

**Pb-free glass and glass-ceramic composites
for low temperature sintering**

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The necessity focusing on employing environment friendly material has been growing in the electronic field. So far, there are several candidates for this effort using phosphate, borate glasses as network former and some other RO components(ZnO, BaO) as modifier. In the present study, three types of low-temperature-cofired glass, glass-ceramic, and intentionally crystallized composites were studied for the application of rib materials in PDP(plasma display panel). Also the influence of the filler materials added was examined by co-sintering process. The compositions, P_2O_5 - B_2O_3 - Al_2O_3 -ZnO and P_2O_5 -SnO-ZnO were mainly used for this work. Thermal(T_g , T_s , CTE), dielectric(ϵ , $\tan\delta$) and mechanical properties of these composites have been measured and compared each other. The results of this study would pave the way and give key standards for potential Pb-free compositions of new rib materials.