

Catalytic Copyrolysis of Cork Oak and Waste Plastic Films over Hbeta

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Abstract:

The catalytic fast copyrolysis (CFCP) of cork oak (CoOak) and waste plastic films (WPFs) over HBeta(25) (SiO₂/Al₂O₃: 25) was investigated using a thermogravimetric (TG) analyzer and a tandem micro reactor-gas chromatography/mass spectrometry (TMR-GC/MS) to determine the effectiveness of WPFs as the hydrogen donating cofeeding feedstock on the CFCP of biomass. By applying CFCP, the maximum decomposition temperatures of CoOak (373.4°C) and WPFs (487.9°C) were reduced to 364.5°C for CoOak and 436.5°C for WPFs due to the effective interaction between the pyrolysis intermediates of CoOak and WPFs over HBeta(25), which has strong acidity and an appropriate pore size. The experimental yields of aromatic hydrocarbons on the CFCP of CoOak and WPFs were higher than their calculated yields concluded from the yields obtained from the individual catalytic fast pyrolysis (CFP) of CoOak and WPFs. The coke amount produced from the CFP of CoOak and WPFs over HBeta(25) were also decreased by applying CFCP.

* Excerpted from online journal website (Click the title)

Frontier Labs Products used:

Tandem micro Reactor RX-3050TR, MicroJet Cryo-Trap MJT-1030E, F-search