



THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY

1. The first part of the experiment involves the synthesis of a compound. The reaction is carried out in a round-bottom flask equipped with a magnetic stirrer and a reflux condenser. The reaction mixture is heated to reflux for a specified period of time. The progress of the reaction is monitored by thin-layer chromatography (TLC) using a silica gel plate and a suitable solvent system. The spots are visualized under UV light or by staining with a reagent such as ninhydrin.

2. The second part of the experiment involves the purification of the product. The crude product is dissolved in a suitable solvent and then subjected to column chromatography. The column is packed with silica gel and the product is separated from the starting materials and by-products. The fractions are collected and the product is isolated by evaporation of the solvent.

3. The final part of the experiment involves the characterization of the product. The molecular weight is determined by mass spectrometry (MS) and the structure is confirmed by infrared (IR) and nuclear magnetic resonance (NMR) spectroscopy. The IR spectrum shows characteristic absorption bands for the functional groups present in the molecule. The NMR spectrum provides information about the chemical environment of the protons and carbons in the molecule.

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