The phase and band gap of carbon in coconut shell by heating process has been analyzed using coconut shell waste raw materials. This study used a variation of the heating type, there are carbonization using nitrogen gas and heating in air atmosphere around. Heating temperature is set in the range of 400°C, 600°C, 800°C, and 1000°C. Characterizations performed using XRD, TEM, and UV-Vis spectrophotometry. The diffraction pattern in all samples shows that these patterns similar to reduced graphene oxide pattern. The results of analysis in all samples of charcoal shows that the form of turbostatic structure between cliftonite (graphite) and amorphous carbon phase. In the sample of charcoal results that carbonized in nitrogen gas, there are two impurity phases that show the phase of potassium chlorate (KClO₄) and phase of sulfur (S₈). The particle size in TEM figure shown that the particle diameter of 30-46 nm. The energy band gap value on the overall charcoal samples are in the range 0.07 eV – 0.67 eV which is still included in the range of semiconductors and reduced graphene oxide material.

Key word: phase, band gap, heating process, reduced graphene oxide.
"Halaman ini sengaja dikosongkan"