



Université Claude Bernard



LABORATOIRE DE CHIMIE CATALYSE POLYMERES ET PROCEDES

PhD position at C2P2 laboratory

Title: Development of supported catalysts for olefin polymerization

Sate of the art: The field of polyolefins has changed with the discovery, in 1976, of the capability of organometallic complexes, in particular the group 4 metallocenes, to be activated in the form of a cation by methylaluminumoxane. The development of single-site catalysts has allowed two important breakthroughs in the field of polyolefins. The first one is the access to new specialty polyolefins by copolymerizing olefins with various comonomers and the second is the preparation of “homogeneous” polyolefins with better properties (mechanical, optical). In spite of considerable research development on single-site technology, their commercialization has been slower than anticipated. One of the main difficulties which explain this delay, concerns the adaptation of single-site catalysts to main processes of olefin polymerization. Indeed, since polyolefins are crystalline materials it is not possible to dissociate chemistry and polymerization processes in their studies. The vast majority of production capacity of commodity polyolefins are based on slurry and gas-phase processes. The main requirement of these processes is the formation of polymer particles which is insured by a controlled fragmentation of the catalyst grains. This means that these processes require the preparation of supported catalysts.

Project: The present project aims at preparing supported single-site catalysts for particle form processes. The project will benefit of the skills of the two groups of the laboratory C2P2 in both surface organometallic chemistry (team COMS) and in chemistry and processes of polymerization (team CPP).

Support and contact person: This project is supported by a major international company. For application, contact Dr Christophe Boisson (boisson@lcpp.cpe.fr) and Dr Mostafa Taoufik (taoufik@cpe.fr)

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