INTERCALATION OF A MOLYBDENUM η^3-ALLYL DICARBONYL COMPLEX IN A LAYERED DOUBLE HYDROXIDE AND CATALYTIC PERFORMANCE IN OLEFIN EPOXIDATION

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Interest in molybdenum allyl dicarbonyl complexes stems mainly from their use as starting materials or as (pre)catalysts for various organic transformations. In recent work we showed that the complexes [Mo(η^3-C_3H_5)Cl(CO)$_2$(L)] (L=2,2′-bipyridine, 4,4′-di-*tert*-butyl-2,2′-bipyridine) are convenient precursors to oxomolybdenum(VI) compounds that selectively catalyze the epoxidation of olefins [1]. The immobilisation of the metal carbonyls on a suitable support could bring numerous benefits, such as easier catalyst recycling and product separation.
In the present work, the complex [Mo(η^3-C_3H_5)Cl(CO)$_2$(2,2′-bipyridine-5,5′-dicarboxylate)] has been successfully incorporated into a Zn–Al layered double hydroxide (LDH) by a one-pot coprecipitation route from aqueous solution and the resulting hybrid nanocomposite Zn,Al-bpdcMo was characterized by various techniques [2]. The material Zn,Al-bpdcMo was used as a precatalyst in the selective liquid phase epoxidation of *cis*-cyclooctene with *tert*-butylhydroperoxide as oxidant.

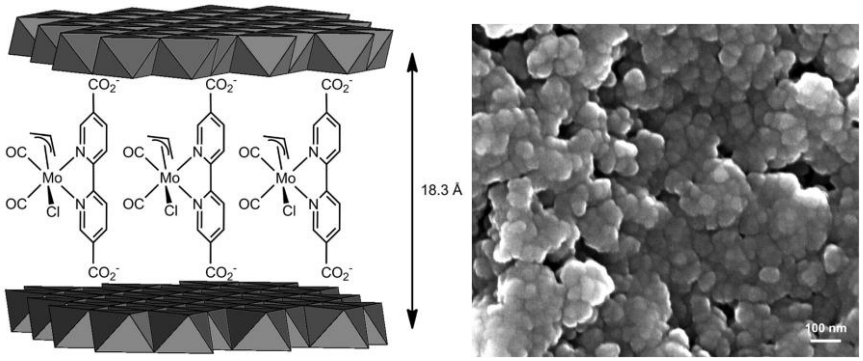

Figure: Schematic representation of the interlayer arrangement of guest anions in the material Zn,Al-bpdcMo (on the left); SEM image of Zn,Al-bpdcMo (on the right)

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