Polymeric Schiff Bases as Low-Voltage Redox Centers for Sodium-Ion Batteries**

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Abstract: The redox entity comprising two Schiff base groups attached to a phenyl ring (−N=CH−Ar=HC=N−) is reported to be active for sodium-ion storage (Ar= aromatic group). Electroactive polymeric Schiff bases were produced by reaction between non-conjugated aliphatic or conjugated aromatic diamine block with terephthalaldehyde unit. Crystalline polymeric Schiff bases are able to electrochemically store more than one sodium atom per azomethine group at potentials between 0 and 1.5 V versus Na+/Na. The redox potential can be tuned through conjugation of the polymeric chain and by electron injection from donor substituents in the aromatic rings. Reversible capacities of up to 350 mA h g⁻¹ are achieved when the carbon mixture is optimized with Ketjen Black. Interestingly, the “reverse” configuration (−CH=N−Ar=N=HC−) is not electrochemically active, though isoelectronic.

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