

Article

Infiltrated and isostatic laminated NCM and LTO electrodes with plastic crystal electrolyte based on succinonitrile for lithium-ion solid state batteries

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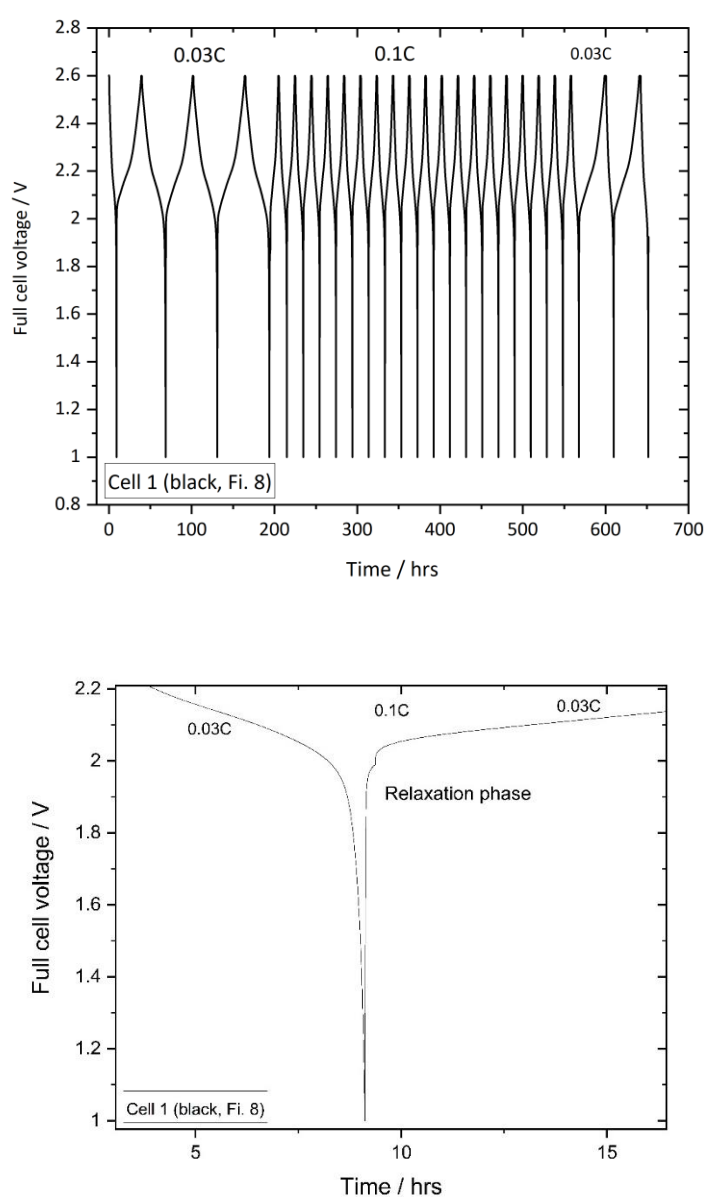


Figure S1: Top: Full cell voltage over total cycle time of cell 1 from Figure 8; Bottom: Zoom into first charge-discharge voltage cycle, observing a relaxation phase.

Table S1: Calculated mean values of discharge capacity and standard deviation (random sample survey) from cells shown in Fig. 11.

	Mean + StdD 0.03C	Mean + StdD 0.05C	Mean + StdD 0.1C	Mean + StdD 0.2C	Mean + StdD 0.5C
From 3 cells	153.5 ± 2.5	149.1 ± 3.7	135.1 ± 7.0	126.6 ± 10.5	25.9 ± 1.7

Table S2: Linear fitting the 0.1C cycling performance of the red dotted cell in Figure 11.

Equation	$y = a + b \cdot x$
Curve	Specific Discharge capacity
Weighting	none
Intersection	150.7 ± 0.10
Slope	-0.4 ± 0.004
Sumo of error squares	4.3
Pearson R	-0.100
R-Square (COD)	0.100
Cor. R-Square	0.100

Table S3: Abbreviations used in the manuscript

Abbreviation	Full name
General terms	
SPE	Solid polymer electrolyte
SSE	Solid state electrolyte
PCPE	Plastic crystal polymer electrolyte
PCPIS	Plastic crystal polymer infiltrated separator
NWG	Non woven glass fiber separator
Chemicals	
SN	Succinonitrile
LiTFSI	Lithium bis(trifluoromethanesulfonyl)imide
PAN	Polyacrylonitrile
PEO	Polyethylene oxide
PMMA	Polymethylmethacrylate
PVDF	Polyvinylidene fluoride
NMP	N-Methyl-2-pyrrolidone
LTO	Lithium titanate oxide
NCM	Lithium nickel cobalt manganese oxide
LFP	Lithium iron phosphate
Methods	
DSC	Differential scanning calorimetry
TGA	Thermogravimetric analysis
EIS	Electrochemical impedance spectroscopy
LSV	Linear sweep voltammetry
FESEM	Field emission scanning microscopy
EDS	Energy Dispersive Scanning
OCV	Open circuit voltage
Units and Formulas	
COD	Coefficient of determination
StdD	Standard deviation
hrs	Hours



Figure S2: Photography of the pristine NCM cathode coated on aluminium (left) and the infiltrated and laminated NCM cathode (right) with a glossy and reflecting PCPE surface.