CHAPTER 5

CONCLUSION AND SUGGESTION

Conclusion

The PC bulk thermoelectric samples were successfully prepared by mixing 6 brands PC with water in ratio of 2:1 on square shape block and then drying in air for 48 h. The thermoelectric properties were measured by two probe method. All samples show thermoelectric behavior namely generating more electrical voltage when temperature difference increasing. The lowest electrical resistivity was found in PC-B bulk sample. The highest Seebeck coefficient and power factor were found in PC-C bulk sample about 55.43 μ V/K and 4 nW/mK² at room temperature, respectively. The PC-C was added with nano ZnO 10%, 20%, 30%, 40% and 50% by weight. The Seebeck coefficient, electrical resistivity and power factor of nano ZnO added PC-C show higher than un-added samples. The 40% nano ZnO added PC-C shows highest value of power factor about 16.87 nW/mK^2 at room temperature. Although the power factor of samples shows small value but if consider the abundant of material, it is interesting to continue to develop this group of materials. The PC thermoelectric module was fabricated by using p-PC-C + ZnO 40% and n-PC-Fmeasured power generation. Load resistances were used for calculating current and power output. The 110 k Ω of load resistance shows matching load and obtained maximum power output. The maximum voltage, current and power are 3.65 mV, 33.23 nA and 0.12 nW at temperature difference 69.8 K.

Suggestion

1. The n-PC-F has exhibited p type thermoelectric on high different temperature should be add another material.

2. Thermoelectric Portland cement should be application test.