붕규산염 유리 첨가에 따른 $Bi_2(Zn_{1/3}Nb_{2/3})_2O_7$의 저온 소결 및 유전 특성

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Low Temperature Sintering and Dielectric Properties of $Bi_2(Zn_{1/3}Nb_{2/3})_2O_7$ with (ZBS, BZBS) glasses

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Abstract

Abstract : The low temperature sintering and microwave dielectric properties of ceramic/glass composites which were composed of ceramics in the $Bi_2(Zn_{1/3}Nb_{2/3})_2O_7$ and zinc borosilicate glass/bismuth-zinc borosilicate glass were investigated with a view to applying the microwave dielectrics to low temperature co-fired ceramics. The $Bi_2(Zn_{1/3}Nb_{2/3})_2O_7$ addition of 5 wt% ZBS and BZBS glass ensured a successful sintering below 900℃. In addition, pyrochlore phase was observed in the all composition. $Bi_2(Zn_{1/3}Nb_{2/3})_2O_7$ with 5 wt% BZBS glasss demonstrated 70 as the dielectric constant (ε_r), 2,500 GHz as the $Q \times f$ value, and -40 ppm/℃ as TCF.

Key Words : $Bi_2(Zn_{1/3}Nb_{2/3})_2O_7$, LTCC, ZBS glass, BZBS glass, Microwave dielectrics properties