Supporting Information

Preparation of biomass-derived imine hardener, biobased epoxy thermoset and their coating on cellulose nanofiber film for its high performance and energy harvesting applications

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Preparation of CNF film

1.75 wt% CNF aqueous suspension was mixed using a homogenizer (IKA T25 D, Germany) at 11,000 rpm for 10 min, followed by a swing planetary mixer machine (SPM, Han Tech Co., South Korea) at 1,200 rpm for 10 min to remove the air bubbles. Further, homogenized CNF suspension was cast on an oxygen plasma-treated polycarbonate substrate with the help of a doctor blade. After drying in the cleanroom at room temperature, the CNF film peeled out from the substrate. Further, the peeled CNF film was dried at room temperature for 24 h, followed by heating at 60^{o}C for 3 h.

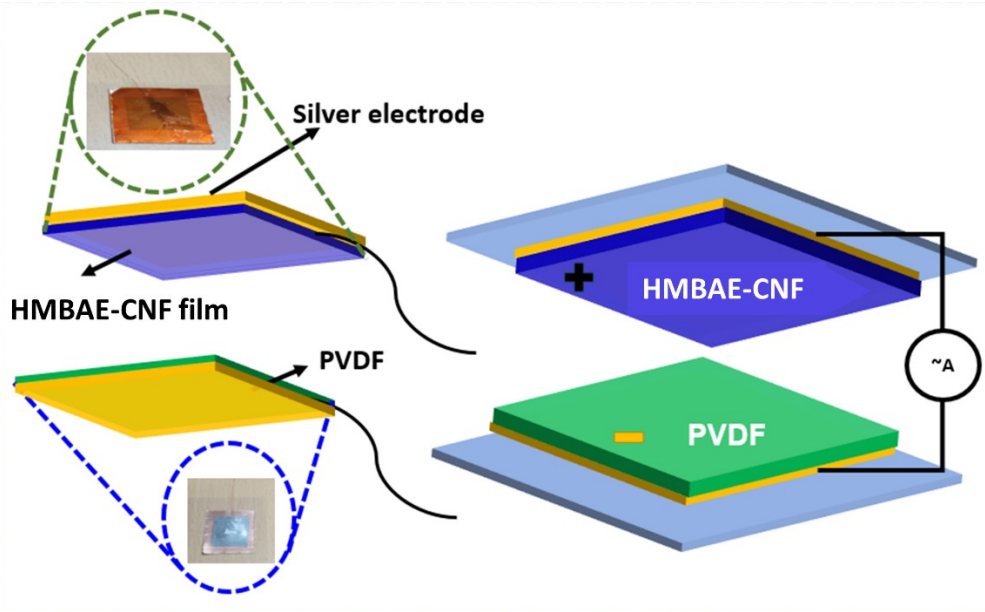

Figure S1. Biobased HMBAE-CNF TENG device configuration.

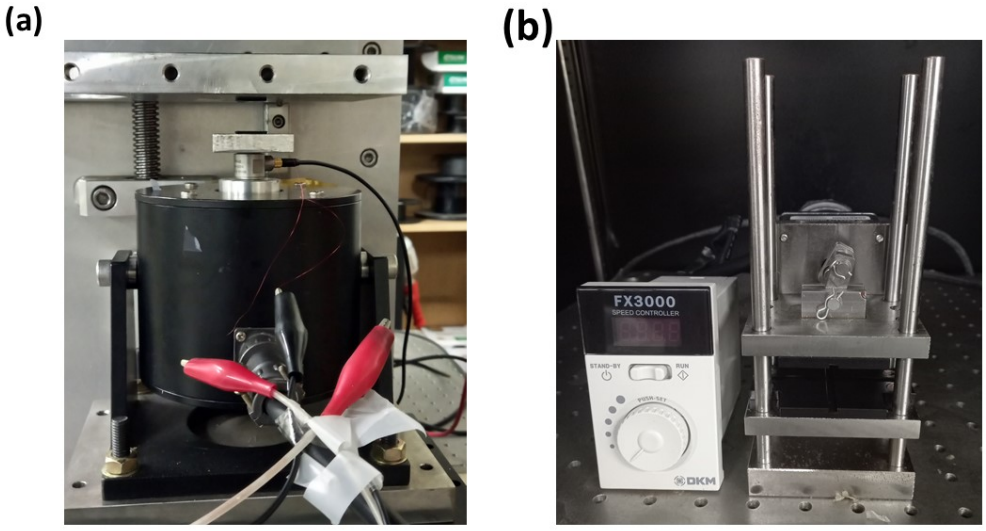

Figure S2. Triboelectric performance testing setups: (a) by using an electrodynamic shaker, (b) by using a crank linkage mechanism suitable for testing in an environment chamber.

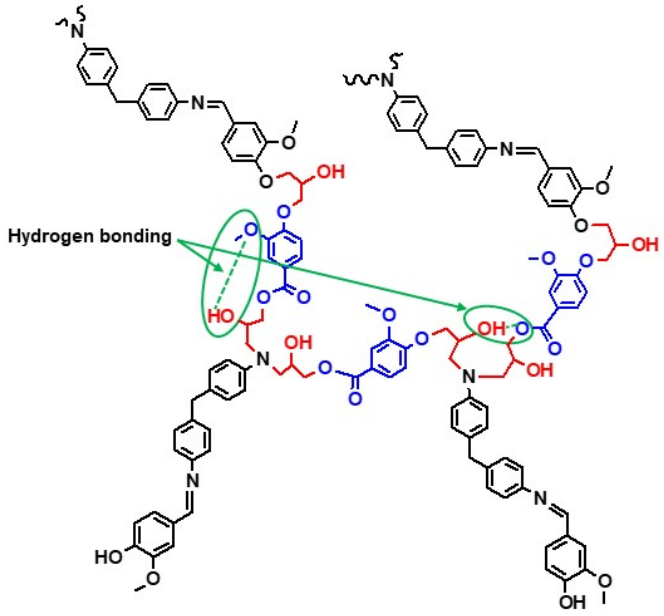

Figure S3. Cross-linked network structure of HMBAE-VDM thermosets.

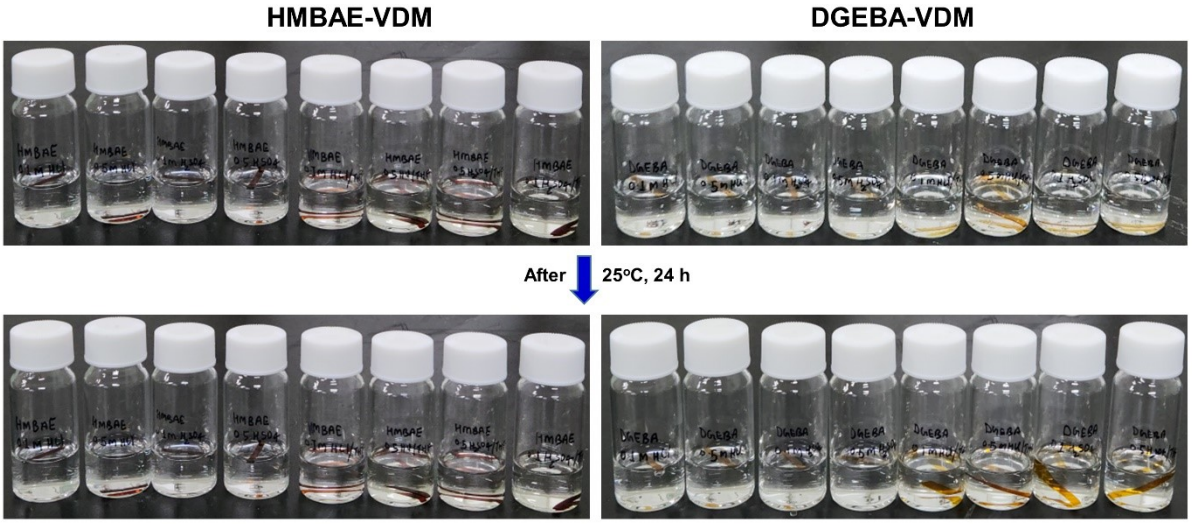

Figure S4. Photographs of the HMBAE-VDM and DGEBA-VDM thermosets immersed in the 10 mL of the 0.1 and 0.5 M of HCl and H_2SO_4 aqueous solution after 24 h.

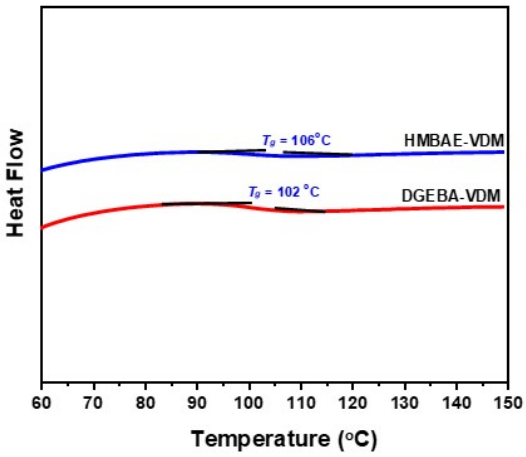

Figure S5. DSC curves of HMBAE-VDM and DGEBA-VDM thermosets.

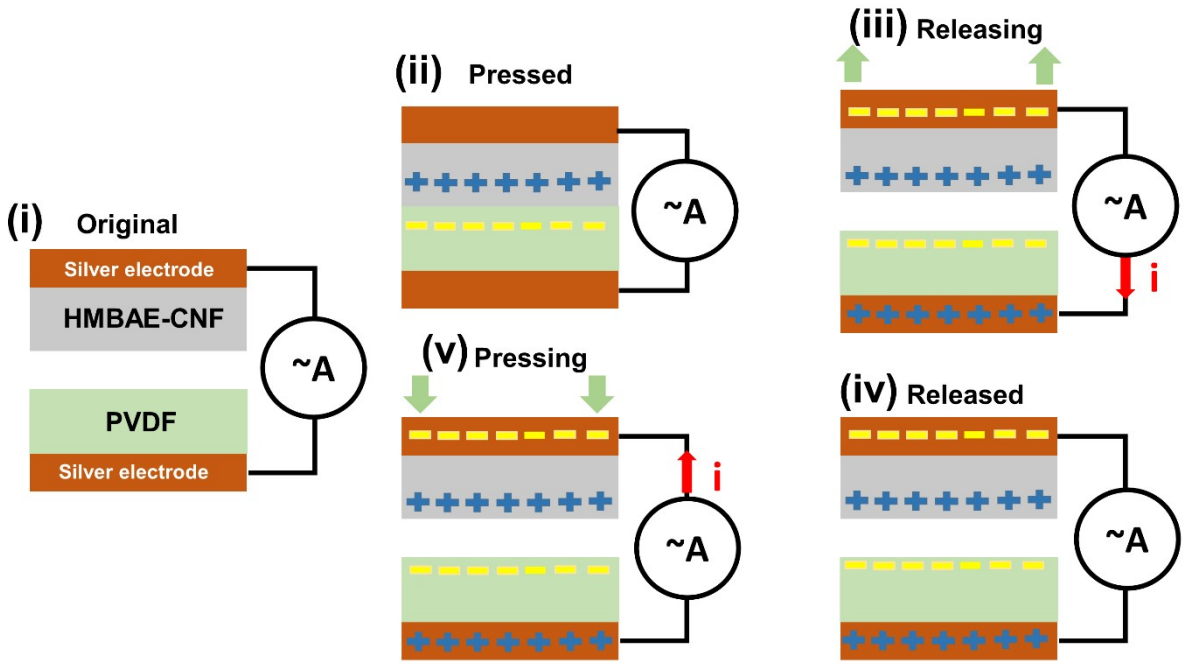

Figure S6. The charge flow of electrons between the silver electrodes upon contact with the HMBAE-CNF and PVDF surfaces.