Understanding Colorants

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Colorants are available from many sources: Herbs, flowers, roots, resins, beans, clays, sands, oxides, ochers, metals, minerals, insect extracts, animal extracts, marine extracts, synthetic compounds, and etcetera. Colorants come in many forms: Liquids, gels, oils, wax chips, coarsely-ground solids, finely-ground solids, powders, and etcetera. Now, consider all the possible ways for us to combine all the different colors, the different shades of colors, the different colorants, and the different techniques: Darkly colored soap, lightly colored soap, solid color, multicolor, swirled colors, layered colors, and etcetera. The possibilities are astronomical! Where should we start when trying to understand colorants? In general, colorants can be divided into two different categories: Dyes and Pigments.

Generally speaking, dyes are water-soluble and pigments are not water-soluble. For example, a dye dissolved in water should remain constantly dissolved, while a pigment added to water does not truly dissolve and pigment sediment will eventually settle to the bottom. Furthermore, items capable of absorbing water will absorb the dye dissolved in the water and will remain permanently colored, such as with fabric dye. Pigments exist as separate solids when mixed with water. Larger pigment molecules will “settle to the bottom” faster than smaller pigment molecules. The traditional food coloring sold in grocery stores is a very fine pigment—eventually, it will separate. Cake and frosting coloring is also a pigment; it does not truly dissolve in water; however, it does not separate because it is mixed into water with sugar and glycerin to form a gel. The sugar and glycerin increase the density of the mixture and prevent separation. In general, pigments are not as permanent as dyes.

Dyes should not be used to color soap. Never use fabric dye, candle dye, or hair dye to color soap. Dyes may permanently stain skin, hair, and fabrics. Only use pigments to color soap.

Next, the category of “Pigments” can be divided into two subcategories: Organic and Inorganic. Organic simply translates to “from a living source.” The Organic pigments include all plant matter (herbs, flowers, roots, resins, beans, etc.) and all insect or animal extracts. Organics pigments include any colorant that originated from a living source; therefore, all organic pigments are considered “natural” ingredients because they must be grown and cannot be manufactured or synthesized. Unfortunately, the use of natural Organic pigments must be researched because not all of them are safe. Some plant extracts are toxic and cause violent reactions in all individuals. However, most common plant and herb extracts are safe in small amounts. In general, Organic pigments, such as plants and herbs, produce more vibrant colors when combined with the oils and are less colorful when combined with the lye water.

Inorganic simply translates to “not from a living source.” However, Inorganic pigments can be found in nature or they can be synthetically manufactured. Inorganic pigments seem to produce a more evenly colored soap when combined with the lye water, instead of the oils. There is no clear or constant rule for the use of Inorganic pigments.

Some natural Inorganic pigments are safe, some are not. Some synthetic Inorganic pigments are safe, some are not. Always research and test new ingredients before including them in large batches of soap. Also, remember the concentration of a colorant can affect more than the color of the soap. For example, a soft pastel lavender soap may be safely used by all, meanwhile a rich dark purple (made from a greater concentration of the same colorant) may prompt violent allergic reactions.

Colorant Categories

Dyes

--Do not use dyes to color soap!--

- Fabric dye (such as Rit© dye)
- Candle dye
- Hair dye
  - Ferrous oxide (not to be confused with ferric oxide, which is a pigment)

Pigments

Pigments remain separate particles and do not dissolve in water.

Organic

"From a living source."

- All pigments from the Animal Kingdom
  - Vertebrate animals (warm blooded or cold blooded)
  - Insects (includes carmine red from cochineal beetles)
  - Spiders
  - Sponges
  - Worms
- All pigments from the Plant Kingdom
  - Beans
  - Flowers
  - Grasses
  - Herbs
  - Kelps
  - Leaves
  - Spices
  - Resins
  - Roots
  - Woods

Inorganic

"Not from a living source."

Natural

- Natural Iron Oxide (ferric oxide, red ocher) Do not use to color soap! (considered toxic due to impurities)
- Bentonite Mineral (found in "bentonite" clay)
- Montmorillonite Mineral (found in "French" or "green" clay)
- Red Hematite Do not use to color soap! (considered toxic due to impurities)
- Natural Micas (very rare & expensive)
- Natural Zinc Oxide

Synthetic

- Synthetic Iron Oxides (considered safe to color soap)
- Titanium Dioxide (titania)
- Chromium Oxide Green
- Ultramarines
- Synthetic Micas (all cosmetic & soap micas)
- Synthetic Zinc Oxide

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