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## Cu, Ni - BASED HYDROTALCITE - LIKE COMPOUNDS AS CATALYSTS FOR THE HYDROGENATION OF CINNAMALDEHYDE IN LIQUID PHASE. PART 2: INFLUENCE OF REACTION CONDITIONS AND CHEMICAL COMPOSITION ON THE CATALYTIC PROPERTIES

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### Abstract

The liquid phase hydrogenation of cinnamaldehyde has been carried out over various non-calcined layered double hydroxides with Cu<sup>2+</sup>/Ni<sup>2+</sup>/Mg<sup>2+</sup>/Al<sup>3+</sup> molar ratios in the synthesis mixture from 1:0:1:1 to 0:1:1:1. The substitution of Cu<sup>2+</sup> and Ni<sup>2+</sup> cations in the hydrotalcite matrix has strong influences on the catalytic properties of LDH samples reduced at 150°C. The catalytic activity increases with copper content, while the selectivity to cinnamyl alcohol (CNOL) increases with nickel content. It was assumed that the pair Cu<sup>0</sup>-Ni<sup>2+</sup> could play an important role in the mechanism of cinnamaldehyde (CNA) hydrogenation. Also, the influence of other factors such as the activation conditions and the nature of solvent was studied. It was observed that the dielectric constant of solvent strongly influences the CNA conversion and the selectivity to CNOL. The recycling test indicated that these catalysts are stable and they can be reused.

*Key words:* cinnamaldehyde, copper, nickel, layered double hydroxides, liquid phase hydrogenation

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