Particle tracking simulation under squeezing flow of anisotropic conductive film

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The main purpose of this study is to simulate the actual ACF assembly and manufacturing process. And it is to find important factors that can improve the process in ACF assembly process using the tool. Hot issues in the ACF assembly process are remained-ratio, particle-particle interconnection, and warpage. In this research, we have focused on the remained-ratio and particle-particle interconnection. First simulation results have shown that film thickness ratio and viscosity ratio are the major factor of remained-ratio. In the second results, we found that bump pitch and bump/pad alignment affected on the particle-particle interconnection. Additionally, the study explores the flow of conducting particles within the adhesive, and then the final particle distribution under the bump. The research suggests a new approach toward a reliable ACF package.