

Electronic Supplementary Information

**Synthesis and Characterization of Imidazolium-Mediated Tröger's
Base Containing Poly(amide)-Ionenenes and Composites with Ionic
Liquids for CO₂ Separation Membranes**

Irshad Kammakakam,[†] Jason E. Bara,^{†*} and Enrique M. Jackson[‡]

[†] *University of Alabama, Department of Chemical & Biological Engineering, Tuscaloosa, AL
35487-0203 USA*

[‡] *NASA Marshall Space Flight Center, Huntsville, AL 35812*

*Corresponding author. e-mail: jbara@eng.ua.edu

Figure S1. ^1H NMR spectra of the “free” IL $[\text{C}_4\text{mim}][\text{Tf}_2\text{N}]$.

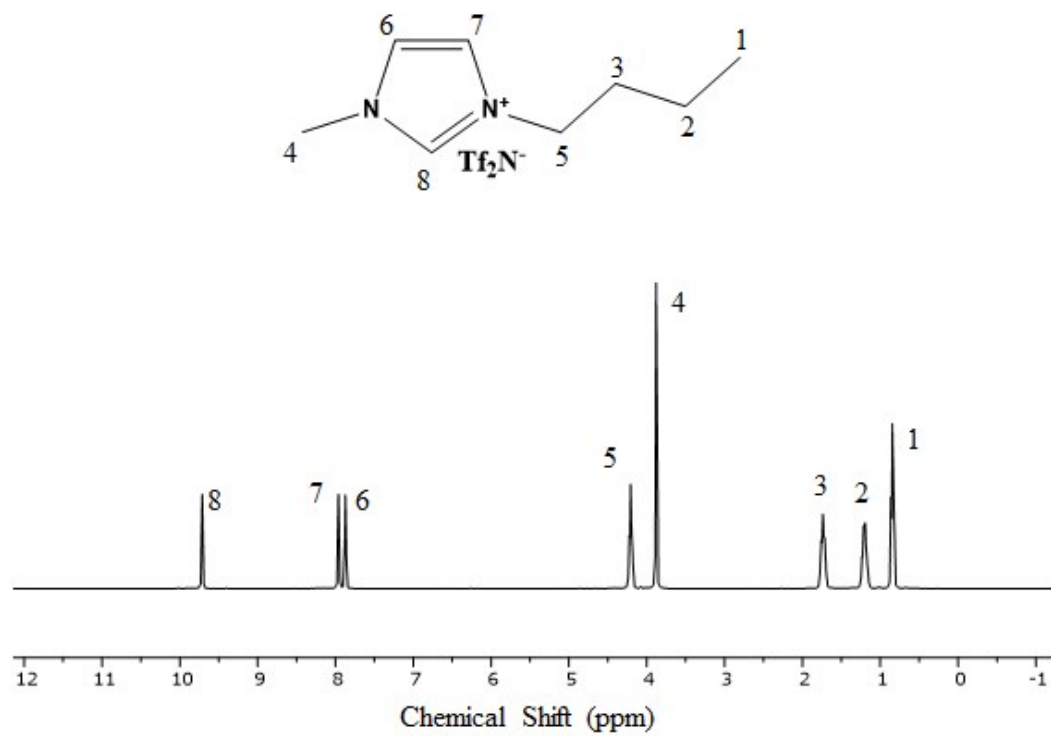


Figure S2. ^1H NMR spectra of the amide linkage monomer.

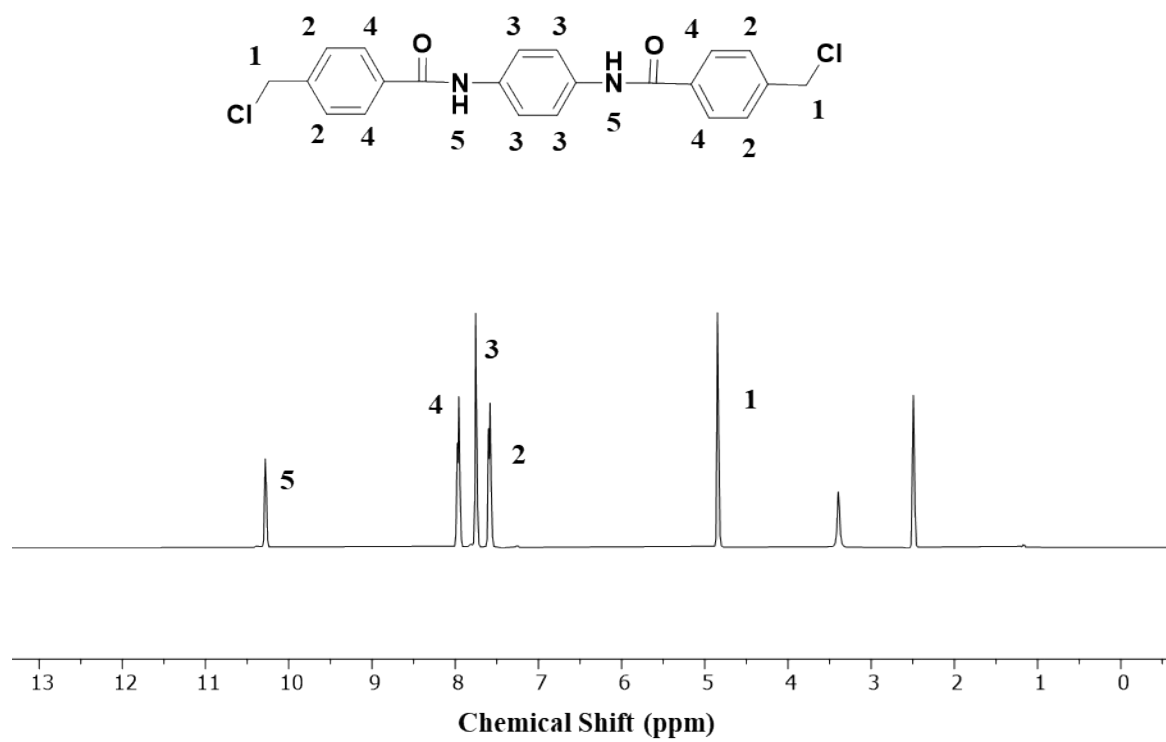


Figure S3. FT-IR spectra of the Im-TB-PA ionene polymers.

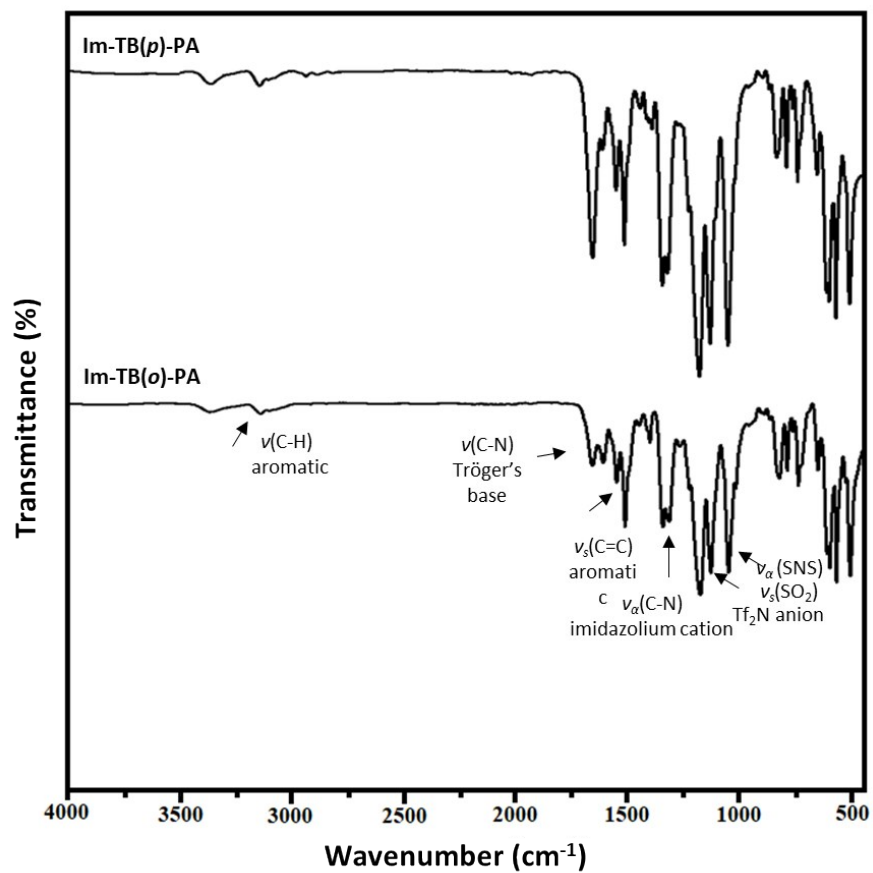


Figure S4. MALDI-TOF MS spectrum of Im-TB(*o*)-PA ionene.

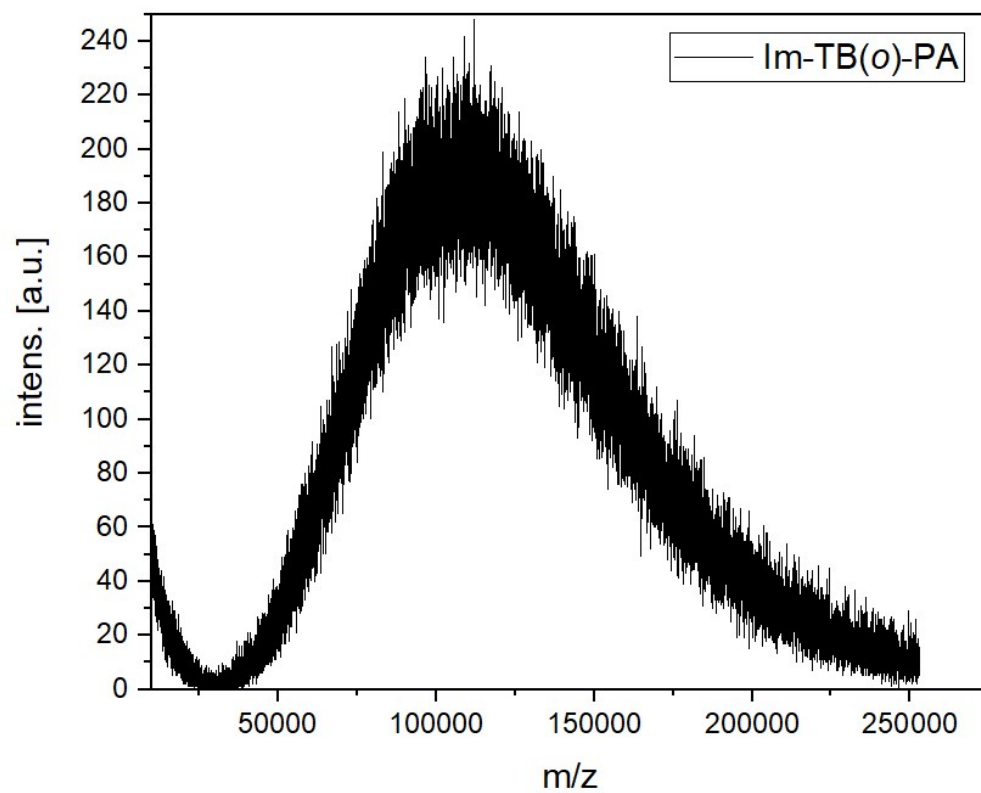


Figure S5. MALDI-TOF MS spectrum of Im-TB(*p*)-PA ionene.

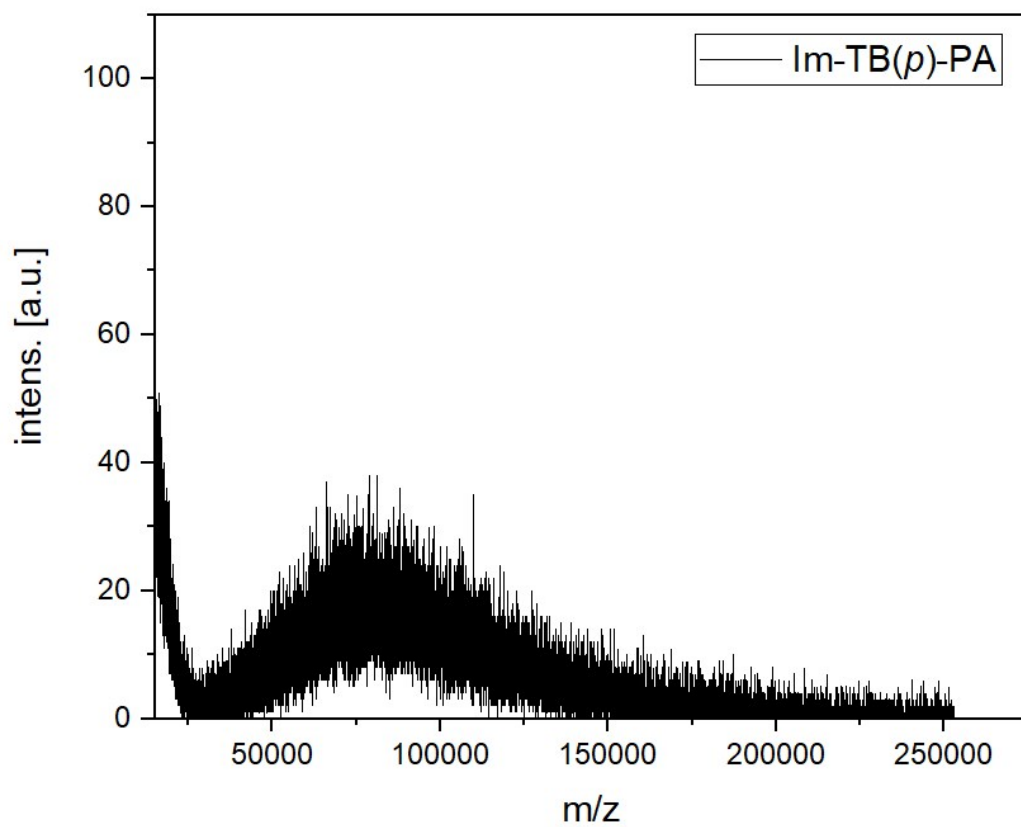


Table S1. The solubility of the Im-TB-PA ionene polymers in organic solvents.^a

Ionenes	M_N (m/z) (kDa)	Repeating Unit (amu)	Number-Average Repeating Unit (X_N)
Im-TB(<i>o</i>)-PA	113.35	1257.09	90
Im-TB(<i>p</i>)-PA	80.20	1257.09	64

Ionenes	DMF	DMAC	NMP	DMSO	CHCl₃	THF
Im-TB(<i>o</i>)-PA	+++	+++	+++	+++	---	---
Im-TB(<i>p</i>)-PA	+++	+++	+++	+++	---	---

Table S2. The solubility of the Im-TB-PA ionene polymers in organic solvents.^a

^a+++ : Soluble and --- Insoluble.