Chapter 6

Conclusion

(1) Thermal conductivity of AKP-30 is in the range of 30 – 38 W/m·K, while thermal conductivity of AES-11 is in the range of 27 – 34 W/m·K. MgO doped AKP-30 has highest thermal conductivity. However, The difference of thermal conductivity between two alumina are not big. The price of AES-11 is lower than the price of AKP-30 about 10 times. So, AES-11 will be a candidate powder for Peltier element.

(2) Mechanical strength of AES-11, sintered at 1550 – 1650 ^{o}C attained over 400 MPa. Specimens sintered at 1450 and 1500 ^{o}C were low in relative density and also have some amount of porosity. That is the cause of low strength.

(3) The relative density of AKP-30 is in the range of 94 – 99% and that of AES-11 is in the range of 96 – 98% at the sintering temperature of 1650 ^{o}C. Most of AKP-30 showed higher density than AES-11 due to purity and fine an average particle size.