Stratingh Institute for Chemistry
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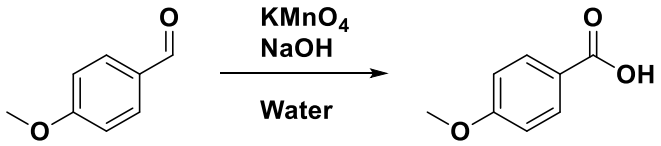
Problem Set
02. December 2021

Time: 12:00 – 13:00 h
Location: 5173.0050

1. Reaction of the week: by Paula Ortega Araiztegi (Katsonis Group)

2. For your project you need p-Anisidine. Unfortunately, there are delivery problems. Luckily Steven has some **Anisaldehyde** (see below) and tells you can easily convert this to your starting material. To sweeten the deal, he even as a nice oxidation procedure for you:



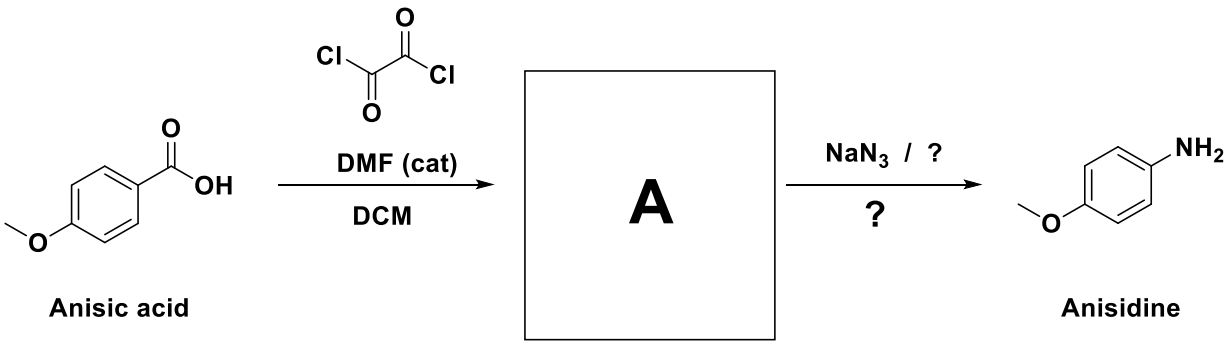
Anisaldehyde **Anisic acid**

   a. Write the redox equation of this reaction.

   b. The reaction is complete, and it is time to clean up. At that moment you notice all your glassware has brown stains! What is this and how can you clean your glassware?

   c. For future projects you want to avoid this cleaning up. Name <u>three</u> alternative oxidation conditions that can be used for this substrate. Which one would you pick next time? (personal preference)

3. The next step is a rearrangement, but Steven forgot to tell you the details:



Anisic acid **Anisidine**

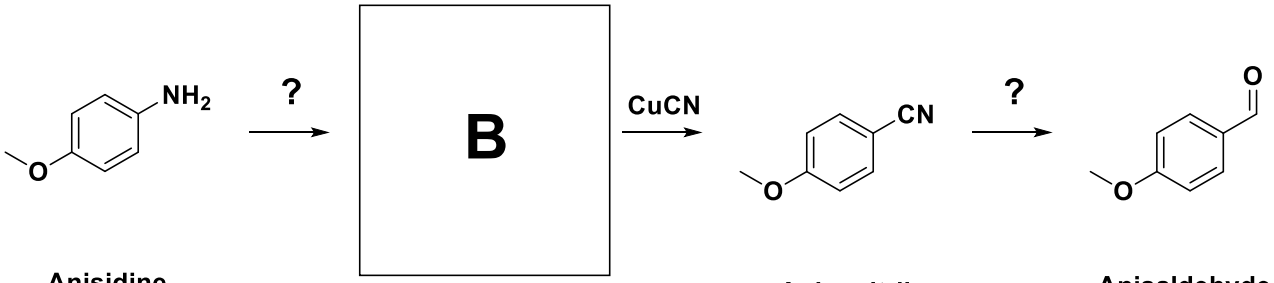
   a. What is the name of this reaction?

   b. Write down the mechanism of the formation of **A** and the subsequent rearrangement.

c. What solvent is used in the second step?

d. Which reagent can be used to perform both steps in one pot? What practical considerations should be considered when working with this chemical?

4. Disaster! The **Anisaldehyde** that you used was from Jeffrey! Quick, before Jeffrey notices it is gone convert **Anisidine** back to **Anisaldehyde**! Fortunately, Sebastian knows a way convert the amine back into an aldehyde:



Anisidine **Anisonitrile** **Anisaldehyde**

a. Provide the name of this reaction (first two steps) and fill in the blanks of the equation.

b. Unfortunately, because of the time pressure you did not have time to wait for the reactions to run to completion. As a result, your **anisaldehyde** is contaminated with **anisic acid** and **anisidine**. Propose a purification method and provide details on the required equipment and chemicals (types & volumes, *etc*).