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Behavior of oxidative amorphous alloy $Co_{72}Nb_{24}B_4$ on catalytic cracking of methanol to olefin production

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The amorphous alloy and nanostructured materials have attracted interest both in the magnetic properties as well as catalytic reaction for the production of olefins. This catalyst is produced by melt-spinning technique, allowing the formation of nanocomposites, the nano phases and thin films; subjecting the thermodynamic metastability of the phases, facilitating the crystallization and amorphization of the material. Crystallization can occur at low temperatures isothermal conditions. And the oxygen plays a significant role in local active sites, which inhibits the formation of coke, and better selectivity for olefins. Furthermore, one must consider the amorphous one catalyst has high catalytic activity, that is due is connected to the power state of the electrons coming out of the amorphous matrix and the nearest atoms. Niobium element plays an important role in amorphous alloy as prolongs the life of the catalyst, and niobium oxide has some properties semelhentes metal oxides, redox reaction and leads to decrease oxidation and increase the yield olefinas. As samples of amorphous catalysts are characterized respectively, by experimental techniques such as X-ray Diffraction (XRD) to follow the evolution of amorphous phases, Scanning Electron Microscopy (SEM) to study the surface microstructure was evaluated for the specific surface area (SBET) amorphous alloy catalyst. The catalytic tests were applied to evaluate the catalytic cracking of the olefins and the conversion of methanol and other products obtained. The amorphous catalyst $Co_{72}Nb_{24}B_4$ proved to be stable in the catalytic reaction and good performance.

Biography

Reza Jamshidi Rodbari, Bachelor of social science - social planning and master Graduate Program in Materials Science at the Federal University of Pernambuco (UFPE), is currently researching amorphous and polycrystalline materials with quasicrystalline alloys having extensive experience in characterization of these metallic materials for characterization methods ; X-ray diffraction, electron microscopy and optical, thermal analysis, spectroscopy X-ray fluorescence, where these quasicrystalline materials are applied in catalytic reactions as a source of fuel for the future, for their studies in condensed matter physics and chemistry of surface and heterogeneous catalysis research and corrosion inhibiting concrete for nanostructured materials.

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