Keynote Presentation - Day 1



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Synthesis of Vinyl acetate over Pd-Cu/ZrO, nanostructured based catalysts

atalytic oxidation is considered as a suitable route for the production of oxygenated compounds from lignocellulose biomass. The development of routes to convert green ethylene from renewable sources, have been motivating other possible applications like green monomers, fuels, and fine chemicals. In this research work we prepared Pd-Cu catalysts over ZrO, mixed oxides. The catalysts were characterized by following methods XRD-in situ, BET, H, chemisorption and High-Resolution Transmission Electron Microscopy (HRTEM). Catalytic tests were performed through experimental planning. Statistical analyses allowed finding the main correlations of the products. The Vinyl acetate monomer formation was influenced by the AcOH and O₂ consumption at low ethylene coverage. Acetaldehyde appeared as an important intermediate for Vinyl acetate monomer synthesis. XRD results showed that the Pd-Cu catalyst exhibit tetragonal/orthorhombic nature with differences in the lattice position. The presence of Cu⁺² in the lattice describes the promotion of Vinyl acetate monomer formation due to acetaldehyde formation, AcOH hydrogenation and posterior H₂ spillover, releasing the hydroxyl groups during Vinyl acetate monomer dehydrogenation from the active site. A microkinetical model was achieved from directions of fluctuations, indicating ethylene coupling and AcOH hydrogenation to produce Vinyl Acetate Monomer (VAM).

Biography: Martin Schmal is Professor since 1970, became full Professor in 1985 and Emeritus since 2008 at the chemical engineering department of the Federal University of Rio de Janeiro and Professor at the University of São Paulo since 2014 – He graduated Chemical Engineering at the Engineering Faculty of the Catholic University of S. Paulo(1964), master science degree - 1966 at the Federal University of Rio de Janeiro/COPPE, Brazil, Doctor Engineer degree (Dr.Eng.) at the Technische University Berlin, Germany (1970). He specialized at the Institute du Recherche sur la Catalyse (1981), Lyon, France and University of Karlsruhe , 1983, Germany.

Member of the Brazilian Academy of Science, elected in 1999 and of the International Catalysis Society since 2000.

AWARDS: Humboldt Research Award –2002– Humboldt Foundation – Germany, Prize from the México Science and Tecnology (2002); Senior Researcher award from the Ibero American Society (2010); Excelence in Catalysis- Roberto F.Souza, Brazilian Catalysis Society-2017

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282 publications in international journals;

Google scholar and Research Gate h index-46

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