PEROVSKITE UTILIZATION AS CATALYSTS IN NO REDUCTION BY SCR-HC IN ABSENCE OF O₂

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Abstract

The present paper is concerned with the preparation, the characterization of the non-stoichiometric perovskite-type oxides La₀.₉₂MnO₃, La₀.₇Ce₀.₃MnO₃, CeMnOₓ and the study of their catalytic activity in NO reduction by propene. These tests were carried out in a SCR-HC equipment for NO reduction in propene and nitrogen oxide atmosphere without oxygen. The catalysts showed a high catalytic activity in NO reduction, which can be explained by oxygen activation from the interfaces of these structures. La₀.₉₂MnO₃ perovskite showed only above 350 °C activity for NO reduction with propene while the other two perovskites displayed activity already at lower temperatures. The CeMnOₓ perovskite was the most active catalyst with an activity starting at 200 °C and 100 % NO conversion at 450 °C. The values of propene conversion at 450 °C were 52 % for La₀.₇Ce₀.₃MnO₃, 36 % for La₀.₉₂MnO₃ and 47 % for CeMnOₓ.

Keywords: perovskite, SCR-HC, propene, NOₓ