

MESOPOROUS SBA-15 AND CeO₂ CARRIED COPPER WITH A CONTROLLED SIZE THE APPLICATION OF NANOPARTICLES CO₂ IN HYDROGENATION REACTIONS

Ádám Nyitrai

Consultants: Dr. Kónya Zoltán, Dr. Sápi András

University of Szeged Faculty of Science and Informatics Department of Applied and Environmental Chemistry

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In the Earth's atmosphere the CO₂ level is growing rapidly. Researchers worldwide pioneer methods to exploit the surface properties of various materials. One of the solutions the CO₂ catalytic transformation happening in processes may be heterogeneous. The modern nanotechnology one and surface we are capable with chemistry examination methods onto the planning of the reactions and his understanding with an atomic level in the interest of the bigger activity and selectivity. The copper based catalysts prove to be promising because of their high activity and their low price.

In this project, copper nanoparticles with a diameter of 2-20 nm were made with a controlled size and we carry them up the big one with a specific surface taken to the mesoporous CeO₂ and SBA-15 onto carriers, with a replication method. We examine the catalysts with a transmission electron microscopy, adsorption with measurements (BET), x-ray diffraction, inductive coupling plasma with mass spectrometry, we test them furthermore in CO₂ hydrogenation reactions with a continuous flow pipe reactor.