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# One-Step Ethanolysis of Lignin into Small-Molecular Aromatic Hydrocarbons over Nano-SiC Catalyst

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**Abstract:** Catalytic depolymerization of lignin for preparation of aromatic hydrocarbons without external hydrogen was first carried out over nano-SiC catalyst in supercritical ethanol. Mixture of the catalyst and lignin was innovatively suspended in a closed reactor and small-molecular aromatic hydrocarbons were successfully achieved at 500 °C. Results revealed that not only did conversion of lignin increase sharply under the nano-SiC catalyst, but also phenols were not detected. The increase of residence time under the Fe-SiC catalyst did not change distribution of the liquid products besides the yield improvement, suggesting that the catalyst was suitable and selective towards formation of small-molecular benzenes, especially C<sub>6</sub>-C<sub>8</sub> benzenes. Preliminary studies found that lignin depolymerization and deoxygenation were successfully fulfilled during the reactions, which provided a very effective route to conversion of lignin into high added-value molecules as transportation fuel additives.

**Keywords:** Lignin; Nano-SiC; Aromatic hydrocarbons; Benzenes

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