Effect of additives on dielectric loss of AlN ceramics

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Abstract

We investigated dielectric loss tangent of AlN sintered bodies. Y_2O_3 and MgO were respectively added in the proportions of 0.5 or 1.0 mol% as sintering additives to AlN powder, and pressureless sintering was performed in a nitrogen flow atmosphere at 1850 ºC or 1900 ºC for 2 hours. The AlN sintered body became denser due to addition of MgO, and sufficient densification was achieved at a relative density of 0.955 - 0.998. The dielectric tangent at 28 GHz was 2.0×10^{-3} - 6.3×10^{-3} for no addition of MgO, and a satisfactory value of 2.3×10^{-3} - 4.5×10^{-3} was obtained for 1 mol% addition of MgO.