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Development of Amine Protecting Group Strategies Compatible with the Hexamolybdate Ion

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DEVELOPMENT OF AMINE PROTECTING GROUP STRATEGIES COMPATIBLE WITH THE HEXAMOLYBDATE ION

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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 $[\text{Mo}_6\text{O}_{19}]^{2-}$. One possible tool to better control the products of reactions between aromatic diamines and $[\text{n-Bu}_4\text{N}]_2[\text{Mo}_6\text{O}_{19}]$ 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 $[\text{n-Bu}_4\text{N}]_2[\text{Mo}_6\text{O}_{19}]$ (**Figure 1**).

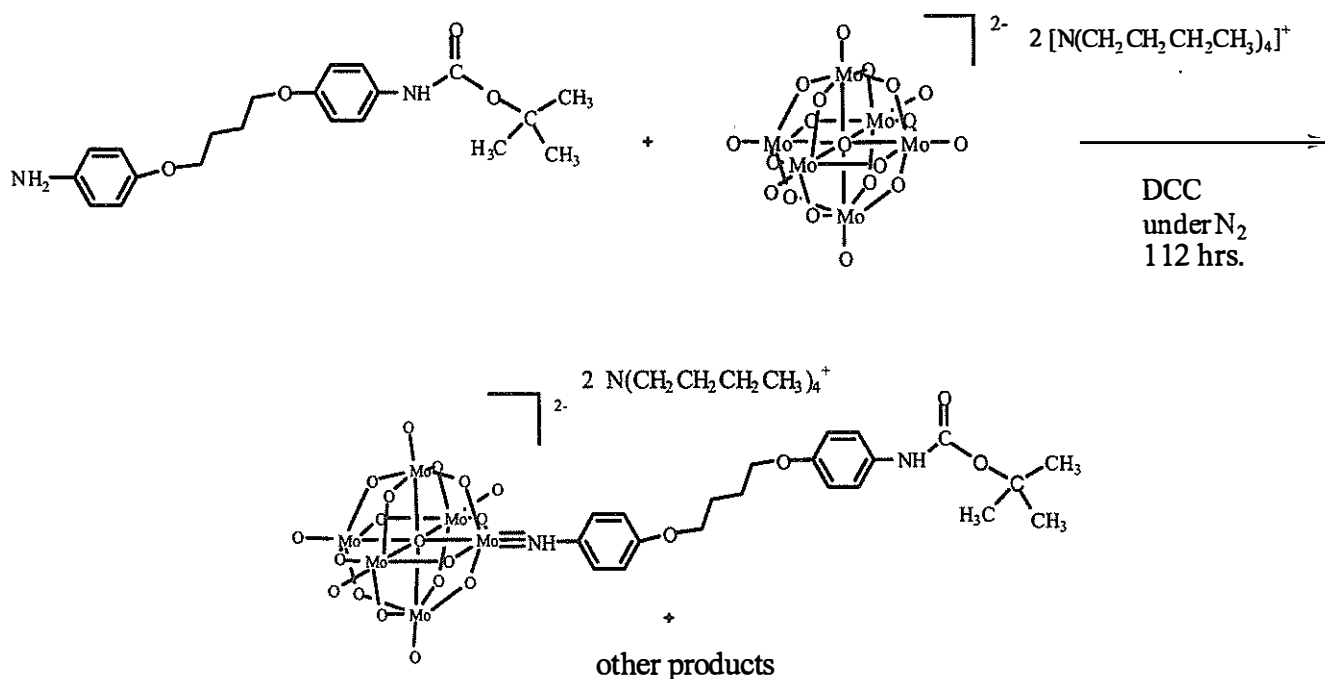


Figure 1: The reaction of mono-BOC-protected 1,4-butylene-bis(phenoxy-4-amine) with $[\text{n-Bu}_4\text{N}]_2[\text{Mo}_6\text{O}_{19}]$