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Abstract

Multilayer manufacturing processes allow easy fabrication of large or, more often, complex ceramic components. Commonly in this process, a sheet-like powder-compact or “green tape” is first prepared. Then, the sheet materials are cut or punched into the desired shapes before joining together and sintering to obtain the final ceramic component with useful properties. Solvent lamination for alumina green tapes has been readily accomplished using a mixture of ethanol, toluene and poly (propylene glycol), PPG. However, the role of nonvolatile component, PPG, during the lamination process was not clearly understood. The purpose of the work reported herein is to determine the redistribution of the PPG during subsequent processing of green tape lamination. Based on these results, the environmentally friendly, solvent free system, for green tape lamination was developed.