燃料化学学报
JOURNAL OF FUEL CHEMISTRY AND TECHNOLOGY
ISSN 0253-2409
CN 14-1140/TQ

燃料化学学报 » 2013, Vol. 41 » Issue (10): 1241-1247　DOI:

SO_2存在条件下M/REY催化剂NH_3选择性还原NO性能研究

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NH_3 selective catalytic reduction of NO over M/REY catalysts in presence of SO_2

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摘要 采用浸渍法制备了以REY为载体负载金属氧化物催化剂。采用XRD、NH_3-TPD、NO-TPD、H_2-TPR和XPS对催化剂进行表征,并在固定床微型反应器上评价SO_2存在条件下催化剂在NH_3选择还原NO反应中的活性。实验结果表明,活性组分种类及负载量均影响催化剂性能,Cu(3)/REY催化剂在NH_3选择还原NO反应中表现出较好的低温活性,在SO_2存在条件下,254~390℃时NO的转化率大于95%。催化剂表征结果显示,Cu(3)/REY催化剂的催化活性与其良好的氧化还原性和对NO的吸脱附性能相关。

关键词: 选择催化还原　REY　NH_3　NO　Cu

Abstract: A series of M/REY(M=Cu, Mn, Fe, Ce) catalysts were prepared by impregnation method. The catalysts were characterized by XRD, NH_3-TPD, NO-TPD and H_2-TPR, and XPS. The catalytic activity of the catalysts was evaluated in the fixed-bed reactor for the selective catalytic reduction of NO with NH_3 in the presence of SO_2. The results show that the performance of catalysts was affected by the type and load of active component. The Cu(3)/REY catalyst exhibited good activity at low temperature in presence of SO_2. The NO conversion is over 95% at the temperature range of 254~390℃. The catalytic activity of Cu(3)/REY catalyst is related with its excellent redox properties and the performance of NO adsorption-desorption.

Key words: selective catalytic reduction　REY　NH_3　NO　Cu

收稿日期: 2013-01-22;

基金资助:

北京市教委科技计划(KM200910017002);北京市属高等学校人才强教计划(PHR200907129,PHR20110517);北京市大学生科学研究计划(2012J00014);国家级大学生创新创业训练计划(201210017006)。

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引用本文:

任翠涛,胡颖智,魏浩宇等. SO_2存在条件下M/REY催化剂NH_3选择性还原NO性能研究[J]. 燃料化学学报, 2013, 41(10): 1241-1247.

REN Cui-tao,HU Ying-zhi,WEI Hao-yu et al. NH_3 selective catalytic reduction of NO over M/REY catalysts in presence of SO_2[J]. J Fuel Chem Technol, 2013, 41(10): 1241-1247.

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