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## **MIXED OXIDES DERIVED FROM VANADIUM SUBSTITUTED LAYERED DOUBLE HYDROXIDES AS CATALYSTS PRECURSORS FOR SO<sub>2</sub> OXIDATION**

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### **Abstract**

Layered double hydroxides in which aluminum was partially substituted by vanadium in the hydroxalite-like layer were synthesized by a coprecipitation method. The effects of the substitution on the physicochemical properties of the samples were studied by using various techniques such as: X-ray diffraction (XRD), X-ray fluorescence (XRF), X-ray photoelectron spectroscopy (XPS). After the thermal treatment the resulted mixed oxides were tested, for the first time, as catalysts for the process of SO<sub>2</sub> oxidation. The XPS results show that vanadium exists on the surface as a mixture of V<sup>3+</sup> and V<sup>5+</sup> but the surface vanadium is consumed during the catalytic process. XRD results point the formation of V<sub>2</sub>O<sub>5</sub>, vanadium containing mixed oxides and also the formation of a spinel phase, after calcinations at 1073 K for 5 hours. A direct correlation was obtained between the vanadium content of the samples and their catalytic activity: for a temperature value equal by 723 K a molar conversion of 85% was obtained for the sample containing 2.1% vanadium surface coverage.

*Keywords:* SO<sub>2</sub> oxidation, vanadium mixed oxides, hydroxalites

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