



## **KEGGIN-TYPE HETEROPOLYCOMPOUNDS AS GREEN CATALYSTS**

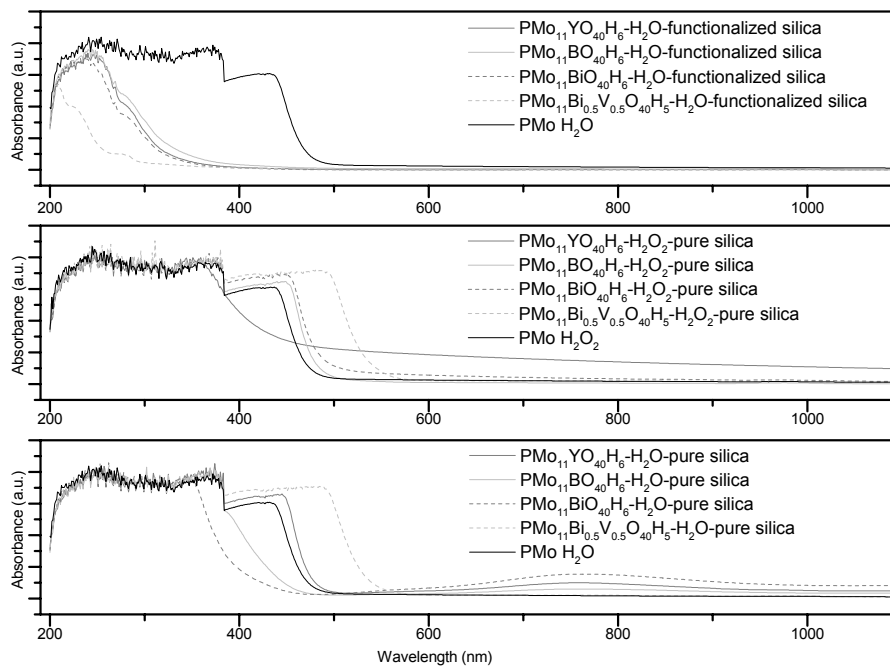
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Polyoxometalates are well known as oxidation and acid catalysts in which the redox and acid-based properties can be tuned by variation of the structure type, the central heteroatom and addenda or transition-metal-substituted atoms. It is very important to use fully characterized and more reliable catalyst precursors for catalytic reactions. The catalytic function of the Keggin family has attracted much attention particularly because these heteropolycompounds (HPA) provide a good basis for the molecular design of mixed oxide catalysts and high capabilities in practical uses.

On the other hand, H<sub>2</sub>O<sub>2</sub> is one of the oxidants frequently used in fine chemicals synthesis, as an option to the conventional ones, since its use leads to a cleaner technology because it is easy to handle and its reaction produces only H<sub>2</sub>O as by-product. The selective catalytic of sulfides to sulfoxides has been a challenge for many years, owing to the importance of sulfoxides as intermediates in organic synthesis. This work has as objective to synthesize different HPA for its use in the mentioned reaction. The main difference respect to previous investigations is that the HPA solution impregnate, by equilibrium impregnating, uses like solvent ethanol for the impregnating of pure silica (S) or functionalized silica (FS), but as well, adds H<sub>2</sub>O<sub>2</sub> to S and water to FS, following to the HPA impregnation. Figure 1 show UV-Visible spectrum of the extracted solutions, after contact during 72 h, between HPA-solution/support.



The V-Bi HPA spectrum is very similar in all regions. The others HPA present different colors in solution and final solid, this is indicative of redox properties very interesting for its behavior as catalysts. Others techniques were used for characterization of solids or liquids (FT-IR, DRX, acidity strength). The presence of V is very important on the oxidative catalytic activity to obtain both products. In order to establish the general applicability of these experimental conditions, various functionalized sulfides were subjected to the green oxidation protocol.