

Full Paper

氧存在下Pt/SiO₂催化CO还原NO₂反应中NO的影响

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摘要 本文研究了0.1% Pt/SiO₂催化剂存在下; 在含有CO、NO₂、NO和大量O₂的模拟烟气混合气中CO对NO₂选择性催化还原反应. 并讨论了NO₂还原、CO氧化和NO氧化等相关反应机理. 结果表明; 在180-190

°C温度区间内; 可利用烟气中CO选择性还原NO₂. 在低于温度区间下限时;

无明显还原反应发生; 而在高于温度区间上限时; CO会被O₂氧化; 因此; NO₂不会被还原.

NO存在使CO选择性还原NO₂的温度区间向高温移动; 这是由于NO抑制了O₂在Pt表面活化;

从而有利于烟气中CO选择性还原NO₂.

关键词 [NO₂消除](#) [烟气](#) [CO氧化](#) [铂催化剂](#)

分类号

Influence of NO on the Reduction of NO₂ with CO over Pt/SiO₂ in the Presence of O₂

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Abstract Reduction of NO₂ with CO in the presence of NO and excess oxygen, a model mixture for flue gas, over a 0.1% Pt/SiO₂ catalyst was studied. The related reaction mechanisms, such as oxidation of CO and NO, were discussed. It was found that there was a narrow temperature window (180—190 °C) for the reduction of NO₂ by CO. When the temperature was lower than the lower limit of the window, the reduction hardly occurred, while when the temperature was higher than the upper limit of the window, the direct oxidation of CO by O₂ occurred and thereby NO₂ could not be effectively reduced by CO. The presence of NO shifted the window to higher temperatures owing to the inhibition effect of NO on the activation of O₂ on Pt, which made it possible to reduce NO₂ by CO in flue gas.

Key words [removal of NO₂](#) [flue gas](#) [oxidation of CO](#) [platinum](#)

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