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Low temperature synthetic graphite from oil palm trunk waste via pyrolisis process

Abstract

Synthetic graphite was produced from oil palm trunk chip in lower heating temperature via pyrolysis process. The heating rate (10 /min and 20 /min) were varied whilst the heating temperature at 500 C was fixed. All of the samples produced after heat treatment process were characterized by X-Ray Diffraction (XRD) and the diffraction pattern obtained analyzed using X'Pert Highscore Plus software to affirm the phase analysis. To ensure the graphitic nature of synthetic graphite produced, RAMAN analysis was conducted. Morphological study of the synthetic graphite produced involved scanning electron microscope (SEM) analysis. From the investigation, the results show, confirmation that synthetic graphite was successfully synthesized at the heat treatment of 500 C (20 /min heating rate) with fixed soaking hours. Synthetic graphite produced matched with XRD reference code of 00-041-1487. Analysis of RAMAN confirm the formation of D, G and 2D peaks at the respective wavenumber of 1250 cm-1, 1625 cm-1 and 2700cm-1.