If I have limited space on my palette, particularly for plein air and sketching work, I'll add a couple convenience mixes to my palette. Though, presently, I have none on my travel palette.

I'm writing out my general knowledge here. You may know a lot more than I! Feel free to tell me about anything I may have left out or got wrong.