

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

Partially ordered carbon was successfully prepared by pyrolysis process and derived from various types amine polybenzoxazine. A solventless method was used to synthesize benzoxazine precursors which were cured in ordered to obtain completely cured polybenzoxazine. The MDA-based polybenzoxazine was successful prepared partially ordered carbon comparing with TEPA and aniline-based polybenzoxazine. The partially ordered carbons were partially crystalline but had less crystallinity than graphite. Moreover, the ordered structure of these carbons significantly increases with temperature. Moreover, the electrical conductivities increased greatly from semi-conductive to conductive materials. The activated carbon showed the significantly increasing surface area and total pore volume comparing with partially ordered carbon. When the pyrolyzed temperature is over 800 °C causing in the decrease of surface area could be due to the shrinkage of the pores and packing of carbon. The heat-treated partially ordered carbon was emphasized in conductive materials for electronic devices.

In the future work, we should study the influence of the pyrolyzed temperature above 1200 °C in ordered to enhance the ordered structure and electrical conductivity of partially ordered carbons. Furthermore, the heating rate and holding time for pyrolysis should be studied because many researchers have reported the changing of their properties as well as the holding time for activating process. In this work, we just fixed only a heating rate and holding time to compare the properties with other works.