Supplementary Material

Optimization of Mechanical and Dielectric Properties of Poly (urethane-urea)-based Dielectric Elastomers via Controlling Microstructure

Dong Xiang[1], Miao Liu[1], Guanliang Chen[3], Teng Zhang[4], Li Liu[2*] and Yongri Liang[1,*]

[1]College of Materials Science and Engineering, Beijing Key Lab of Special Elastomer Composite Materials, Beijing Institute of Petrochemical Technology, Beijing 102617, P. R. China

[2]State Key Laboratory of Chemical Resource Engineering, Beijing University of Chemical Technology, Beijing 100029, China

[3]Key Laboratory of Beijing City on Preparation and Processing of Novel Polymer Materials, Beijing University of Chemical Technology, Beijing 100029, P. R. China

[4]School of Electrical Engineering, Beijing Jiaotong University, Beijing 100044, P.R. China

*Corresponding Author

E-mail: liangyr@bipt.edu.cn(Yongri Liang) , liul@mail.buct.edu.cn (Li Liu)

1. TGA measurement

The thermogravimetric analysis (TGA) conducted on a Pyris 1 thermoanalyzer system（Perkin Elmer Corp. USA）with $10℃\,min^{-1}$ heating rate under N_2 atmosphere. The samples for TGA were weighted about 5 mg.

The decomposition of HS take place first at around 290 ℃ and the SS take place at around 380 ℃. The HS fractions are determined by first region of decomposition as shown in Figure S1.
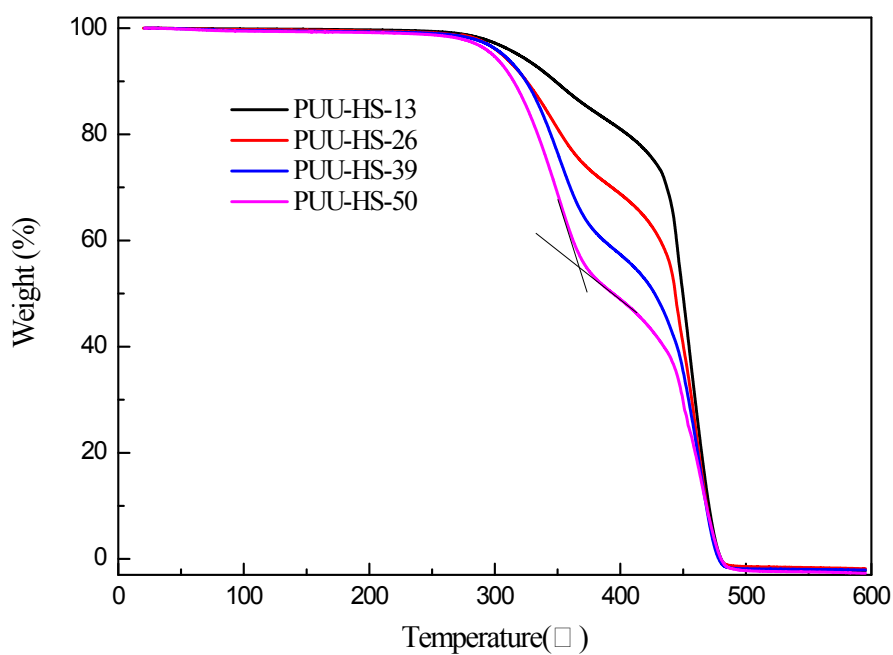

Figure S1: The TGA curves of PUUE with various HS content