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"Gheorghe Asachi" Technical University of Iasi, Romania

RESEARCH PROGRESS ON MANGANESE-CERIUM-BASED SCR CATALYST FOR DENOX AND ITS RESISTANCE TO SO2 POISONING

Jinfeng Han[1], Yu Xie[2], Biao Wang[2]*, Shengdong Zhang[2], Xiaole Han[2]

[1]Department of Geo-Environmental Science, Kim Il Sung University, Pyongyang, Democratic People's Republic of Korea
[2]Zibo Ecological and Environment Bureau, Zibo, Shandong, PR China

Abstract

When the concentration of nitrogen oxides (NO_x) in the atmosphere exceeds the self-purification capacity of the environment, it leads to serious environmental issues such as acid rain, photochemical smog, and ozone layer depletion. Additionally, NO_x also participates in the formation of air pollutants, such as $PM_{2.5}$ and O_3, posing significant threats to human health and ecological balance. Ammonia selective catalytic reduction of NO_x (NH_3-SCR) is one of the most effective technologies for controlling NO_x emissions, with the catalyst playing a crucial role. This paper briefly introduces the NH_3-SCR denitrification reaction mechanism, the catalyst SO_2 poisoning mechanism, and the restrictive relationship between SO_2 poisoning and catalyst activity. The focus of this paper lies in summarizing recent advancements in sulfur-resistant manganese-cerium-based catalysts, offering valuable insights for the design of future-oriented low-temperature NH_3-SCR catalysts.

Key words: manganese-cerium-based catalyst, NO_x, selective catalytic reduction, SO_2 poisoning resistance

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* Author to whom all correspondence should be addressed: e-mail: 001wangbiao@163.com; Phone: +86-533-6458020