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Comparative study of hydrogen storage on metal doped mesoporous materials

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Abstract

The hydrogen adsorption capacity of mesoporous materials MCM-41 modified with Co, Fe, Ti, Mg and Ni at 77 K and 10 bar was investigated. Various techniques including XRD, N₂ adsorption and DRUV-vis were employed for the materials characterization. The results showed that a low nickel loading on MCM-41 support promoted the presence of hydrogen-favorable sites, increasing the hydrogen storage capacity.

Keywords: nanostructured materials, MCM-41, hydrogen storage.

1. Introduction

Hydrogen has drawn attention as a next-generation energy carrier for mobile and stationary power sources. To achieve economic feasibility, hydrogen storage materials

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