

Supplementary Information

Vinyltriethoxysilane crosslinked poly (acrylic acid sodium) as a polymeric binder for high performance silicon anodes in lithium ion batteries

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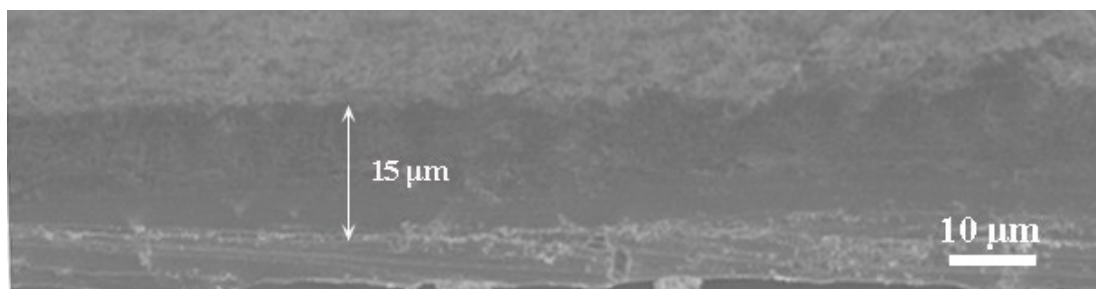


Fig. S1 The SEM image of the electrode's thickness information.

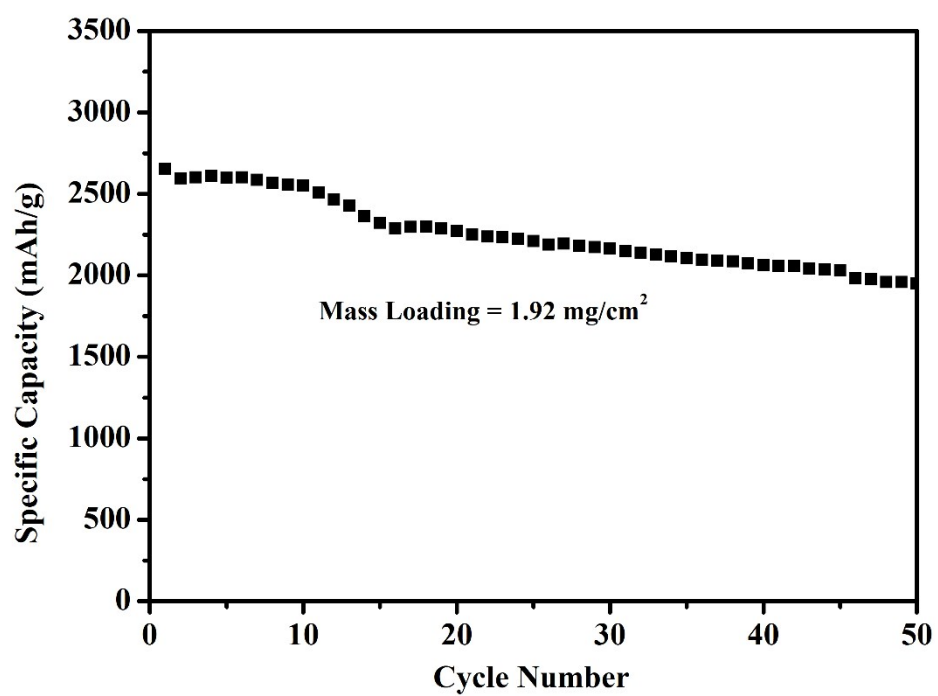


Fig. S2 The cycling performance of the Si anode with PVTES-NaPAA as the binder with the mass loading of 1.92 mg/cm².

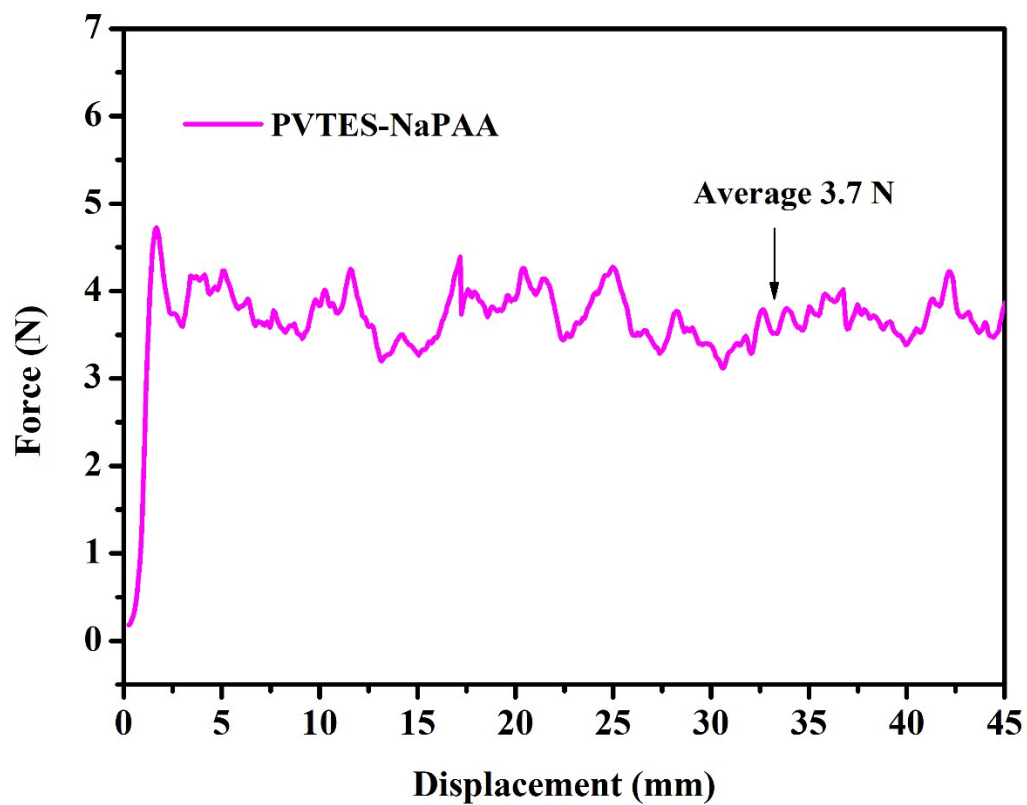


Fig. S3 The 180° peel experiment between the Si active material and the current collector with PVTES as binders with the loading of 0.9 mg/cm².

Classification	Si Loading (mg/cm ²)	Cycling performance	Ref.
PAA-BP	-	73.5 % retention after 100 cycles	[1]
NaPAA-CMC-PNA	0.9	90% retention after 100 cycles	[2]
PAA-PCD	-	75 % retention after 100 cycles	[3]
Agarose	1.0	71% retention after 200 cycles	[4]
PAA-PVA	<1.0	79.3 % retention after 100 cycles	[5]
PAA-Rosin	2.4	72.7 % retention after 100 cycles	[6]
Cross-linked PAN	0.8	77.9 % retention after 100 cycles	[7]
PAA-EDTA	0.5-0.6	83% retention after 300 cycles	[8]
Cross-linked Chitosan	-	71% retention after 100 cycles	[9]
PAA-PDA-PEO	0.4	53.5 % retention after 200 cycles	[10]
Alginate Hydrogel	-	82.3 % retention after 120 cycles	[11]
PAA-PEGPBI	0.7-0.91	61.5 % retention after 50 cycles	[12]
Ca-Alginate	0.4-0.5	83 % retention after 300 cycles	[13]
NaPAA-PVTES	0.54	78.2 % retention after 100 cycles	This work

Table S1 The cycling performance with various binders for silicon-based anodes for lithium ion batteries.

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