

Supplementary Information

Power Cycling and Reliability Testing of the Epoxy-Based Graphene Thermal Interface Materials

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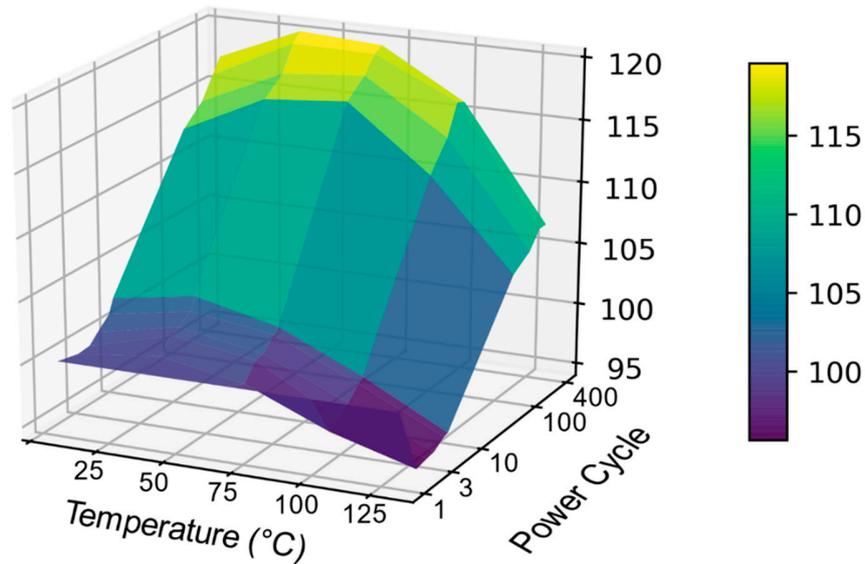


Figure S1. The percentage improvement in diffusivity of the TIM sample with 30 *vol.* % graphene filler loading at each temperature, over the course of treatment, normalized at each temperature before any treatment.

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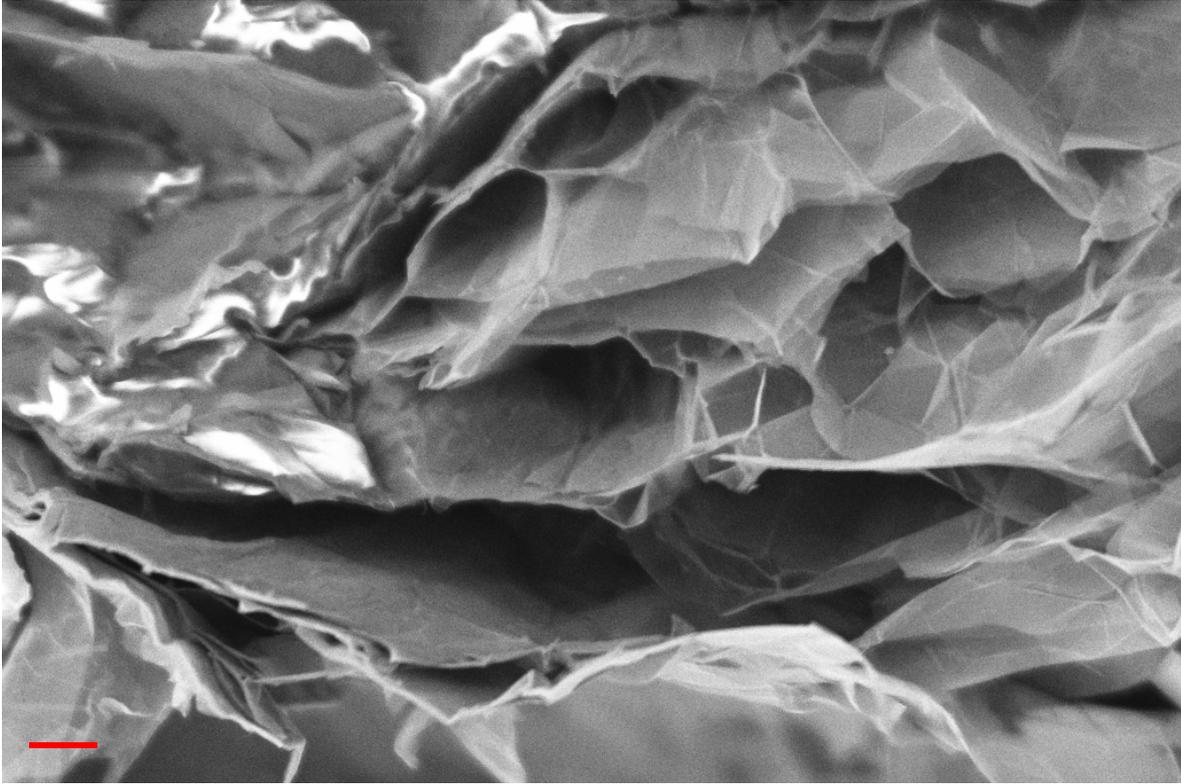


Figure S2. SEM micrograph of a fractured surface of a TIM sample with 5.4 *vol. %* graphene filler loading. Primarily epoxy regions are seen as white spots. The scale bar corresponds to 2 microns.

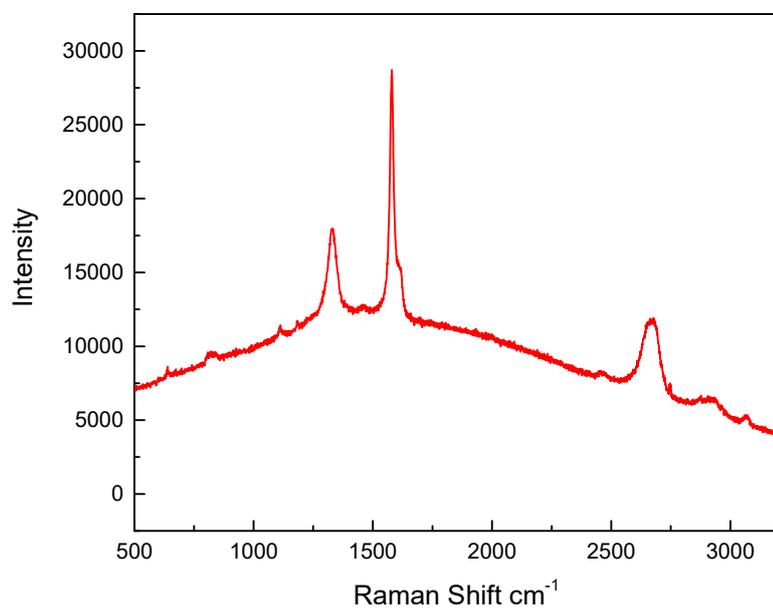


Figure S3. Raman spectrum of TIM with 5.4 *vol. %* graphene filler loading. Graphene's characteristic D, G, and 2D peaks are present, in order of each peak's energy.

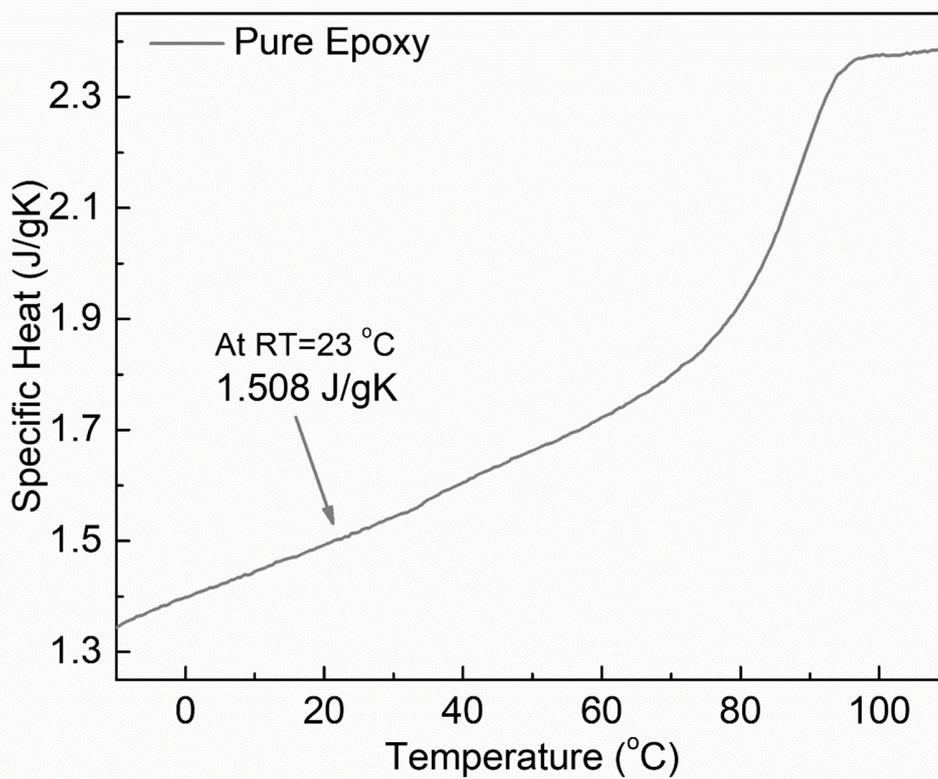


Figure S4. DSC results of BPA-based epoxy used in this study. The marked increase in specific heat corresponds to the glass transition temperature.

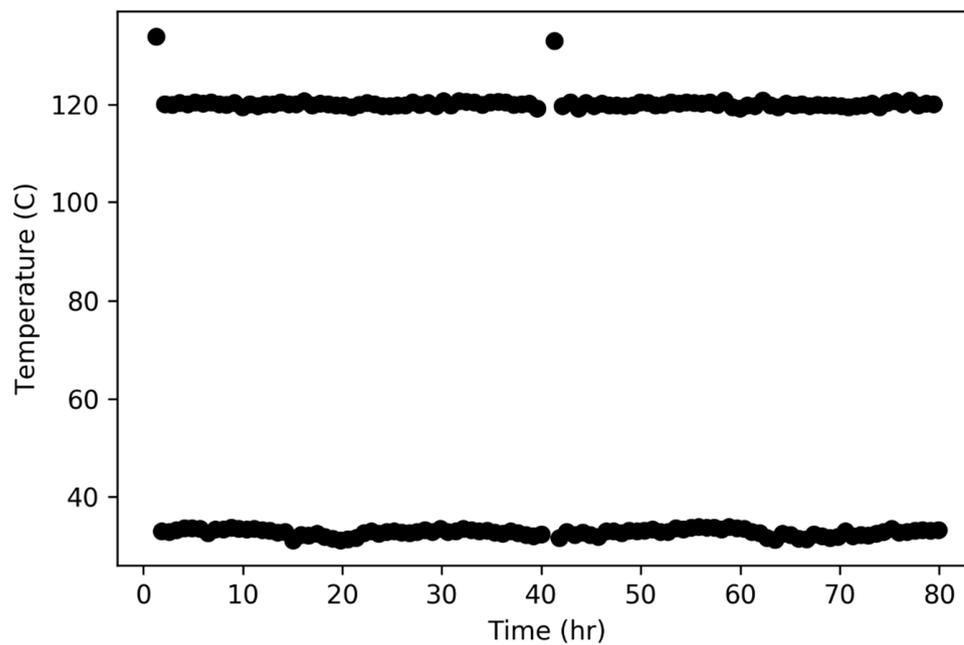


Figure S5. An automated plot produced by the custom power-cycling software showing temperature over time. There are two distinct temperature levels shown where the elevated and equilibrium temperature recordings for each cycle are almost directly above and below one another. The two outlier temperature points, at the beginning and halfway through, indicate the calibration verification procedures.