

Alumina-silicate/zinc borosilicate glass 복합체의 저온 소결 및 유전 특성

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Low Temperature Sintering and Microwave Dielectric Properties of Alumina-Silicate/Zinc Borosilicate Glass Composites

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Abstract : The low temperature sintering and the dielectric properties of Al_2O_3/SiO_2 -zinc borosilicate glass composites were investigated in the view of the application for LTCC. When the sintering was conducted at $900^\circ C$ $ZnAl_2O_4$ and ZnB_2O_4 compounds formed at the Al_2O_3 -rich and the SiO_2 -rich compositions, respectively. The reaction between ZBS glass and Al_2O_3/SiO_2 caused the formation of these compounds. The Al_2O_3/SiO_2 ratio affected the dielectric properties. The excellent dielectric properties, i.e., $Q \times f$ value= 40,000 GHz and $\epsilon_r=4.5$, were obtained in the Al_2O_3/SiO_2 -ZBS glass system and fabricated the LTCC substrate materials.

Key Words: Al_2O_3 , SiO_2 , Zinc-borosilicate glass, Ceramic/glass, LTCC, Microwave dielectrics properties