

## Development of Photocurable Catechol-Based Thermally Conductive Adhesive

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Polymer composites are widely used as thermally conductive adhesives in electronic devices, owing to their high thermal conductivity and electrical resistance. However, commercial adhesives have long curing times and exhibit particle aggregation, resulting in lower mechanical and thermal performance. Additionally, some polymers require high temperatures to fully cure, limiting their use in sensitive electronics. In this study, we synthesized a photocurable catechol-functionalized copolymer using boron nitride (BN) as a thermal conductive filler. UV-curing significantly reduces curing time to a few minutes, preventing the aggregation of filler particles during the curing process. The catechol functional group improves the adhesive properties while boron nitride particles improve the thermal conductivity of the adhesive. This study provides an alternative way to heat curing for making high performance adhesives.