Heat dissipation composite using liquid filler

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Heat dissipation has become important due to the recent trends for the miniaturization and high integration of the electronic devices. If heat does not dissipate from the devices well, it can cause the problems such as reducing efficiency and shortening lifetime of the devices. Materials for high heat dissipation conventionally fabricated by dispersing fillers (e.g., metal, ceramic particles, etc) with high thermal conductivity (k) in polymer matrix to get high k and processability. However, there are few materials which exhibit both k and processability due to trade-off relation of them.
Here, we introduce the concept of heat dissipation composite using liquid filler and demonstrate k, processability, and actual heat dissipation of the composite. This composite can be applied to the electronic devices which needs high k and processability (e.g., small dimension, curved surfaces, etc). This may lead to new types/designs of heat dissipation materials/electronic devices.