

The effects of the dispersants on the peeling strength of the UV curable PSAs with alumina fillers

Youngmin Kim[†], Hee-Jin Lee, Sung Tae Kim¹
Korea Electronics Technology Institute;
¹SOOKWANG TTI Inc.
(ymkim@keti.re.kr[†])

Due to the high thermal conductivity, the silicone/alumina composites have received much attention as the materials for thermal pads nowadays. However, the low adhesion of the silicone resin sometimes resulted in the detachment of the thermal pads from the substrates during service. To address this, the alumina powders were mixed with acrylic resins for producing thermally conductive pressure sensitive adhesives (PSAs). Even though the acrylic adhesives displayed higher peeling strength compared to silicone resins, the addition of the alumina into the PSAs deteriorated the adhesive performance. Here we have investigated the effects of the dispersants on the adhesion of the PSAs with alumina fillers. Five dispersants such as F127, SPAN80, P40, BYK102 and SPAN20 were chosen for this study. For the PSA composites, the acrylic resin and the alumina were mixed at the ratio of 1 to 2 in the presence of the dispersants. The amount of the dispersants used was 5% of the fillers by weight. The peel strength of the tapes was measured through the 180° peel test.