

In this experiment the final product we tried to make was cyclohexanol. We decided on making cyclohexanol, because it requires the introduction and breaking of an epoxide. Epoxides are fascinating, because they consist of a three membered ring with an oxygen as the center atom. We used three different types of reactions to get to our final product; elimination, epoxidation, and reduction. All of these reactions are common to introductory organic chemistry classes, so we were already familiar with the mechanisms that take place to make this product. We tried to green up our reaction by changing a reagent and a solvent to a greener alternative. In the first step we switched out potassium *tert*-butoxide for peracetic acid and said that peracetic acid would be greener, because it is less harmful to the environment. Some properties that make peracetic acid less hazardous are its high oxidizing agent which is why it is used a cleaning agent. We also switched out tetrahydrofuran for diethyl ether in the last step and think that diethyl ether will be greener, because it has a lower urban ozone value and is higher in value in the OSHA PEL (ppm) hazard metrics. No matter how simple a reaction looks when writing it out does not mean it will be simple to get a desired product. This is interesting, because it is a common misconception to think that it will be simple to get a product if the reaction looks simple.