

Chem 228 FS/2012
Synthesis of Para Red: Library Assignment
(due 10/17/12)

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. Procedures-Find procedures for preparing p-nitroacetanilide, p-nitroaniline and 4-(4'-nitrobenzeneazo)-1-naphthol in "Vogel's Textbook of Practical Organic Chemistry", which is on class reserve for chem 228 at the circulation desk at the MST library. Print out and attach procedures. Keep a copy for yourself.

2. Background-the following sources provide some background from which the procedure above was derived. Solomons, 10th ed refers to the current organic textbook for 221/223.

Aromatic nitration: Solomons, 10th ed, pp. 681-682

Hydrolysis of amides: Solomons, 10th ed, pp. 808

Diazo coupling: Solomons, 10th ed, pp. 935-936, 941-942

3. MSDS info-for p-nitroacetanilide, p-nitroaniline and 4-(4'-nitrobenzeneazo)-1-naphthol (para red) and reagents used to produce them.

You will need MWt, MP, BP, structures, CAS# for all reagents and products.

Also IR, NMR, MS spectra for each product.

Recommended sources: Synth Project FS12 web link, SDBS, Merck Index, SciFinder.

Handbook of Data on Organic Compounds, MST **reference** QD257.7.H36

Dictionary of Organic Compounds, MST **reference** QD246.D5

Ullmann's Encyclopedia of Industrial Chemistry, "Azo dyes" MST **reference** TP9.U57

4. Summary of reactions:

step 1 acetanilide is converted to o & p-nitroacetanilide

step 2 p-nitroacetanilide is converted p-nitroaniline

step 3 p-nitroaniline is converted to para red

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

In Lab: We will begin the first step of the synthesis on 10/17/12.

Expect a quiz over step 1. Gloves are recommended for all steps.

You should come prepared to do step 1 of the procedure.

Adjust amounts in Vogel procedure to use 0.08 mole of acetanilide.

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.

NOTE: Xerox machines on the first floor of the library can scan documents to pdf which can be stored on a thumb drive allowing free copying of reference materials.