Supplementary Information for

Recyclable flexible sensors based on digital-light-processing 3D printing of thermoplastic elastomer and facile transfer of pencil-marked graphite films

Linkai Wang,§[a] Meichen Liu,§[a] Dan Guo,[a] Feng Jin,*[b] Chenyang Bi,[a] Hui Zhang,[a] Liang Jiang,*[a] Shaojuan Chen,[a] and Zhong Xiong*[a]

[a] College of Chemistry and Chemical Engineering, College of Textiles and Clothing, Qingdao University, Qingdao, 266071, China.

[b] Beijing Key Laboratory of Special Elastomer Composite Materials, College of New Materials and Chemical Engineering, Beijing Institute of Petrochemical Technology, Beijing 102617, China.

§ These authors contributed equally.

Corresponding Authors

* E-mail: xiongzhong22@163.com (Z.X.).

* E-mail: liang.jiang@qdu.edu.cn (L.J.).

* E-mail: jinfeng@bipt.edu.cn (F.J.).

Characterization of conversion rate of isodecyl acrylate (IDA)

The photoresin was uniformly coated onto a KBr plate to form a smooth and homogeneous film. Subsequently, the coating was irradiated with a high voltage UV mercury lamp (wavelength: 365 nm; power: 500 W). The conversion rate of the IDA monomer was determined by monitoring the change in peak area of the photoresin at 1636 cm^{-1} on an FTIR spectrometer (Nicolet is50, Thermo Fisher Scientific), and the IDA conversion rate was calculated using the following equation:

$$Conversion\% = [1 - \frac{A_t}{A_0}] \times 100\%$$

Where A_0 and A_t are the absorbance peak areas at 0 and t s of UV irradiation, respectively.

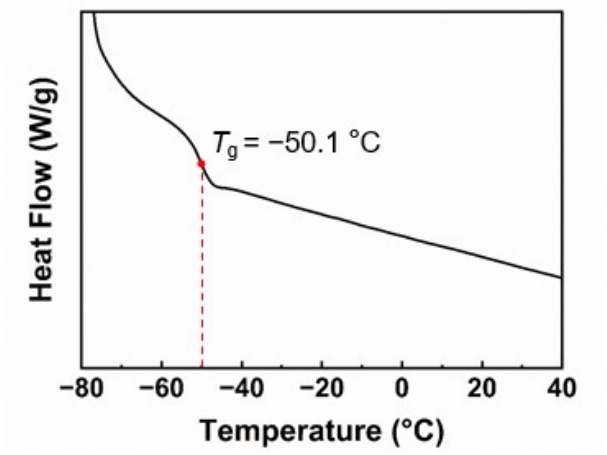

Fig. S1 DSC thermogram of SEBS.

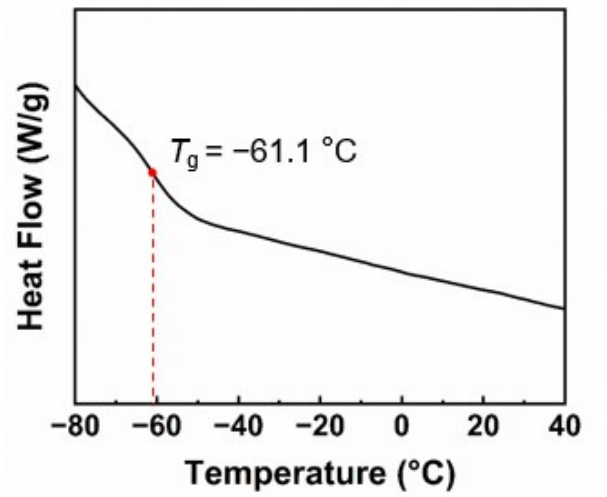

Fig. S2 DSC thermogram of PIDA.

Table S1 IDA Conversion rate with various UV irradiation times

UV irradiation time (s)	0	10	250
IDA Conversion (%)	0	48.2	92.6