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Development of Amine Protecting Group Strategies Compatible with the Hexamolybdate Ion

Elizabeth K. Myers
Illinois Wesleyan University

Rebecca Roesner, Faculty Advisor
Illinois Wesleyan University

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DEVELOPMENT OF AMINE PROTECTING GROUP STRATEGIES COMPATIBLE WITH THE HEXAMOLYBDATE ION

Elizabeth K. Myers and Rebecca Roesner*
Department of Chemistry, Illinois Wesleyan University

Polyoxometalates are large, symmetrical, anionic metal-oxygen clusters of the groups V and VI transition metals in their highest oxidation states. They are known for their many interesting and useful properties: catalytic activity, reversible oxidation, applications in supramolecular chemistry, and anti-viral and anti-tumoral behaviors. Many of these properties could be better utilized through the introduction of organic and bio-organic substituents as linkers, handles, or tethers to the surface of the polyoxometalate. One widely studied polyoxometalate is the hexamolybdate ion $[Mo_6O_{19}]^{2-}$. One possible tool to better control the products of reactions between aromatic diamines and $[n\text{-}Bu_4N]_2[Mo_6O_{19}]$ is to use protecting groups.

A method was developed to protect only one end of a difunctional amine with the BOC protecting group. The BOC protecting group was successfully used to protect 1,4-butylene-bis(phenoxy-4-amine), and mono-BOC-protected 1,4-butylene-bis(phenoxy-4-amine) was isolated. The mono-BOC-protected 1,4-butylene-bis(phenoxy-4-amine) was then successfully reacted with $[n\text{-}Bu_4N]_2[Mo_6O_{19}]$ **(Figure 1)**.

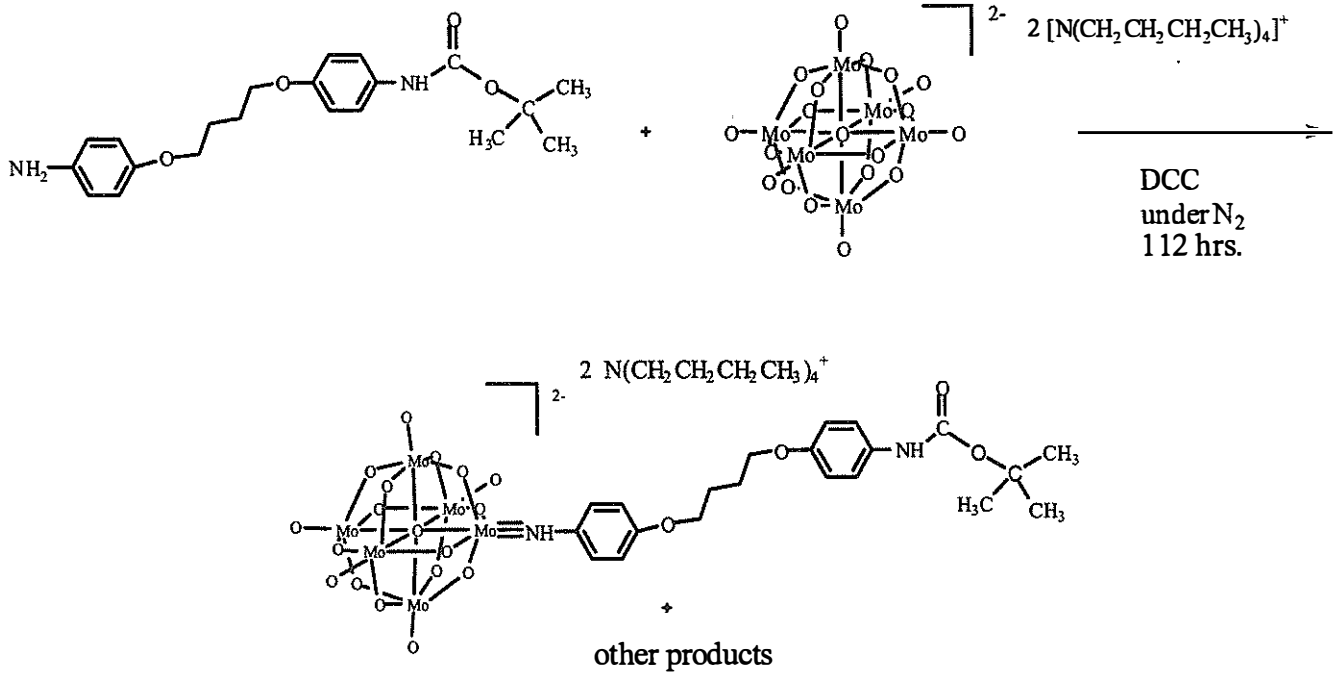

Figure 1: The reaction of mono-BOC-protected 1,4-butylene-bis(phenoxy-4-amine) with $[n\text{-}Bu_4N]_2[Mo_6O_{19}]$