Effect of N (N=Fe, Co, Ni, Cu, Ce) loaded on blast furnace slag and its application in low-temperature NH3-SCR

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Abstract

In order to control NOx in low-temperature flue gas in non-power industry and reduce the preparation cost of denitration catalyst. Using low-value solid waste, blast furnace slag, as raw material. After cooling, drying and grinding, the blast furnace slag becomes a powder with considerable fineness and meets the requirements of activity index, which is called GGBS (ground granulated blast furnace slag). Using GGBS as denitration catalyst carrier, and the active component n (n = Fe, Co, Ni, Cu and Ce) was loaded on Mn-based GGBS catalyst by impregnation method. It was studied that the effects of different active components on denitration and sulfur resistance of Mn-based GGBS catalyst. The denitration mechanism was analyzed by BET (Brunner-Emmet-Teller measurements), XRD (X-ray diffraction), XPS (X-ray photoelectron spectroscopy), SEM (scanning electron microscope) and FT-IR (Fourier transform infrared spectroscopy). The results show that: Mn-Ce/GGBS catalyst has better denitration and sulfur resistance.

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