Electronic Supplementary Information

Copolymerization of a Bisphenol A Derivative and Elemental Sulfur by the RASP Process

*Timmy Thiounn,[a] Moira K. Lauer,[a] Menisha S. Karunarathna,[a] Andrew G. Tennyson,[a,b] and Rhett C. Smith[a]**

[a] Department of Chemistry and Center for Optical Materials Science and Engineering Technologies, Clemson University, Clemson, South Carolina, United States.

[b] Department of Materials Science and Engineering, Clemson University, Clemson, South Carolina, United States.

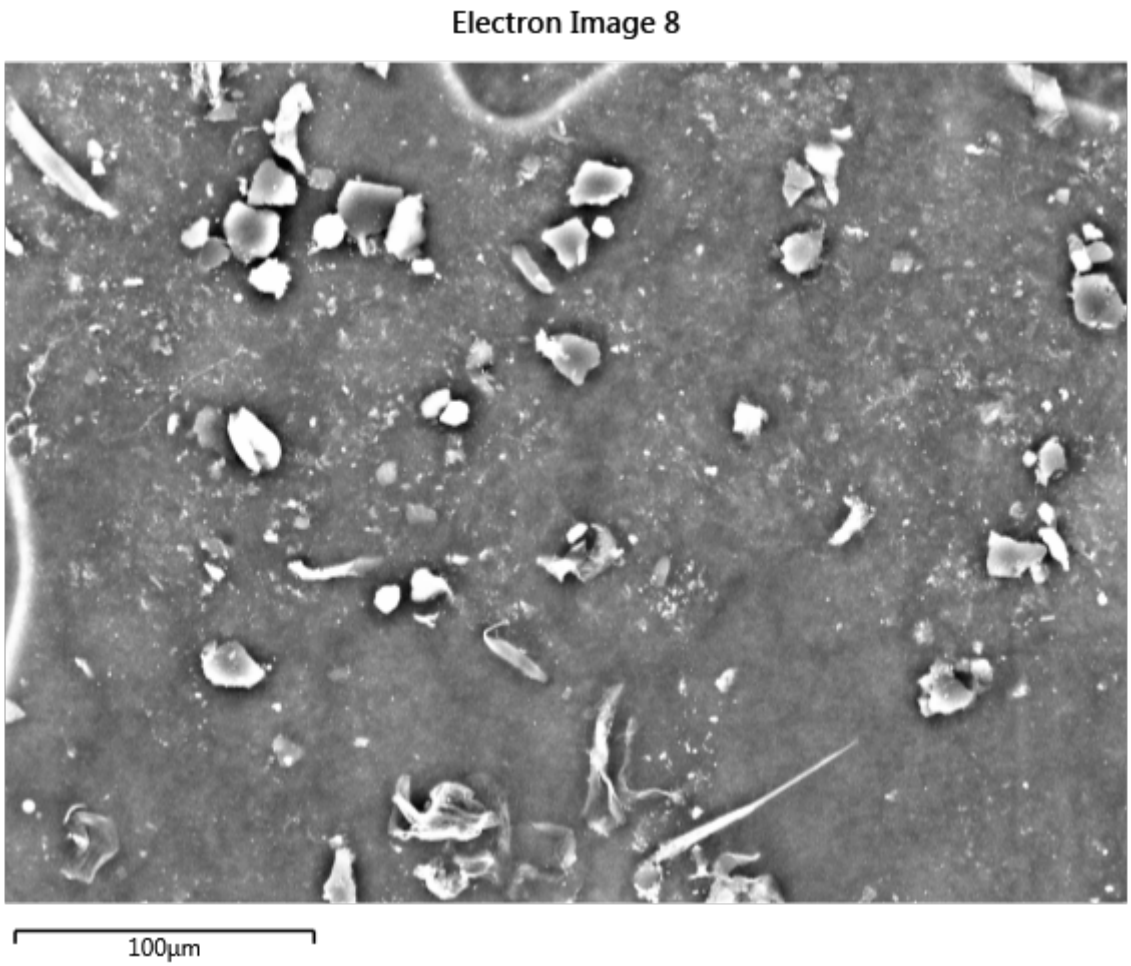
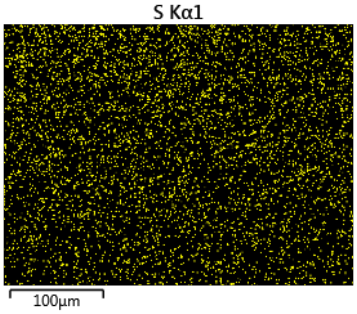
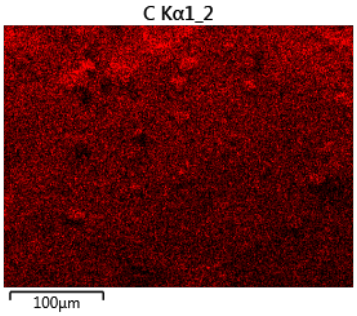


Figure S1. Surface analysis of **BAS$_{90}$** by scanning electron microscopy (SEM) revealed a smooth surface consistent with those observed in high sulfur-content materials prepared by inverse vulcanization.

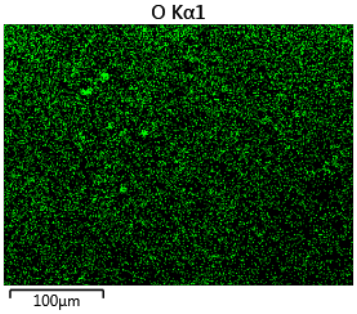
A)



B)



C)



D)

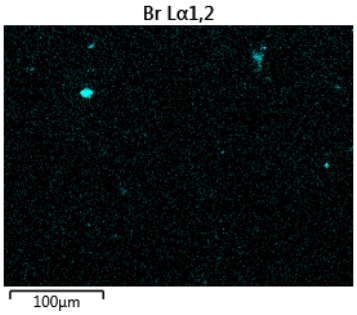


Figure S2. Surface analysis of **BAS$_{90}$** by energy-dispersive X-ray (EDX) analysis revealed even distribution of sulfur (A), carbon (B), oxygen (C) and bromine (D) content on the polymer surface.

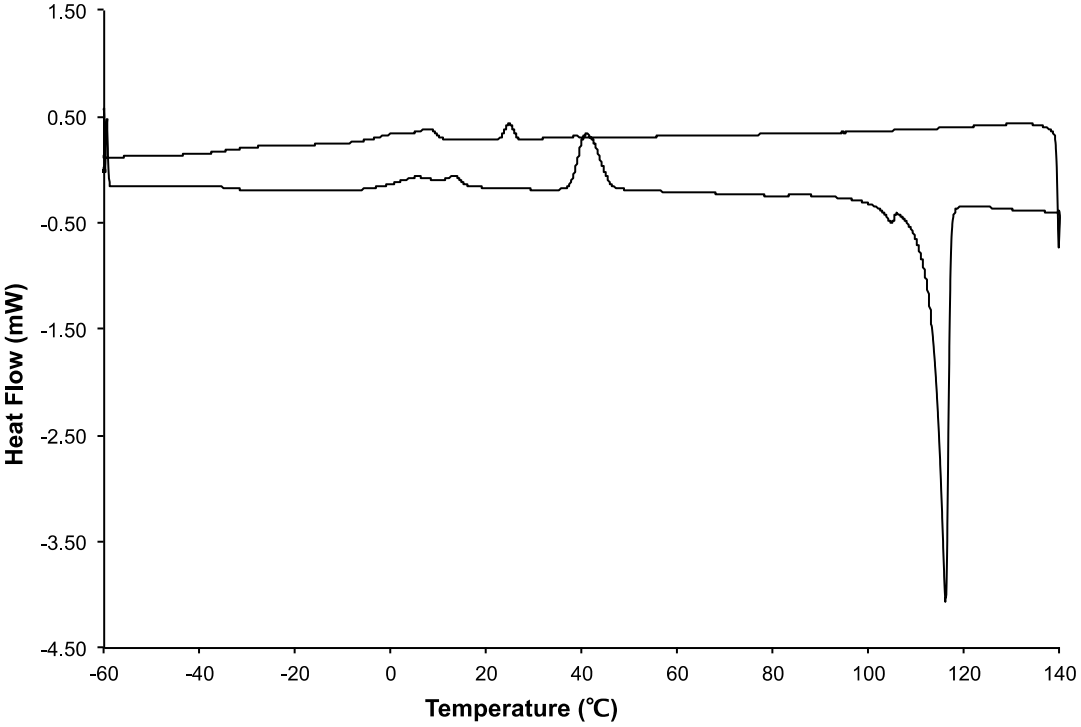


Figure S3. Differential scanning calorimetry of **BAS$_{95}$**.

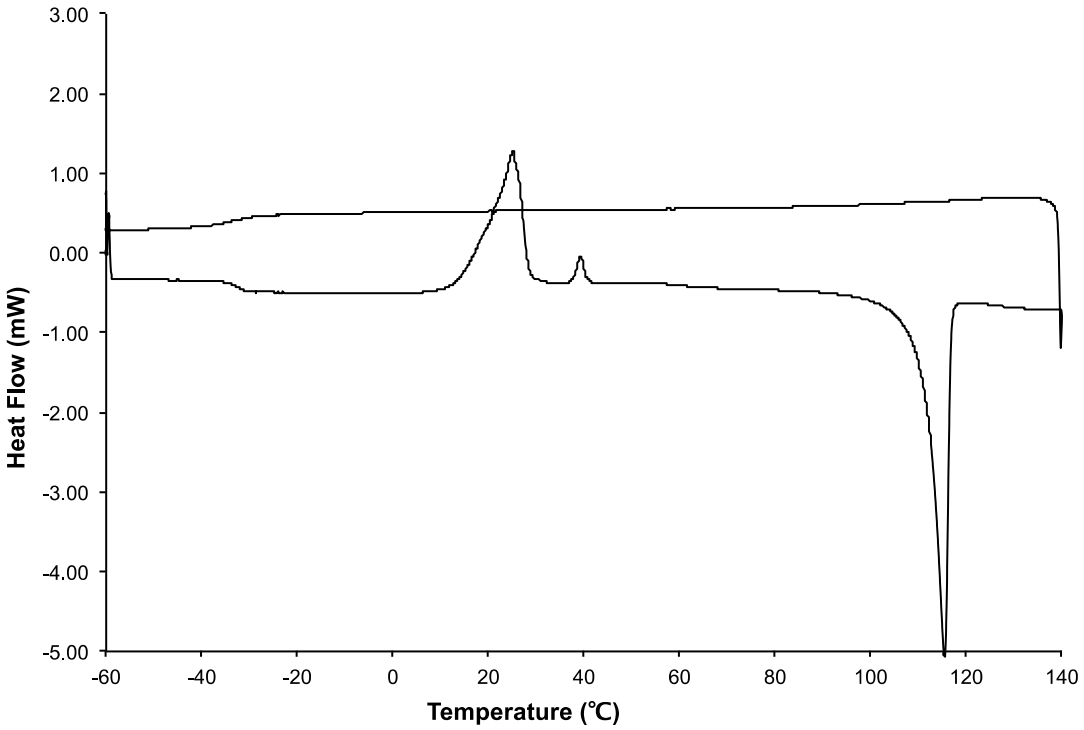


Figure S4. Differential scanning calorimetry of **BAS$_{90}$**.

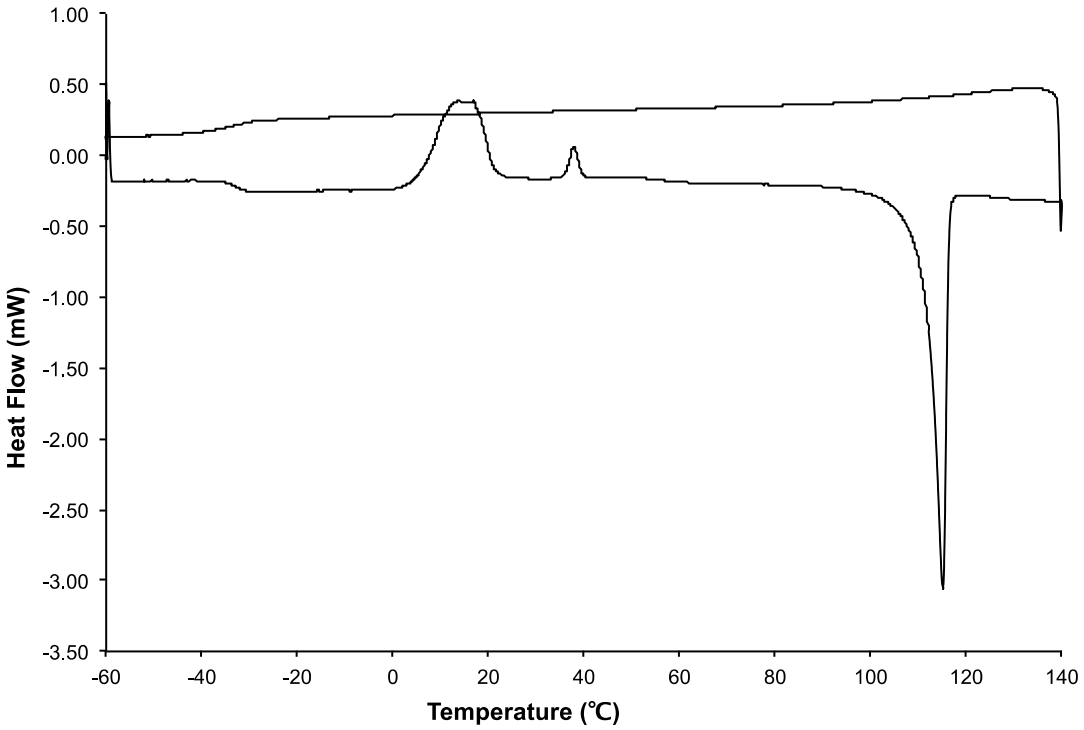


Figure S5. Differential scanning calorimetry of **BAS$_{85}$**.

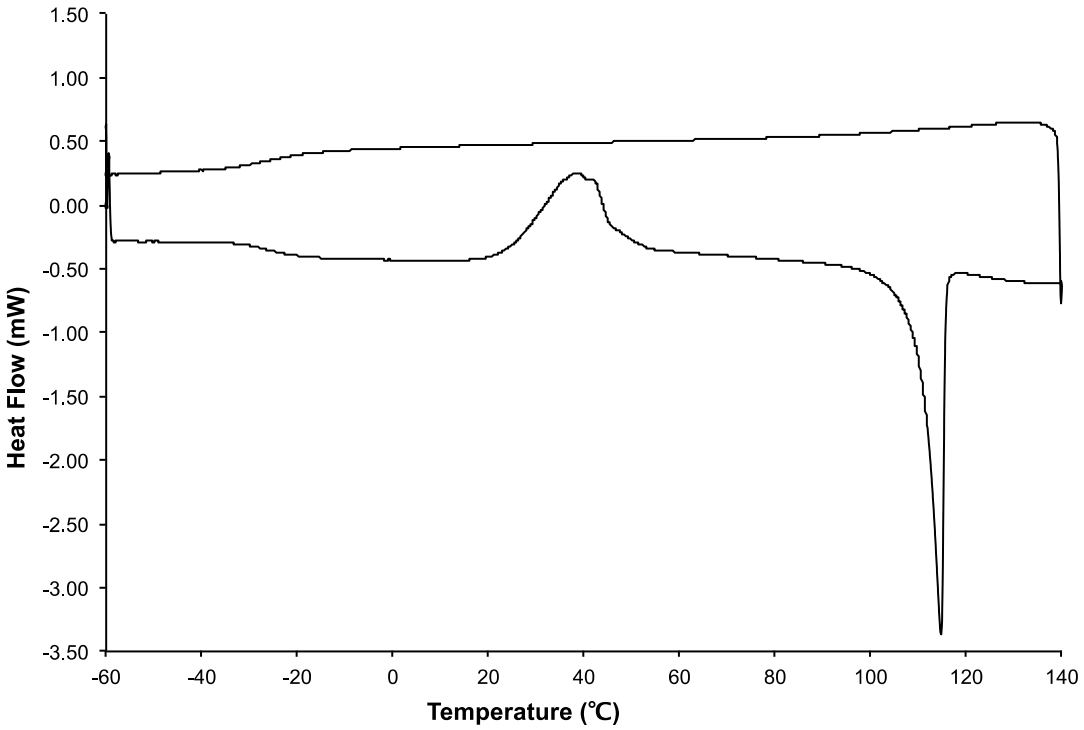


Figure S6. Differential scanning calorimetry of **BAS$_{80}$**.

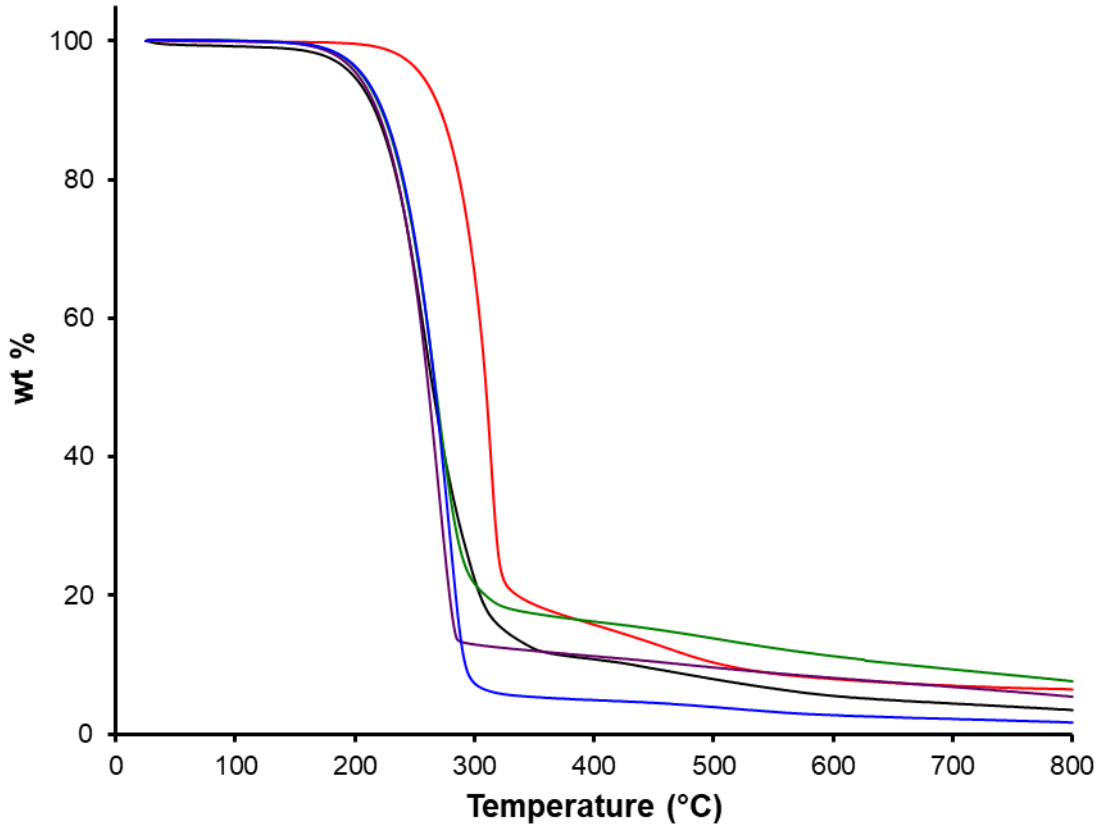
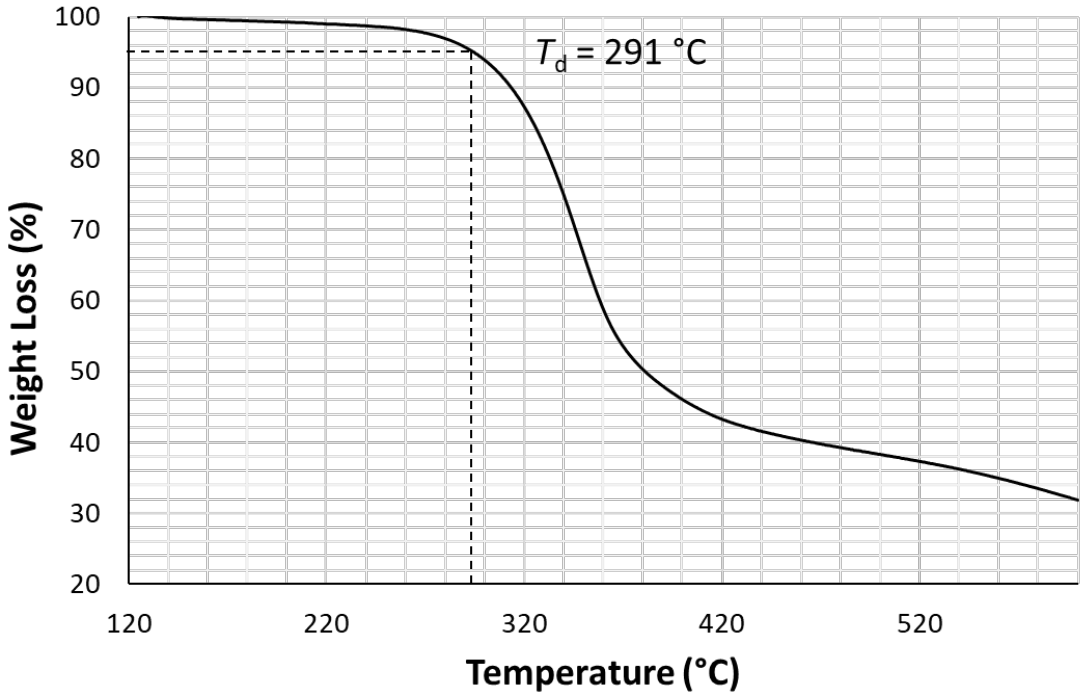


Figure S7. TGA traces showing thermally-induced mass loss for monomer Br_4BPA (red), **BAS$_{95}$** (blue), **BAS$_{90}$** (black), **BAS$_{85}$** (violet) and **BAS$_{80}$** (green) under nitrogen.

A)



B)

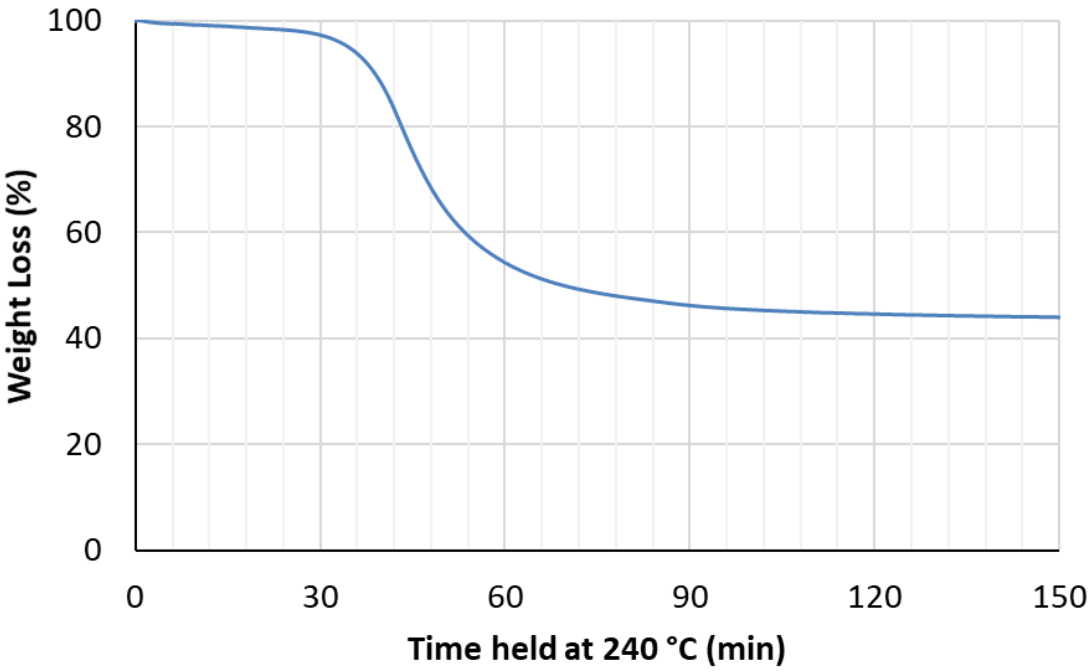


Figure S8. TGA traces for the fraction of **BAS$_{90}$** from which free sulfur has been removed. In one experiment mass loss was monitored as the sample was heated from room temperature to 600 °C (A), and in another case mass loss was monitored as the temperature was held at 240 °C for 2.5 h (B).

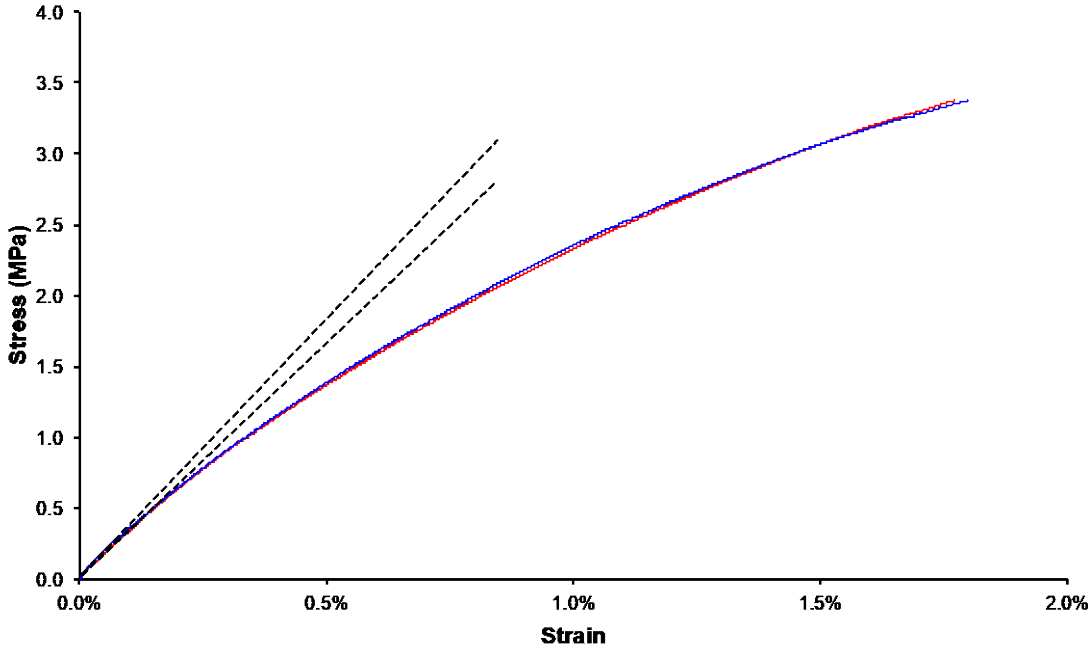


Figure S9. Stress strain curve of **BAS$_{95}$** pre (blue line) and post acid (red line) soak for 24 h. The dotted black lines are the extrapolations of the linear region.

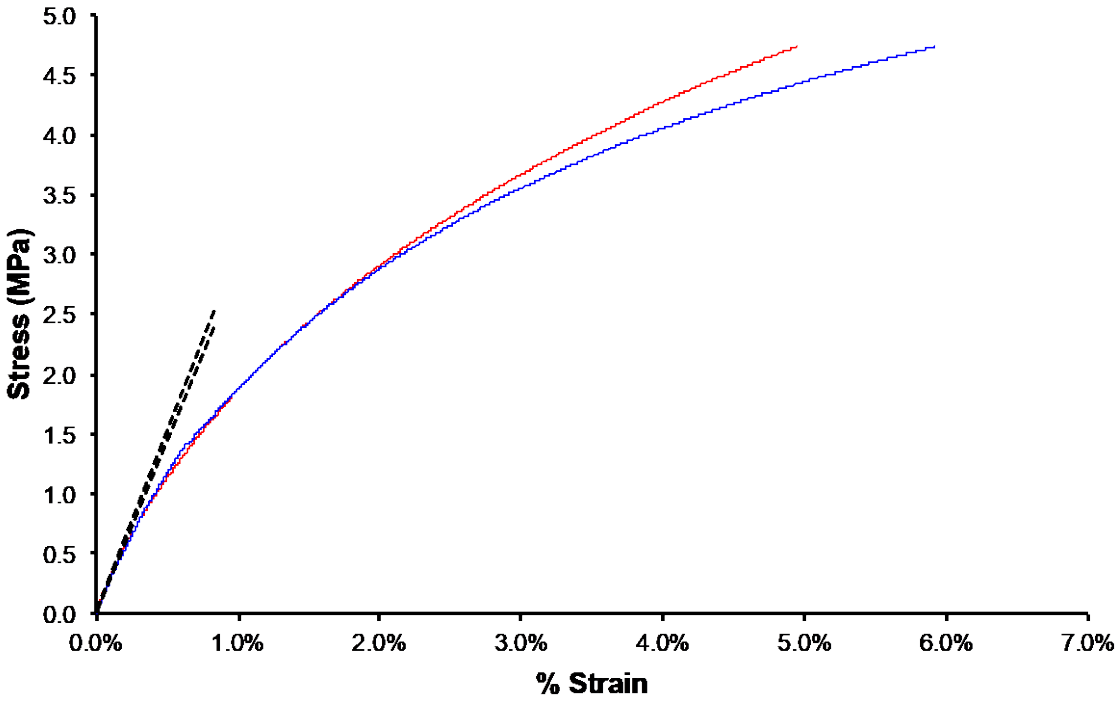


Figure S10. Stress strain curve of **BAS_{90}** pre (blue line) and post acid (red line) soak for 24 h. The dotted black lines are the extrapolations of the linear region.