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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 ([PW₁₁O₉₉RhCH₂COOH]³⁻) 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.