We performed an aldol reaction earlier this semester in the synthesis of chalcones. In the present case the product of a first aldol reaction is capable of doing a second, intramolecular aldol reaction.

This works well because both of the organic substrates are symmetrical.

Tetraphenylcyclopentadienone will be your starting material for the “Hexaphenylbenzene Synthesis” experiment later in the semester.

**Procedure**

Add 1.5 g of benzil, 1.5 g of dibenzyl ketone (1,3-diphenyl-2-propanone), and 12 mL of ethanol to a 50 mL round-bottom flask. Place a magnetic stir bar in the flask and set the round-bottom flask on a sand bath on the hot plate. Attach the condenser to the round-bottom flask and turn on the water flow through the condenser. Heat the round-bottom flask containing the mixture (hot plate ~ 200 °C) with stirring until the solids dissolve.
Using a pipet, add 5 mL of ethanolic potassium hydroxide solution (1.8 M) downward through the condenser into the flask, allowing foaming to cease in between pipet squirts.

**Caution:** Foaming may occur.

The mixture will immediately turn deep purple. Heat the mixture to reflux with stirring for 15 minutes.

At the end of the heating period, remove the flask from the hot plate. Allow the mixture to cool to room temperature. Then place the flask in an ice-water bath for 5 minutes to complete crystallization of the product. Collect the deep purple/black-colored crystals on a Büchner funnel. Wash the crystals with three 4-mL portions of cold ethanol. The rinse solvent can also be used to aid in transferring crystals from the round-bottom flask to the Büchner funnel. Dry the tetraphenylcyclopentadienone in air until the next lab period.

Next period: Weigh your dried product and characterize it by the usual analytical techniques (IR, NMR & mp).

**Waste Disposal**
The aqueous layer from the filtration flask may be poured into the Base Waste container.