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Fisher Esterification of a Rhodium Substituted Keggin-Type Polytungstophosphate

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Poster Presentation P18

**FISHER ESTERIFICATION OF A RHODIUM SUBSTITUTED KEGGIN-TYPE
POLYTUNGSTOPHOSPHATE**

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Polyoxometalate (POM) chemistry is an emerging field with many applications in catalysis, electrochemistry, and medicine. Keggin-type POMs have the formula $[XM_{12}O_{40}]^n$, where M is an early transition metal and X can be almost any element. In recent years, chemists have become interested in attaching organic ligands to POMs for the purpose of creating immobilized polyoxoanion catalysts.¹ In our present work, a rhodium substituted Keggin-type POM with a pendent carboxylic functional group ($[PW_{11}O_{39}RhCH_2COOH]^{5-}$) was synthesized by previously reported methods.^{1,2} This POM was then converted to its methyl and ethyl ester derivatives through Fisher esterification with the appropriate alcohols. The ester products were then characterized by NMR and IR spectroscopies. A further effort is being made to immobilize the carboxylic acid functionalized polytungstophosphate through Fisher esterification with alcohol functionalized resin beads.

1. Wei, X. Dickman, M.H.; Pope, M.T. *J. Am. Chem. Soc.* **1998**, *120*, 10254-10255.
2. Unpublished results. Binder, J., Roesner, R. Illinois Wesleyan University.