Catalytic Pyrolysis of Waste Wood Plastic Composite Over H-V-MCM-41 Catalysts

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Sci. Adv. Mater. 9 (2017) 934-937

Abstract:

H-V-MCM-41, a mesoporous catalyst synthesized by doping vanadium into the Si-MCM-41 framework and ion exchange with NH4Cl, was applied to the catalytic pyrolysis of a wood plastic composite (WPC). Three types of H-V-MCM-41 with different vanadium contents, 5, 10 and 30 wt.%, were assessed by the catalytic pyrolysis of WPC at 525ºC. By catalytic pyrolysis over H-V-MCM-41, the content of aromatics, furans and hydrocarbons in bio-oil were increased, whereas the content of oxygenates and phenols were reduced. H-V-MCM-41 containing 10 wt.% vanadium showed the highest catalytic activity for the production of mono-aromatics among the H-VMCM-41 catalysts used.

Frontier Labs Products used:

Multi-Shot Pyrolyzer (EGA/PY-3030D), MicroJet Cryo-Trap, F-Search Library