

Chapter 5



Conclusions

- (1) The maximum flexural strength was obtained when TP was used as body. (41.42 MPa, increased to 8.7 % compared with uncoated sample at the same condition). TP powder was granulated, uniaxial pressed into rectangular bar with pressure applied 1 ton/cm², heat treated at 500 °C, coated with 50:50 (MP:TP) coating composition and sintered at 1300 °C for 1 h. At this condition, compression in the coating layer was induced. This was caused by the difference of thermal expansion coefficient between body and coating where the body had higher thermal expansion coefficient than the coating.

- (2) For compressive strength, the same composition in (1) but sintered at 1200 °C was tested. The strength (146.02 MPa) increased to about 5 % compared with uncoated sample and the difference of thermal expansion coefficient (from 30-1000 °C) was 4.7 %

(3) In this research, the small increase of compressive and flexural strength of the sintered products were obtained by:

- too thin coating layer

- non uniform coating layer

(by traditional coating process)

- internal microcrack in compact bar which may be caused by hydraulic pressing.

(rate of loading was difficult to control)