Preparation of Solvatochromic and Chemiluminescent Molecules

**Solvatochromism**

After washing the reaction with a small amount of ethanol, 0.345g of byproduct was obtained and after crystalizing the desired product from the ethanol, 0.124g of product was obtained. About 0.833g of starting material was used so the crude % yield is 56.3%. When preparing the filter, the filter paper was pre-wetted with water so there was some water in the flask that mixed with the ethanol mixture. After all the ethanol evaporated, instead of waiting for the water to evaporate, the product began to crystalized and appeared hydrophobic so the solution was filtered again to obtain the desired product. This may have affected the % yield due to water molecules that were mixed in with the crystalized product. One reason the % yield is less than 100% is because the starting materials were dry and ground together instead of being mixed in a solution so there may have been less than ideal contact between the materials.

The melting point was not determined because the expected melting point was higher than what the supplied instruments could detect.

In order of increasing polarity, the solvents are Acetone, DMF, 2-Propanol, and Ethanol. My hypothesis that acetone would have the least increase in energy and ethanol would have the most was incorrect. All solvents when the solute was added were a clear yellow color so they had a similar starting energy. After adding the tetrabutylammonium hydroxide to each solution, the ethanol sol’n turned red, 2-propanol turned dark red, acetone turned purple, and DMF turned blue. According to these observations, the acetone sol’n had the highest shift in energy, then the DMF sol’n then ethanol, then 2-propanol. This means that the largest shift should be expected by the least polar sol’n but ethanol and 2-propanol still didn’t follow this trend. A possible trend would actually be the least polar solvents provided the highest energy wavelength while the most polar provided the least energy wavelength. The ethanol and 2-propanol solutions still don’t follow this trend exactly but that may be due to some contamination such as water in the reaction.

**Luminol**

After adding the two solutions into the same beaker, the solution glowed blue for about 7 seconds and then the color faded away.

The melting point was not determined because the expected melting point was higher than what the supplied instruments could detect.