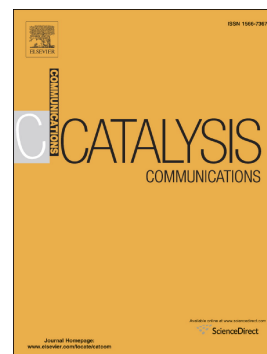


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Doped apatite-type lanthanum silicates in CO oxidation reaction

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Abstract

Apatite-Type Lanthanum Silicate materials are reported as successful CO oxidation catalysts for the first time. A composition related activity is observed. Doping by Fe in the form $\text{La}_{9.83}\text{Si}_{4.5}\text{Fe}_{1.5}\text{O}_{26\pm\delta}$ enhanced remarkably activity versus the respective $\text{La}_{9.83}\text{Si}_{4.5}\text{Al}_{1.5}\text{O}_{26\pm\delta}$ compound resulting a lower shift by 109°C in T_{50} . In a composite 5%wt NiO/apatite catalytic system the catalytic performance was further improved by a synergistic effect. O_2 -TPD, H_2 -TPR and XPS studies revealed great variations in O_2 desorption profiles, reducibility of materials and nickel species among catalytic samples in relation to their chemical composition.

Keywords: Lanthanum Silicates, apatite, Catalysis, CO oxidation, nickel oxide

1. Introduction

CO is a major pollutant emitted by fossil fuel combustion therefore CO oxidation is a reaction of both technological importance and fundamental interest for catalysts

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