

عنوان مقاله:

CO Catalytic Oxidation Using Laser-Assisted Gold Nanoparticles Supported on Activated Carbon

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خلاصه مقاله:

Gold nanoparticles (AuNPs) that have been extensively studied over the last decade will support activated carbon (AC) for efficient Co catalytic oxidation. To avoid oxidation and well-controlled size and shape distribution (10 nm), AuNPs were synthesized in pure acetone using not more than 4.8 J/cm² of Fiber laser power density to ablate a gold target surface. The prepared AuNPs were indicated by UV-Vis spectroscopy and Zeta potential measurements. The laser ablation method (LAM) released uniform and homogenous AuNPs with a Gaussian curve of UV-Visible absorption peak at 530 nm. Large negative Zeta potential of AuNPs showed a good stability without using any additives/surfactants. In this paper, design and fabrication results of 'in-plane' type AuNPs/AC catalyst were characterized by FESEM. According to the results, characterized AuNPs with mean diameter of 7±1 nm were successfully supported onto AC. Finally the catalytic activity of AuNPs/AC catalyst for CO oxidation was studied.

کلمات کلیدی:

Gold nanoparticles, activated carbon, catalyst, CO oxidation, laser ablation method

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