

## **P12: Experimental approach in the synthesis of mesoporous metal phosphate materials. Influence of the metal cation**

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### **Abstract :**

Syntheses of mesoporous metal phosphates materials have attracted widespread attention because of their various applications in different fields. Increasing emphasis has been devoted to the development of new materials.

The aim of our work was to synthesize organic-inorganic hybrid metal phosphate materials, via hydrothermal route, in the presence of surfactant type structure directing agents.

With varying the metal cation, different results were obtained, despite the similitude of the synthesis method.

In the present paper we report on the study we performed on vanadium, whose behaviour was compared to that of copper. With both of them, cetyl trimethylammonium bromide was used as the structure directing agent.

The prepared materials have been characterized using several physicochemical techniques including: powder X-Ray diffraction, chemical and thermal analyses, FTIR, scanning electron microscopy, N<sub>2</sub> adsorption-desorption isotherms and UV-Visible- NIR diffuse reflectance measurements.

The influence of the starting molar composition of the reaction mixture and that of other chemical parameters, such as crystallization temperature and time, pH... have been investigated.

Among the differences observed, some phases kept the surfactant in their structure, despite various treatments of leaching while other ones did not fixed it at all.

The behaviors of such synthesized materials have been compared in the adsorption of organic pollutants.

**Key words:** metal phosphate, hydrothermal synthesis, mesoporous, hybrid material, adsorption, pollutant