

# Ionic Liquids Containing Tricyanomethanide Anions: Physicochemical Characterisation and Performance as Electrochemical Double-Layer Capacitor Electrolytes

V. L. Martins,<sup>a,b\*</sup> A. J. R. Rennie,<sup>a\*</sup> R. M. Torresi<sup>b</sup> and P. J. Hall<sup>a</sup>

<sup>a</sup> Chemical and Biological Engineering, University of Sheffield, Sir Robert Hadfield Building,  
Mappin Street, Sheffield S1 3JD, England, UK

<sup>b</sup> Instituto de Química, Universidade de São Paulo - C.P. 26077, CEP 05513-970, São Paulo,  
SP, Brazil

\*Corresponding Authors: [v.l.martins@sheffield.ac.uk](mailto:v.l.martins@sheffield.ac.uk); [a.rennie@sheffield.ac.uk](mailto:a.rennie@sheffield.ac.uk)

## Supporting Information

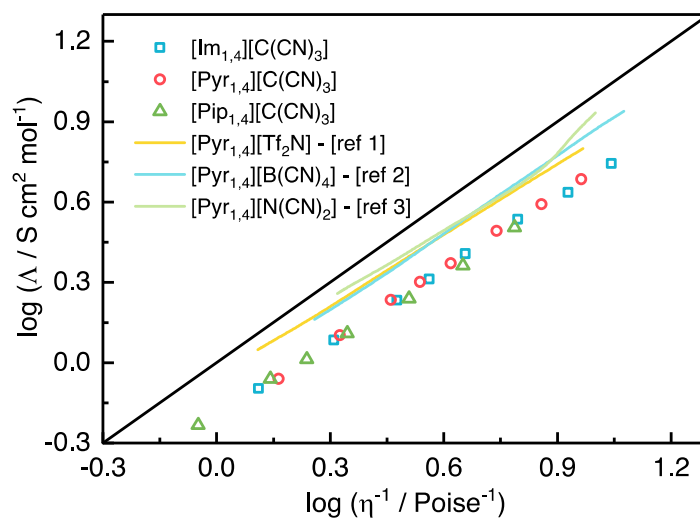


Figure S 1. Walden plot of [Im<sub>1,4</sub>][C(CN)<sub>3</sub>], [Pyr<sub>1,4</sub>][C(CN)<sub>3</sub>] and [Pip<sub>1,4</sub>][C(CN)<sub>3</sub>]. Line presents the ideal KCl relationship. As closer to the line, higher the liquid ionicity.

Table S 1. Parameter obtained with the best fit by VTF equation for viscosity.

	Viscosity VTF fit			
	$\eta_0$ (mPa s)	B (K)	$T_0$ (K)	B/ $T_0$
[Im <sub>1,4</sub> ][C(CN) <sub>3</sub> ]	0.298	499.2	188.8	2.64
[Pyr <sub>1,4</sub> ][C(CN) <sub>3</sub> ]	0.261	623.0	160.0	3.89
[Pip <sub>1,4</sub> ][C(CN) <sub>3</sub> ]	0.237	642.6	181.2	3.55

Table S 2. Parameter obtained with the best fit by VTF equation for ionic conductivity.

	Ionic conductivity VTF fit			
	$\sigma_0$ (mS cm <sup>-1</sup> )	B (K)	$T_0$ (K)	B/ $T_0$
[Im <sub>1,4</sub> ][C(CN) <sub>3</sub> ]	36.5	359.3	199.7	1.80
[Pyr <sub>1,4</sub> ][C(CN) <sub>3</sub> ]	32.5	403.7	186.8	2.16

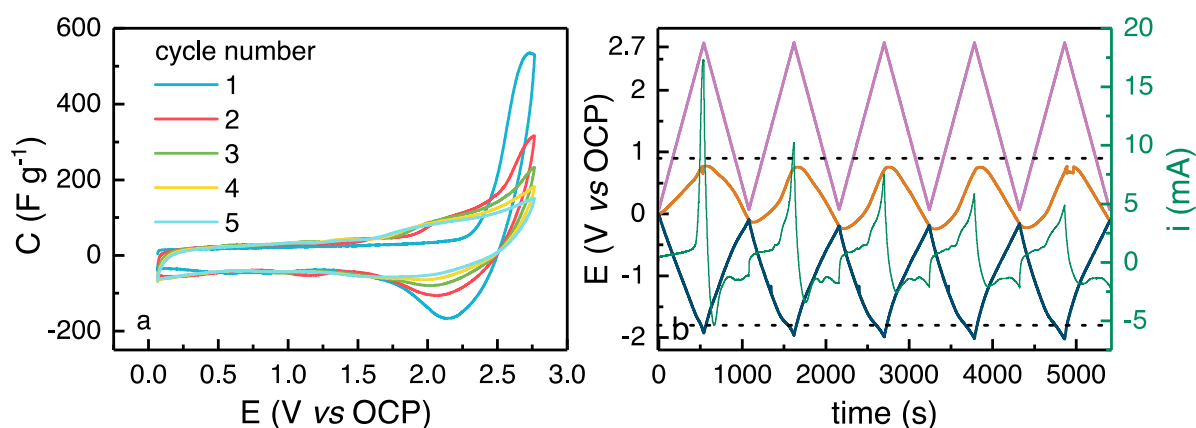


Figure S 2. (a) cyclic voltammograms at 5 mV s<sup>-1</sup> between 0 and 2.7 V of EDLC containing [Im<sub>1,4</sub>][C(CN)<sub>3</sub>] as electrolyte and electrodes mass ratio of 3.1. (b) Voltage applied across positive and negative electrode (pink), measured voltage of positive (orange) and negative (blue) electrodes vs a *quasi*-reference electrode (Pt) and the measure current (green).

## References

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- 2 N. Sanchez-Ramirez, V. L. Martins, R. A. Ando, F. F. Camilo, S. M. Urahata, M. C. C. Ribeiro and R. M. Torresi, *J. Phys. Chem. B*, 2014, **118**, 8772–8781.
- 3 C. Wolff, S. Jeong, E. Paillard, A. Balducci and S. Passerini, *J. Power Sources*, 2015, **293**, 65–70.