

[Production of aromatic hydrocarbons via catalytic co-pyrolysis of torrefied cellulose and polypropylene](#)

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Abstract:

The effects of the torrefaction of cellulose on catalytic co-pyrolysis with polypropylene (PP) over HZSM-5 and HBeta catalysts were examined in a pyrolyzer-GC/MS/TCD/FID system. Torrefied cellulose produced larger quantities of aromatic hydrocarbons during catalytic pyrolysis over both BETA and HZSM-5 catalysts than raw cellulose due to the change in crystallinity and structure of cellulose. Among the catalysts tested, HZSM-5(30) showed the highest performance for the production of aromatic hydrocarbons from the catalytic pyrolysis of torrefied cellulose. The synergy effect for the production of aromatic hydrocarbons was also observed on the catalytic co-pyrolysis of torrefied cellulose and PP over HZSM-5, even when a low catalyst to sample ratio was applied. The maximum BTEXs yield (33.4 wt.%) was achieved from the catalytic co-pyrolysis of torrefied cellulose and PP at a catalyst to sample ratio of 3/1 and a torrefied cellulose to PP ratio of 1/3.

* Excerpted from online journal website (Click the title)

Frontier Labs Products used:

Multi-functional Pyrolyzer (PY-2020iD)