

燃料化学学报 » 2012, Vol. 40 » Issue (11): 1377-1383 DOI:

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CoO_x-CeO_x/ZrO₂催化氧化NO性能及抗SO₂毒化研究

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Catalytic performance of CoO_x-CeO_x/ZrO₂ in NO oxidation and its resistance against SO₂

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摘要 采用浸渍法制备了一系列CoO_x-CeO_x/ZrO₂催化剂,探讨了催化剂载体、Co含量、Co/Ce配比等对Co基催化剂催化氧化NO活性的影响及其机理。ZrO₂负载的Co氧化物具有优良的低温NO催化氧化活性,铈的添加进一步提高了催化剂的低温活性。其促进机制主要是提高了催化剂吸附氧的能力及改善了Co在催化剂表面的分散。同时,掺杂铈使得催化剂抗SO₂能力有一定增强,呈现出选择性毒化机制。

关键词: CoO_x-CeO_x/ZrO₂催化剂 催化氧化NO 抗SO₂

Abstract: A series of CoO_x-CeO_x/ZrO₂ catalysts for NO oxidation were prepared by impregnation method and characterized by XRD, BET and H₂-TPR. The influence of the support as well as the content of cerium and cobalt on the catalytic performance of CoO_x-CeO_x/ZrO₂ in NO oxidation was investigated. The results indicated that the addition of Ce may improve the adsorption ability of the Co-based catalyst for oxygen and the dispersion of active cobalt species. Compared with CoO_x/ZrO₂ and CeO_x/ZrO₂, the CoO_x-CeO_x/ZrO₂ catalysts exhibit higher activity and better resistance against SO₂ for NO oxidation at low temperature.

Key words: CoO_x-CeO_x/ZrO₂ oxidation NO SO₂ resistance

收稿日期: 2012-01-17;

基金资助:

湖南省科技厅项目(2011FJ3090)。

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引用本文:


彭莉莉,黄妍,李建光等. CoO_x-CeO_x/ZrO₂催化氧化NO性能及抗SO₂毒化研究[J]. 燃料化学学报, 2012, 40(11): 1377-1383.


PENG Li-li, HUANG Yan, LI Jian-guang et al. Catalytic performance of CoO_x-CeO_x/ZrO₂ in NO oxidation and its resistance against SO₂[J]. J Fuel Chem Technol, 2012, 40(11): 1377-1383.


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