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**Coupling Shear-Thickening and Dynamic Bonds in Self-Healing Materials:
Synthesis, Regulation and Application**

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Table S1. Comparison of key performance metrics for STDB systems.

Examples	Materials	Dynamic Bonds	Self-healing Property	Critical Shear Rate	Modulus Switching
Ref. 38	polyborosiloxane/ β -cyclodextrin	B-O bonds	recyclable for 4,500 h through self-healing at low current densities	shear-thickening occurs when the shear rate exceeds the relaxation rate	hardening switching in response to current or mechanical frequency
Ref. 112	shear thickening gel/polyurethane sponge	B-O bonds	reversible and complete recovery of electrical conductivity and mechanical properties after damage	across 0.1-100 Hz, the material switches from a linear viscoelastic state to a hardened state	the storage modulus G' increased from 0.21 MPa to 1.52 MPa
Ref. 40	tetra-poly(ethylene glycol) hydrogels	thia-conjugate addition bonds	healing kinetics depend on bond reversibility and exhibit relaxation times of 2-8 s.	instantaneous shear-thickening induced by chain extension	plateau modulus tunable from 60 Pa to 650 Pa
Ref. 68	shear-thickening fluid/ C_{60} composite system	D-A dynamic covalent bonds	superior interfacial compatibility and recovery after damage	upon C_{60} incorporation, critical shear rate drops from 119 to 83.8 s^{-1}	peak viscosity increment tunable to 42.7% via additive content adjustment
Ref. 72	mamaku gum	hydrogen bonds	network reconstruction and strength recovery after standing	10^1 - 10^2 s^{-1} (sharp viscosity increase with shear rate)	intermolecular H-bonding raises viscosity to 10 Pa·s