

Effect of Torrefaction Process on Crystallinity Index Properties of Empty Fruit Bunch's Biochar

ABSTRACT

The effect of torrefaction process on crystallinity index (CrI) properties from biomass material which is empty fruit bunch's biochar had been identified in this study. There are three major torrefaction parameters for biomass material which is particle size, holding temperature and residence time was determined. The investigation on the empty fruit bunch's biochar had been done by X-ray diffraction (XRD). There was decreasing pattern for CrI occurred as the holding temperature increased from 200 to 300°C and residence time increased from 30 to 90 minutes, but there are no significant affected by the particle size parameter. This shows that the empty fruit bunch's biochar cellulose crystallinity is reduced as the cellulose become completely amorphous.