## Supplementary Material

## Softening Shape Memory Polymer Substrates for Bioelectronics Devices with Improved Hydrolytic Stability

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## **1.1.ATR-FTIR**

Attenuated Total Reflectance (ATR) Fourier Transform Infrared Spectroscopy (FTIR) measurements were performed with an IRAffinity-1 spectrometer from Shimadzu using a DLA-TGS detector. The ATR cell was equipped with a ZnSe crystal. The spectra were recorded from 4000 to 800 cm<sup>-1</sup> as the average of 32 scans at a resolution of 2 cm<sup>-1</sup>. Analysis of data included baseline correction, ATR correction and normalization.





**Supplementary Figure S1.** ATR-FTIR Spectrum of 1, 3, 5-Tris (3-mercaptopropyl)-1, 3, 5-triazinane-2, 4, 6-trione (*TTTSH*)

## 1.2.Nuclear magnetic resonance spectroscopy (NMR)

Product was dissolved in CDCl<sub>3</sub>, and <sup>1</sup>HNMR & <sup>13</sup>CNMR were performed by Bruker Ascend 600 MHz spectrometer. TopSpin software was used to record the spectra.



Supplementary Figure S2. <sup>1</sup>H NMR spectrum of TTTSH



Supplementary Figure S3. <sup>13</sup>C NMR spectrum of tri-thiol monomer



**Supplementary Figure S4.** DMA measurements of SMP-B after various aging times in 1M NaOH at 37 °C showing reduction of mechanical stability after each week.



**Supplementary Figure S5**. Dynamic mechanical analysis of SMP-A (A) and SMP-B (B) after three weeks in DI-Water at 75°C depict the annealing effect and change in storage modulus, loss modulus and tan delta.



**Supplementary Figure S6.** Storage modulus (top), loss modulus (center), and tan delta (bottom) of SMP-A before (neat) and after sterilization with EtO.



**Supplementary Figure S7.** GC-MS of PBS after 8 weeks of aging of SMP-B. Peak displays eluent after ~ 22 minutes, which is attributed to the degradation product tris(hydroxymethyl)propane. Inset shows respective mass spectrum of the eluent.



**Supplementary Scheme S1.** Reaction scheme of the mechanism of hydrolytic degradation for a representative part of the SMP-B. Displayed reaction results in the product which was found in GC-MS eluent from SMP-B (Figure S7).



**Supplementary Figure S8.** ATR-FTIR measurements of SMP-A and SMP-B before aging (pristine) and after 4 weeks in NaOH and 8 weeks in PBS, respectively. Results show the changes in surface chemistry of the polymers due to hydrolytic degradation.