

Layered Double Hydroxides as Supports for Norbornene Addition Polymerisation Catalysts

Iryna A. Grafova^a, Andrei V. Grafov^b, Umberto Costantino^c, Fabio Marmottini^c, and Marcos L. Dias^d

^a Institute for Sorption and Problems of Endoecology, National Academy of Sciences, Gen. Naumova 13, Kiev, UA- 03164, Ukraine; Present address: E. Mano Institute of Macromolecules Federal University of Rio de Janeiro, C. P. 68525, 21945-970, Rio de Janeiro, Brazil

^b V. I. Vernadskii Institute of General and Inorganic Chemistry, National Academy of Sciences, Prospekt Palladina 32/34, Kiev, UA-03142, Ukraine; Present Address: E. Mano Institute of Macromolecules Federal University of Rio de Janeiro, C. P. 68525, 21945-970, Rio de Janeiro, Brazil

^c Department of Chemistry, University of Perugia, Via Elce di Sotto 8, Perugia, Italy

^d E. Mano Institute of Macromolecules, Federal University of Rio de Janeiro, C.P. 68525, 21945-970 Rio de Janeiro, RJ, Brazil

Reprint requests to Dr. Iryna Grafova. Fax: 55 21 2270 1317. E-mail: iryna@ima.ufrj.br

Z. Naturforsch. **58b**, 1069 – 1074 (2003); received May 23, 2003

Addition polymerisation of norbornene with transition metal catalysts activated by methylaluminoxane was first realised on heterogeneous catalytic systems. Advanced inorganic functional polymers possessing anion-exchange properties – layered double hydroxides of Al and Zn of hydrotalcite-type – were applied as supports. They possess high polarity and are selective towards polar molecules like organometallic compounds. The activity of immobilised nickel catalysts was found to be higher than that of the homogeneous one. A certain catalytic activity was also found for group 4 phthalocyanines. The polynorbornenes obtained were characterised by gel permeation chromatography and SEM microimaging. The support's morphology influences the shape, density, and dimensions of the resulting polymer particles.

Key words: Hydrotalcite, Polynorbornene, Heterogeneous Catalysis