

Green aromatics from catalytic fast pyrolysis of fast growing Meranti biomass abstract

The study on catalytic pyrolysis decomposition of *Shorea leprosula* wood biomass to form aromatic compounds in fast pyrolysis was performed by pyrolytic-gas chromatography/mass spectroscopy (Py-GC/MS) and transmission electron microscope (TEM) – electron energy-loss spectroscopy (EELS) to analyze the chemical compound and solid residue microstructure. Py-GC/MS and TEM-EELS analysis showed that the fast pyrolysis increased the decomposition of hardwood, in which in the presence of ZSM-5 catalyst, the liquid products from wood decomposition was then diffused into the pore of ZSM-5 catalyst to form aromatics including benzene, toluene, styrene, naphthalenes and indanes. The carbonaceous solid compounds or cokes were not deposited on the surface of pores of ZSM-5 catalyst in the fast pyrolysis, as shown by the EELS spectrum that exhibited no detection of any solid carbonaceous compound in the solid residue.