Chem 228 WS/2010
Synthesis Project-Library Assignment
(50 pts., due week of 3/17/10 - 3/19/10)

Name_____ Section_____ StdntNo_____
Attach this Sheet to Your Search Results

The following searches are to locate needed information about compounds involved in your synthesis project and to familiarize you with some of the standard reference sources for organic compound information.

1. Summary of reactions:
o-xylene can be oxidized by potassium permanganate to phthalic acid, which can be dehydrated to phthalic anhydride.
Phthalic anhydride reacts with resorcinol to form fluorescein, a fluorescent green dye.
Fluorescein reacts with iodine to form erythrosine, a red dye used as a food coloring.

Balance, using the half cell method the reaction of o-xylene with permanganate to form phthalic acid. The permanganate is converted to manganese dioxide.

The excess manganese dioxide can be reacted with sodium bisulfite, $NaHSO_3$, to produce soluble Mn^{2+} and sulfate ion, SO_4^{2-}. Balance this reaction using the half cell method.

The reaction will be done in refluxing CH_2Cl_2 using 0.20 gm of tetrabutylammonium chloride as a phase transfer catalyst.

Attach your balanced reactions to this sheet and keep another copy for yourself.

In Lab: We will begin the first step of the synthesis the week after St. Pat's.
Expect a quiz over step 1. Gloves are recommended for all steps.

You should come prepared with a procedure scaled to ten millimoles of o-xylene.

You should also have the usual prelab property table prepared in your lab book and an MSDS form covering chemicals to be used in the first step.

2. Go to "*The Purification of Laboratory Chemicals*", **TP 156.P83 P47**
(in hardcopy only, at the MST library in the reference section)
and find purification information for phthalic acid and fluorescein.

Xerox, or scan to pdf and attach.

3. Look in the *Merck Index* (online via 228 web page) to find info on potassium permanganate and determine how much water will be required to dissolve it in step 1 of the synthesis. Look up the entries for the other compounds as well.
Attach the info from the Merck Index. Keep a copy for your use as well.

4. Go to "*The Handbook of Data on Organic Compounds*", **QD 257.7 H36**
(in hardcopy only, at MST library in the reference section)
and find the solubility information for fluorescein.
Use the CAS# index to locate.

Xerox, or scan to pdf and attach.