

PYROLYSIS OF PINE WOOD WITH POTASSIUM CARBONATE AND CALCIUM HYDROXIDE AS A CATALYST

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Resumo

The catalytic reaction of pine wood occurred in a fixed bed reactor with a mean temperature of 700°C. The catalysts studied were the potassium carbonate and calcium hydroxide. The potassium carbonate showed stronger catalysis for decomposition of cellulose, hemicellulose and lignin. This happened because this catalyst provided two reaction stages with liquid products generating a greater quantity of solid and gaseous products. With the addition of 17,7% wt of potassium carbonate the catalyst provided low formation of liquid products such as alcohols and aldehydes, as well as formed smaller amounts of gases such as acids, furans and guaiacols. In the other hand increased phenols, alkenes, hydrogen, carbon dioxide and carbon monoxide. In alkaline catalysis with calcium hydroxide, the formation of undesired liquid products in this type of process, was noted. With about 22%wt concentration of the catalyst the best result was obtained with the disappearance of liquid products like acids and aldehydes. The use of this catalyst only increase the production of hydrogen.

Keywords: Pine wood. Catalytic pyrolysis. Potassium carbonate. Calcium hydroxide.

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