

# The bio-oil over the catalysts of ni-cnts

[Science](#), [Chemistry](#)



Summary The focus of this research is high catalytic activity of Ni catalyst supported by CNTs and prepared with the help of precipitation method using the homogeneous deposition. The purpose of its use was the achievement of low temperature during organic compounds' reformation to bio-oil. The optimal percentage of the content of Ni-loading was 15 wt%. At 550 C, the authors reached nearly 92.5% of the H<sub>2</sub> yield upon the Ni-CNTs catalyst of 15 wt%. Upon the process of reformation of the bio-oil over the catalysts of Ni-CNTs, the authors studied the reforming temperature (T) influences, the molar ratio between the steam and carbon fed (S/C), as well as the current (I) conducted by the catalyst with the help of the carrier gas of steam inside the reforming reactor. The aim of this research was to advocate bio-oil's reformation through current used in the Ni-CNTs catalyst's high-dispersion. This indicated that bio-oil's reformation is helpful in increasing hydrogen's yield by the reformation of bio-oil's organic compounds at low temperature. The authors used H<sub>2</sub>-TPD, XRD, TEM, XPS, ICP/AES, along with the isotherms of N<sub>2</sub> adsorption-desorption to investigate the Ni-CNTs' catalysts' features with Ni loading contents. The research led the authors to the conclusion that the narrow and uniform distribution achieved through higher dispersion of Ni and smaller particle size of Ni was achieved for the Ni catalyst supported by CNTs. The benefits of the technology included reformation of the oxygenated organic compounds found in the bio-oil at substantially low temperature. Other pros of the technology included low cost and high efficiency.