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γ-Al_2O_3负载的金溶胶的尺寸效应对**CO**催化氧化活性的影响

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摘要 本文讨论了负载在γ-Al_2O_3上的金催化剂粒径大小对催化活性的影响。通过胶束法来获得不同尺寸大小的纳米球形的金模型催化剂，分别用X射线衍射和高分辨电镜表征催化剂的结构及粒径大小，用CO催化氧化表征其催化活性。实验结果表明：金对CO催化氧化的活性随着金颗粒粒径由3.2增至6.6 nm而减弱。相对于Au/TiO_2体系, 粒子尺寸是影响催化活性的关键因素之一。

关键词 负载型催化剂,金,溶胶, γ-三氧化铝,一氧化碳氧化

分类号

Size Effect of Gold Sol/γ-Alumina on the Catalytic Activities of CO Oxidation

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Abstract The relationship between particle size and catalytic activity of gold nanoparticle catalysts with γ-Al_2O_3 as support has been investigated. The catalysts were prepared via the gold sol with different particle sizes by micelle method, and their structures were characterized by HRTEM and XRD, respectively. Furthermore, the catalytic activities were tested by CO oxidation. Experimental results showed that the catalytic activity became much weaker when gold particles were increased from 3.2 to 6.6 nm. Additionally, the particle size was also a key factor to govern catalytic activity with regard to gold supported on TiO_2 prepared by the methods of deposition-precipitation.

Key words supported catalyst gold sol γ-alumina CO oxidation

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