

THE AZO DYE PAINT LAB Note; The information given below was obtained from the website:

<http://www.handprint.com/HP/WCL/pigmt1.html#additives>

In this lab you will use your Azo dye produced in the first week of lab to make 'paint'. To make a paint you need: a pigment (your azo dye) and a 'vehicle' to deliver the pigment. The 'vehicle' generally consists of: a binder, brightener, plasticizer, humectant, dispersant, filler and a little water/solvent.

In this lab you will experiment with different proportions of the above ingredients to make a usable paint. Ideally you want a paint that spreads easily and evenly, dries at an appropriate rate and that will bind/seal to the paper/canvas surface. Below are descriptions and functions of the components commonly found in the vehicle.

The most important component of the vehicle is the **binder**. This will be about 50-70% of the volume of the paint. (The Dye is usually about 10-30% of the paint volume). This is the component that 'holds' your dye and that will 'fix' it to the canvass. A binder doesn't necessarily dissolve the dye but holds it in a fine suspension. For water color paint Gum Arabic is used as the binder and for oil based paints linseed oil is used. Gum Arabic is a poly saccharide (sec 21.17 of Bruice) and linseed oil is a mixture of triacylglycerides (sec 26.3, pg 1165 of Bruice) that contain a high percentage of double bonds in the carbon chain.

The **Brightener** is a white compound that will give a brighter tint to the dye. Titanium dioxide and Barium sulfate are often used. Only a low amount (1-10 %) of brightener is usually added

The **Plasticizer** will allow the paint to be soft, malleable and easier to move about when applying. Glycerine is usually used as a plasticizer and is usually less than 20% of the vehicle volume.

A **Humectant** is added to retain moisture in the paint (to avoid the paint drying up to easily). Honey or corn syrup is often used (usually less than 20% of vehicle volume).

A **Dispersant** is added to allow the dye to be evenly dispersed in the binder (and to avoid clumping). Traditionally Ox gall has been used.

Water and/solvent are often added to give the paint a better consistency. Tube water colors usually have up to 15% water. Alcohols can provide better 'wetting' of the paint and shorten drying times. Maybe the ester you synthesized can add to the consistency of your paint?

Filler, such as dextrin, a corn starch can be used to thicken paint.

When making your paint you want to experiment around with the proportions of the dye and components of the vehicle. Mixing can be done with a mortar and pestle. You may also try other means to mix your paint (heating? add solvent then evaporate?). Also check the website under *handmade water color paints*: this section can give specific instructions (you of course can diverge from this).

In the end it try to develop a usable paint that could be shared with the rest of the class, and future classes to create beautiful pictures on canvas.