Supporting Information

Solvation, Exchange and Electrochemical Intercalation Properties of Disodium 2,5-(dianilino)terephthalate

Élise Deunf[a], Nicolas Dupré[a], Éric Quarez[a], Patrick Soudan[a], Dominique Guyomard[a], Franck Dolhem[bc], Philippe Poizot*[ad]

[a.] Institut des Matériaux Jean Rouxel (IMN), UMR CNRS 6502, Université de Nantes, 2 rue de la Houssinière, B.P. 32229, 44322 Nantes Cedex 3, France.

[b.] Laboratoire de Glycochimie, des Antimicrobiens et des Agroressources (LG2A), UMR CNRS 7378, Université de Picardie Jules Verne, 33 rue Saint-Leu, 80039 Amiens Cedex, France.

[c.] Réseau sur le Stockage Électrochimique de l'Énergie (RS2E), FR CNRS 3459, France.

[d.] Institut Universitaire de France (IUF), 103 bd Saint-Michel, 75005 Paris Cedex 5, France.

Figure S1. ^{1}H and ^{13}C NMR spectra of pristine Na_2DAnT

Figure S2. Comparison of FTIR spectrum for pristine Na_2DAnT and H_2DAnT ('anilic acid')

Figure S3. FTIR spectra of dried Na_2DAnT-containing PC solvent and its corresponding thermal analysis

Figure S4. Specific capacity vs. cycle number for a Li half-cell containing Na_2DAnT as positive electrode material soaked with 1 M $PC/LiClO_4$ as an electrolyte

Table S1. Charge transfer resistance (R_{ct}) and double layer capacitance (C_{dl}) values obtained from fitting impedance data
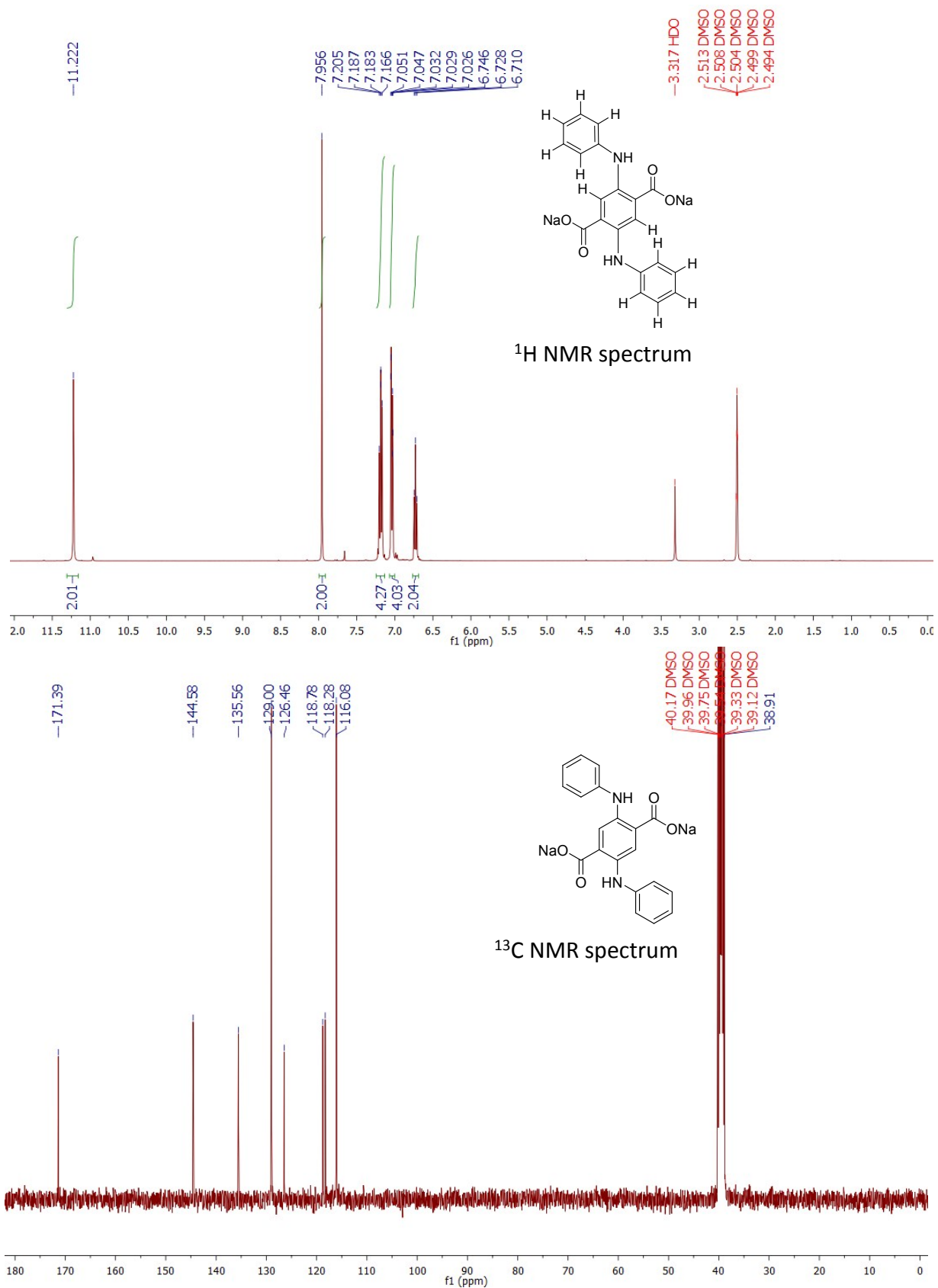
Figure S1. ^{1}H (top) and ^{13}C (bottom) NMR spectra of Na$_2$DAnT measured in (CD$_3$)$_2$SO and recorded on a 400 MHz apparatus.
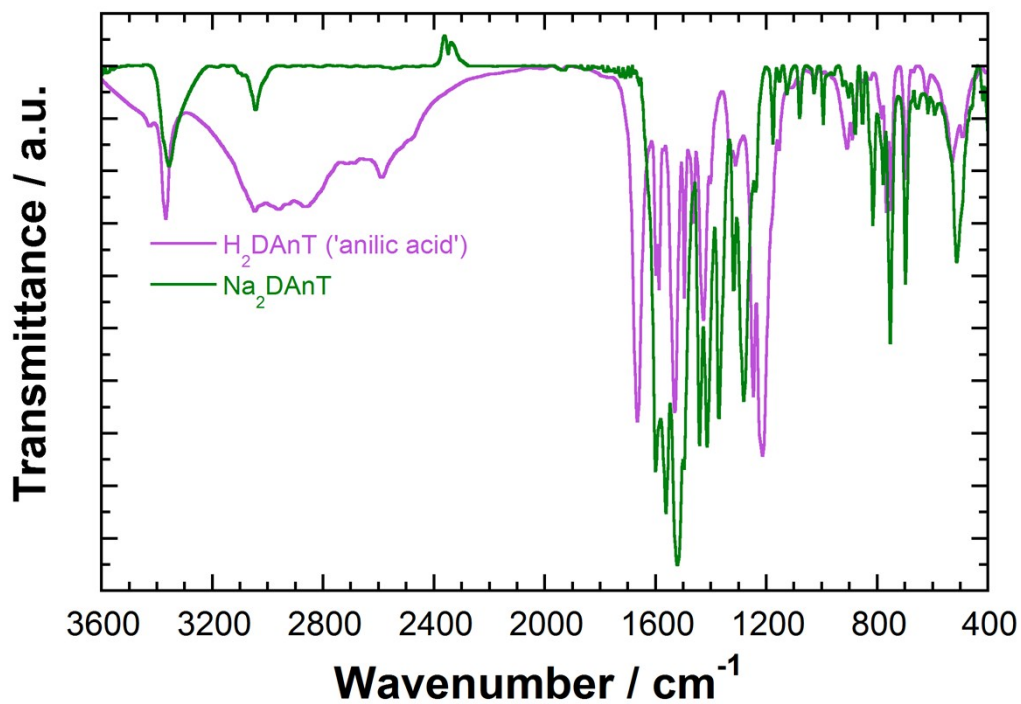
Figure S2. Overlaid FTIR spectra of as-prepared Na_2DAnT (green) and pristine H_2DAnT (deep purple), respectively, showing the expected negative shift of the asymmetric stretching mode of C=O (initially located at $\nu = 1670$ cm^{-1} in anilic acid) due to the neutralization reaction.
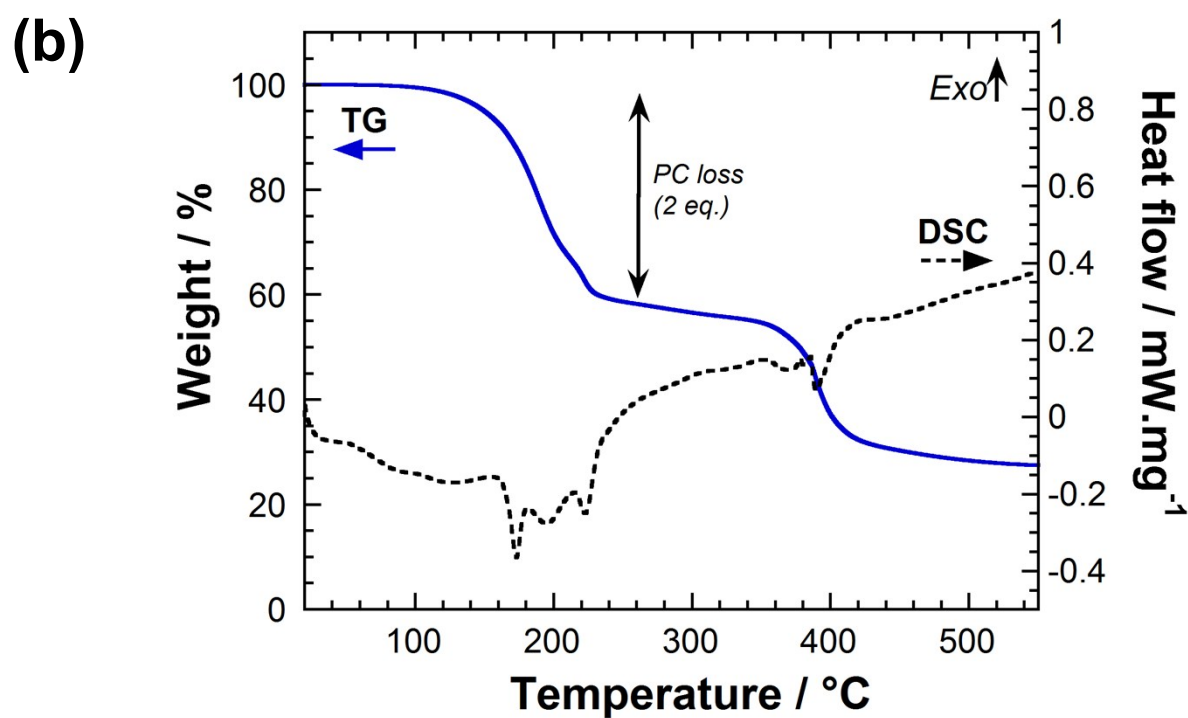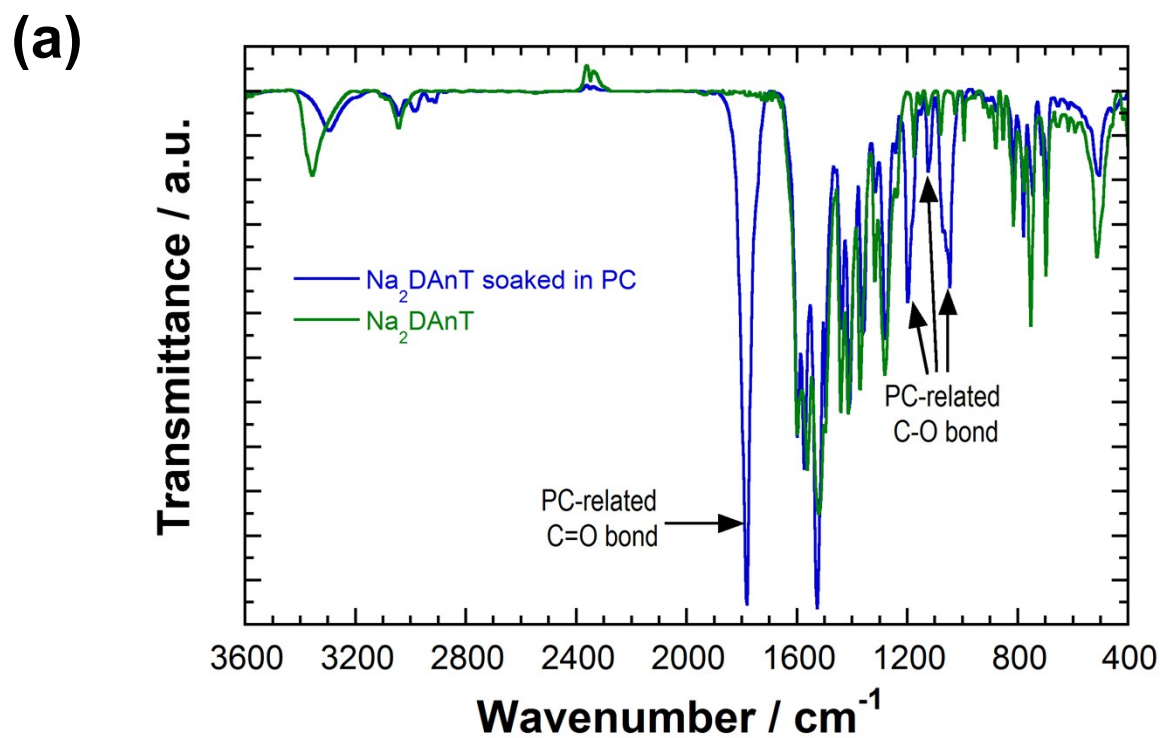
(a)

(b)

Figure S3. (a) Overlaid FTIR spectra of Na$_2$DAnT (green) and of Na$_2$DAnT (blue) soaked in PC then dried. (b) TG-DSC traces of Na$_2$DAnT soaked in PC then dried, measured under argon at a heating rate of 5°C.min^{-1}.
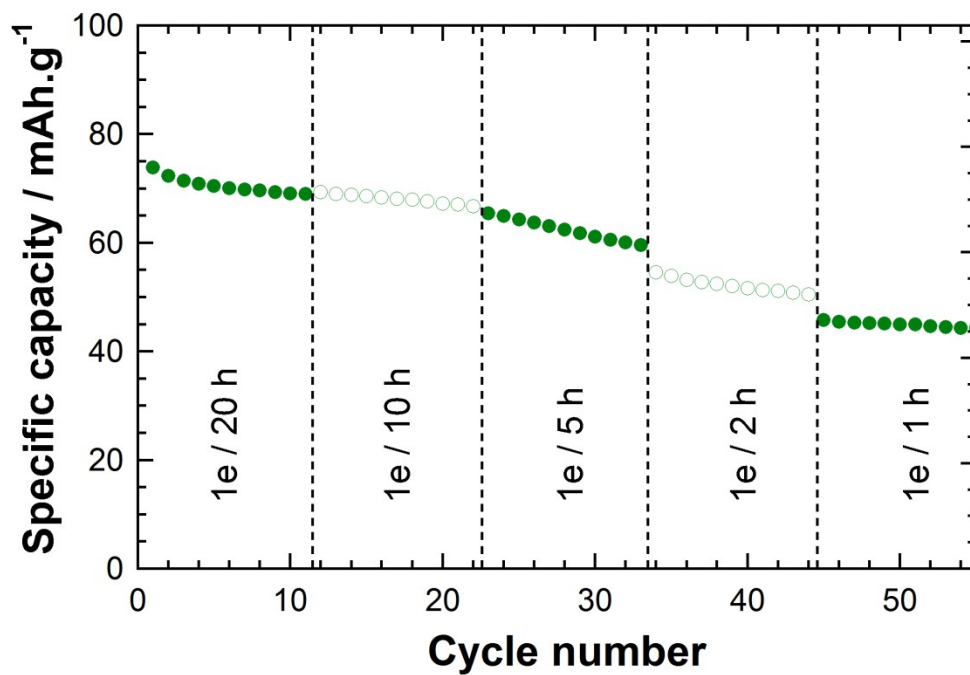
Figure S4. Specific capacity vs. cycle number for current rate changes ranging from 1 electron exchanged in 20 h to 1 electron exchanged in 1 h for a Li half-cell containing Na_2DAnT as positive electrode material with 33 wt% of carbon black soaked with 1 M PC/LiClO$_4$ as an electrolyte.

Potential (V vs. Li$^+$/Li)	x in (ClO$_4$)$_x$Li$_2$DAnT	State	R$_{ct}$ (Ω)	C$_{dl}$ (μF)
2.84	0	Starting potential	8.97 10^6	38
3.20	0.3	Charge	3377	7.15
3.30	0.6	Charge	1666	6.62
3.41	0.9	End of Charge	1558	6.26
3.25	0.7	Discharge	1271	5.6
3.15	0.4	Discharge	2082	6.55
2.76	0.17	End of Discharge	12388	11.6

Table S1. Charge transfer resistance (R$_{ct}$) and double layer capacitance (C$_{dl}$) values obtained from fitting experimental data related to semi-circle (high frequency values).