

Supporting Information for

**Phosphonium Ionenes from Well-Defined Step-Growth Polymerization:**

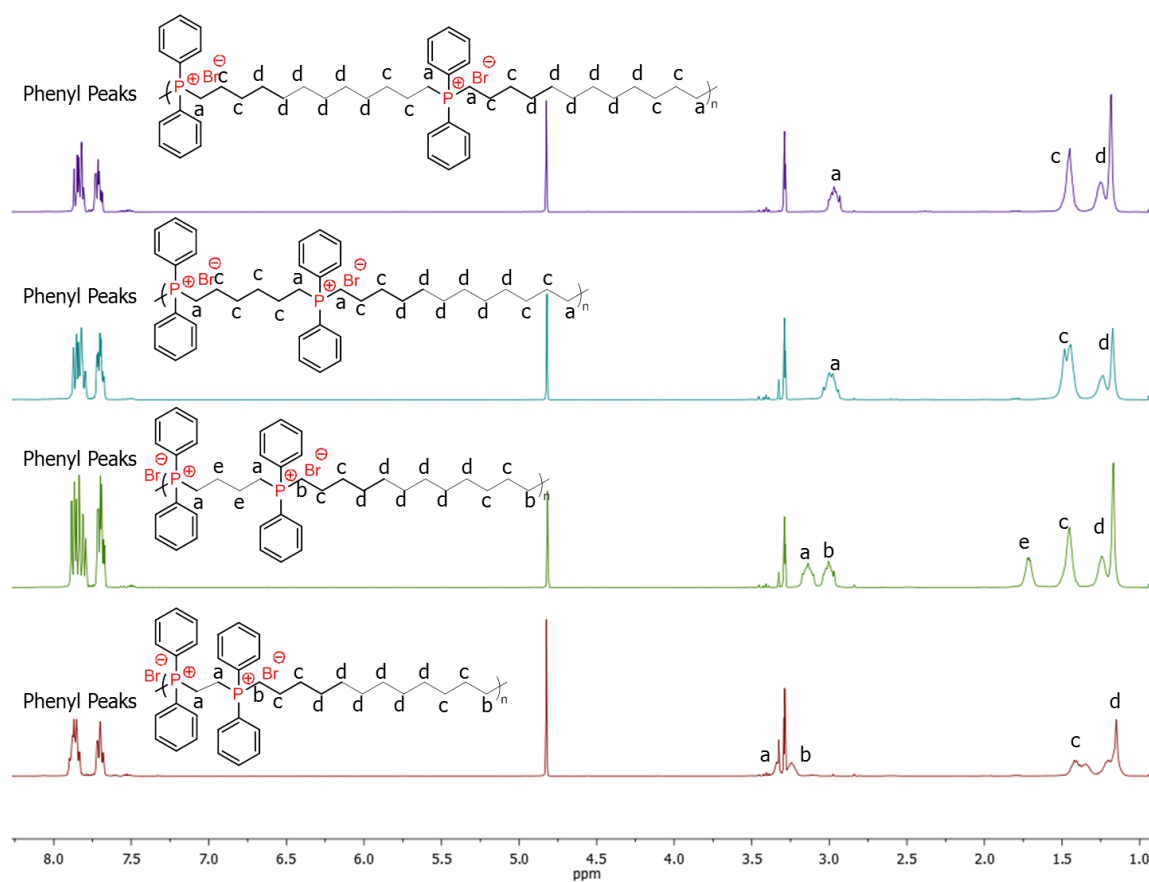
**Thermal and Melt Rheological Properties**

Sean T. Hemp, Musan Zhang, Mana Tamami, and Timothy E. Long\*

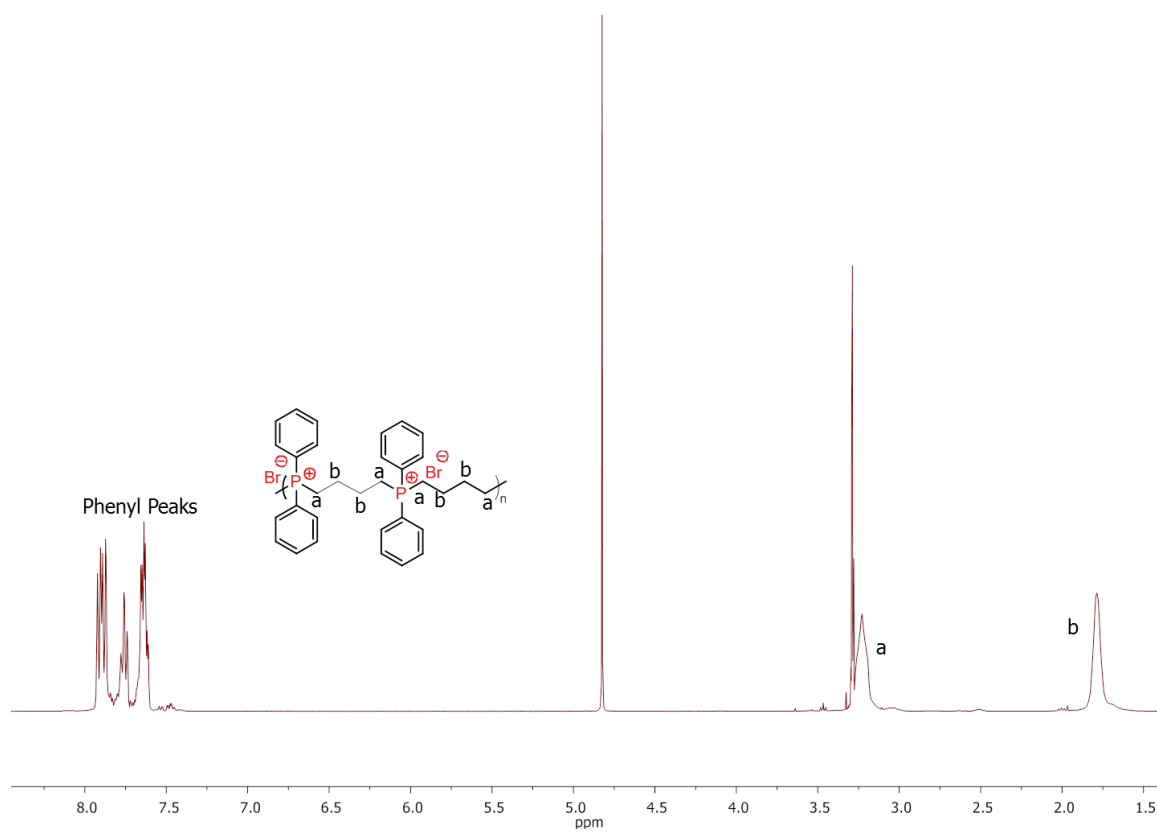
*Macromolecules and Interfaces Institute, Department of Chemistry, Virginia Tech, Blacksburg, VA 24061*

\*To whom correspondence should be addressed. E-mail: telong@vt.edu. TEL: (540)231-2480  
FAX: (540)231-8517

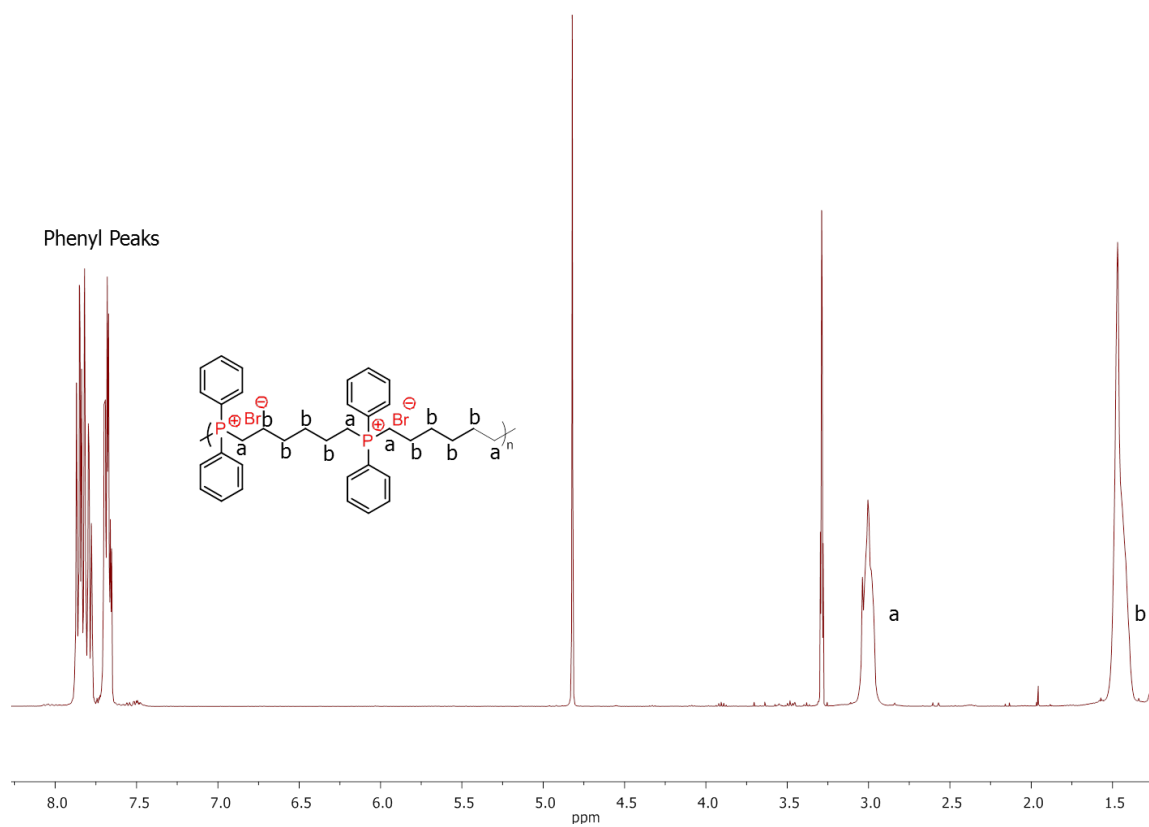
Keywords: phosphonium, ionenes, melt rheology, polyelectrolytes



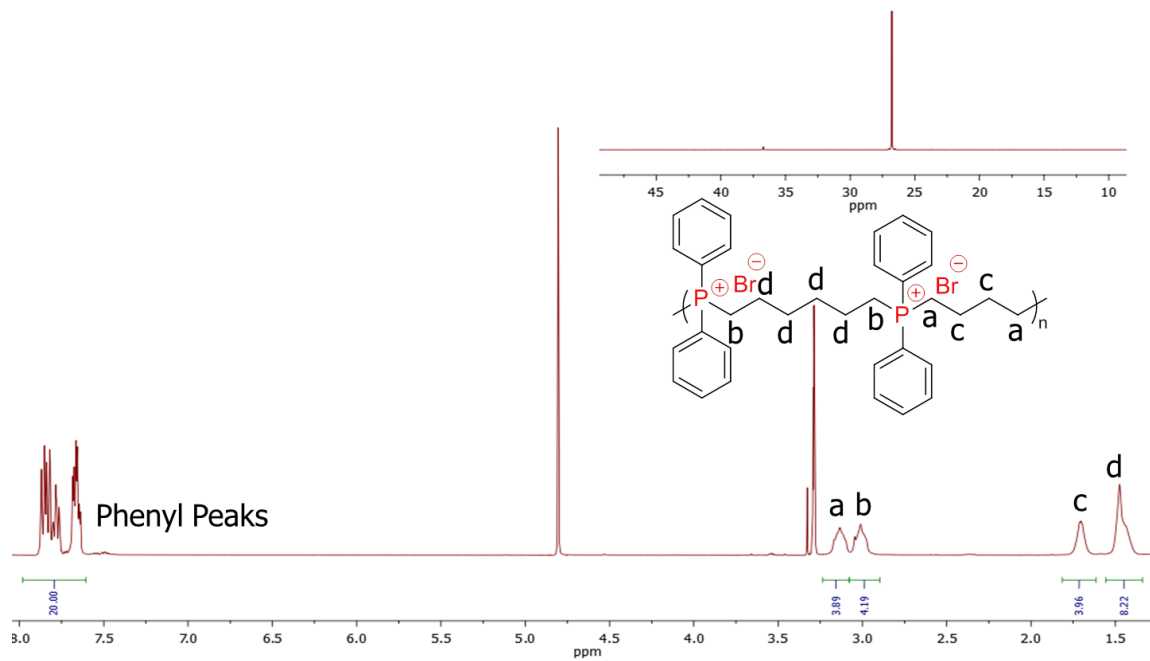
**Figure S1.**  $^1\text{H}$  NMR spectroscopy of xP,12-ionenes.



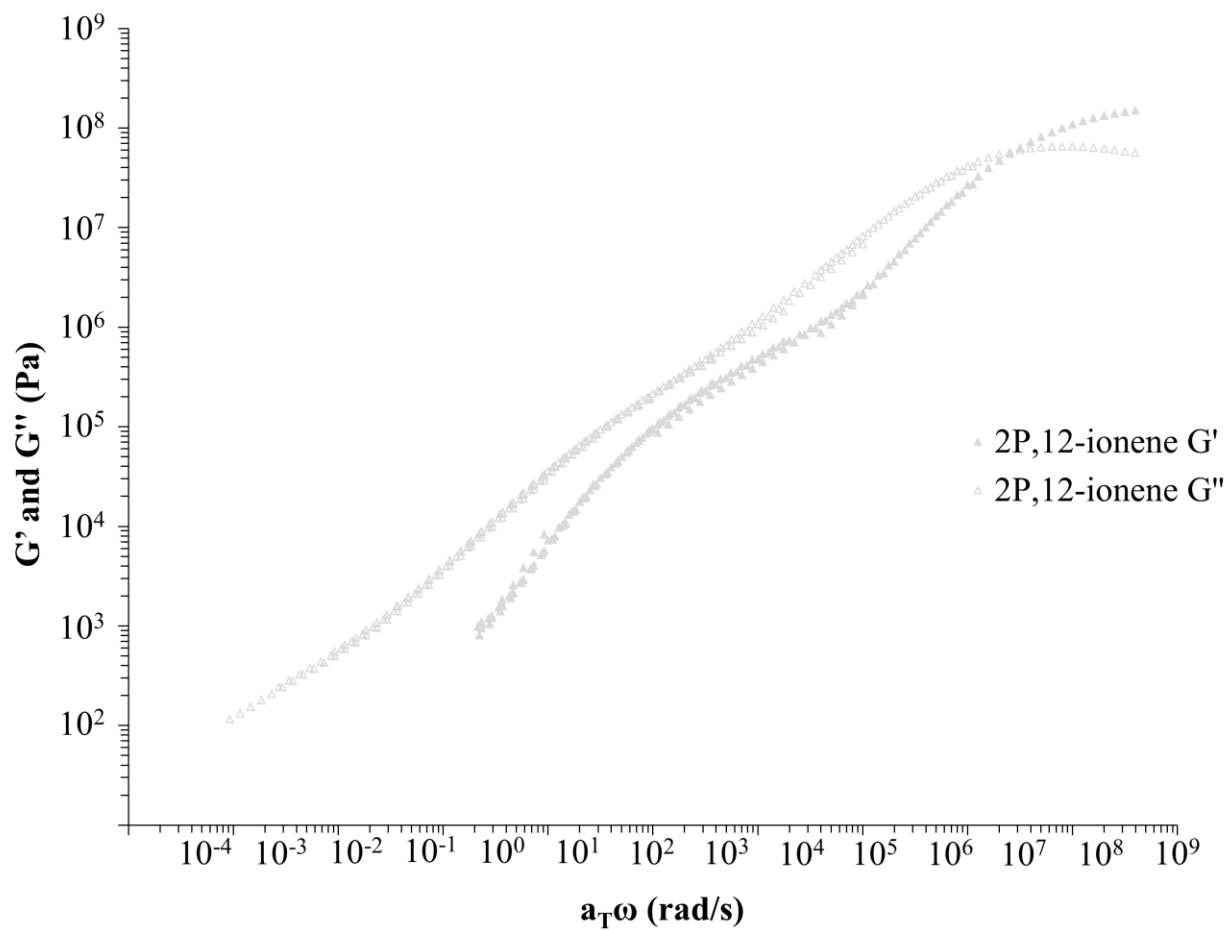
**Figure S2.**  $^1\text{H}$  NMR spectroscopy of 4P,4-ionene.



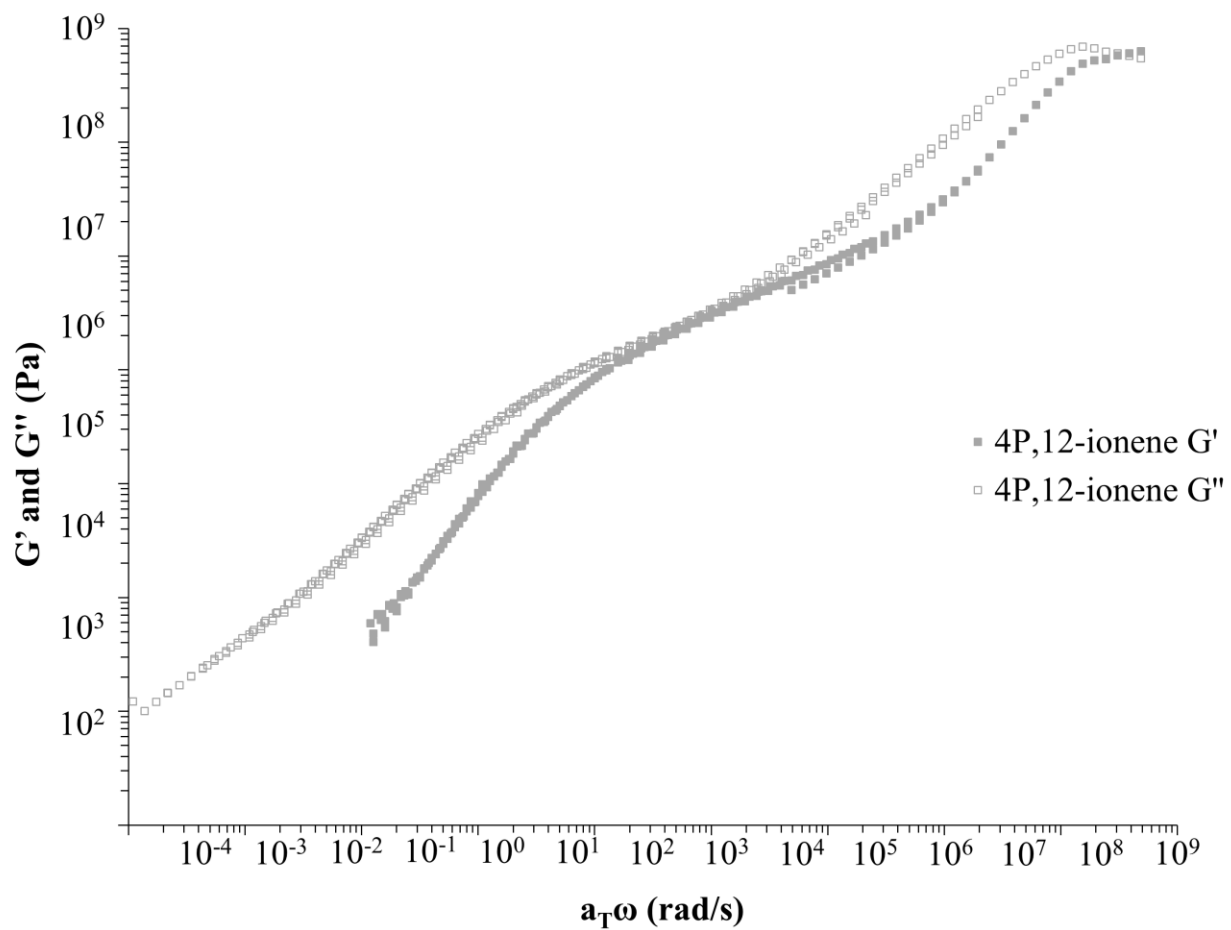
**Figure S3.**  $^1\text{H}$  NMR spectroscopy of 6P,6-ionene.



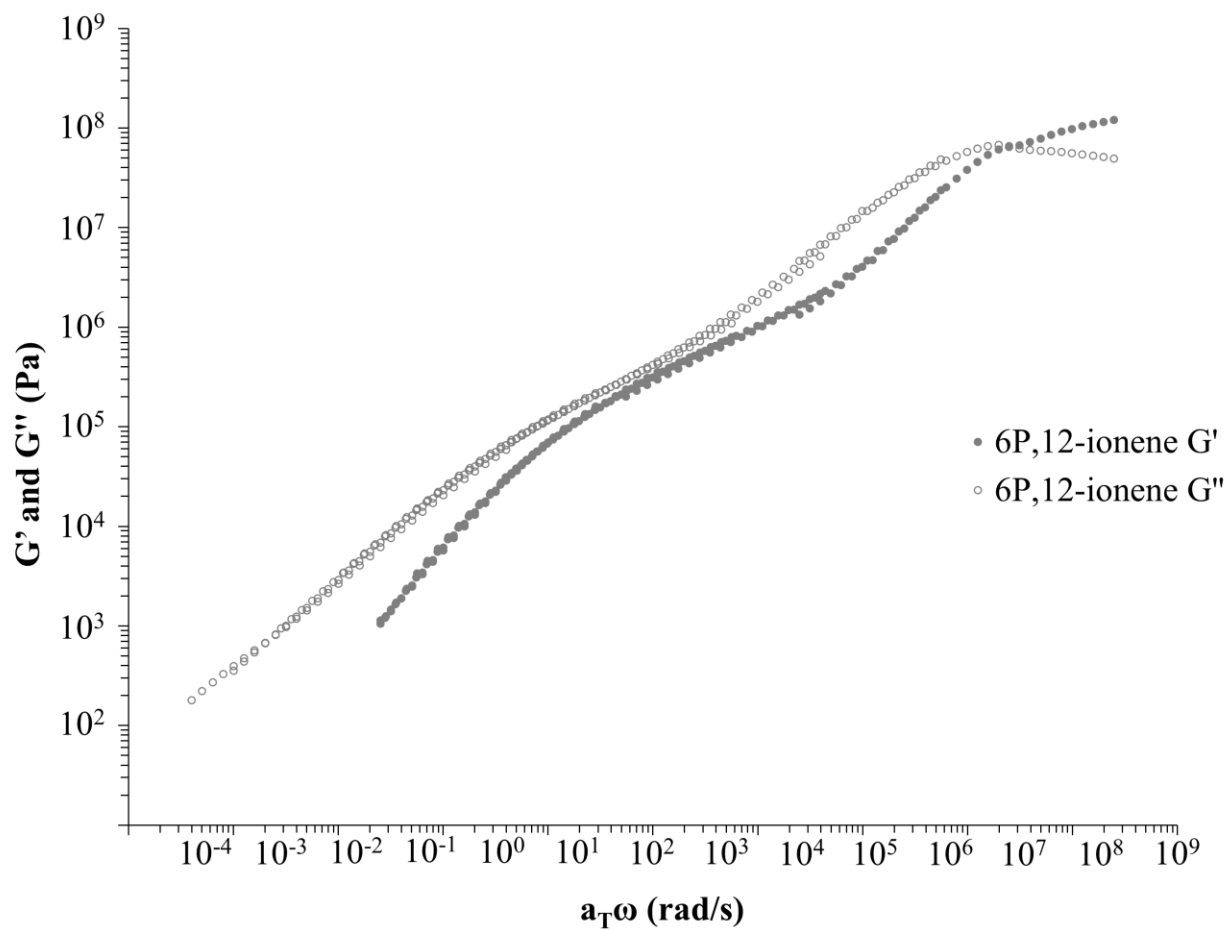
**Figure S4.**  $^1\text{H}$  and  $^{31}\text{P}$  NMR spectroscopy of 6P,4-ionene.



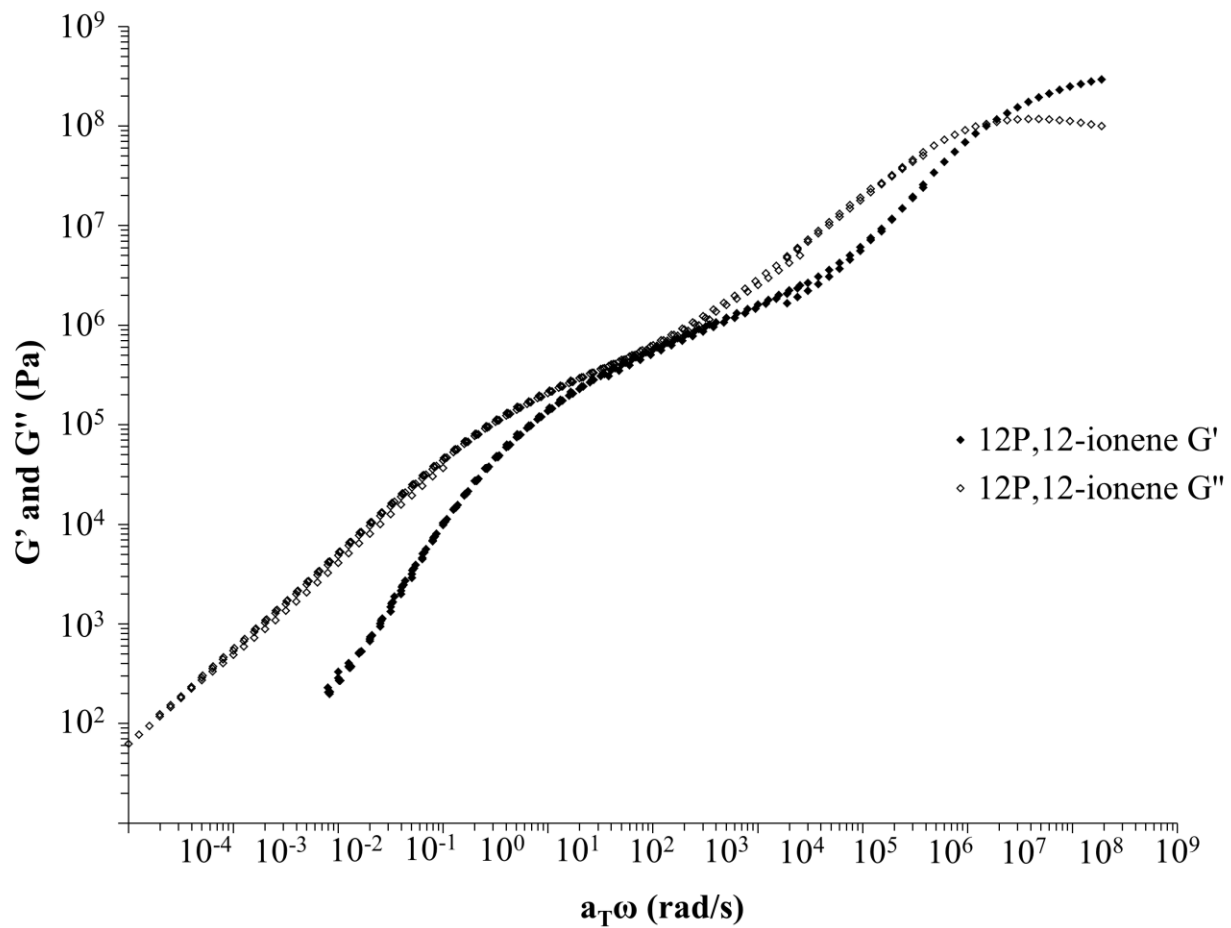
**Figure S5.** Melt rheology master curves for 2P,12-ionene.



**Figure S6.** Melt rheology master curves for 4P,12-ionene.



**Figure S7.** Melt rheology master curves for 6P,12-ionene.



**Figure S8.** Melt rheology master curves for 12P,12-ionene.