

## **Effect of pH on the physicochemical properties and reducibility of MoVTeNbO<sub>x</sub> catalysts**

### **ABSTRACT**

A range of MoVTeNbO<sub>x</sub> catalysts were synthesised by slurry method assisted with a microwave irradiation. The pH of the synthesis solution was varied at pH = 1, 3, 5, and 7 and the obtained solid were calcined in air at 553 K for 1 hour and followed in N<sub>2</sub> at 873 K for 2 hours. The calcined samples were characterised and their reduction properties were evaluated. The pH of the synthesis solution was shown to affect the physicochemical properties where the formation of orthorhombic M1 phase was obtained for catalysts prepared at pH 1 and 3. The reducibility of the catalyst is improved for catalyst prepared at pH 3 as compared to those prepared at pH 1. Although higher synthesised pH (5 and 7) gave much higher reducibility of the metal oxides, however the removable oxygen could be of the unselective ones.

**Keyword:** MoVTeNbO<sub>x</sub> catalysts; pH; Reducibility; Propane; Acrylic acid