

Supplementary Information for

Mechanofusion-Derived Si-alloy/Graphite Composite Electrode Materials for Li-ion Batteries

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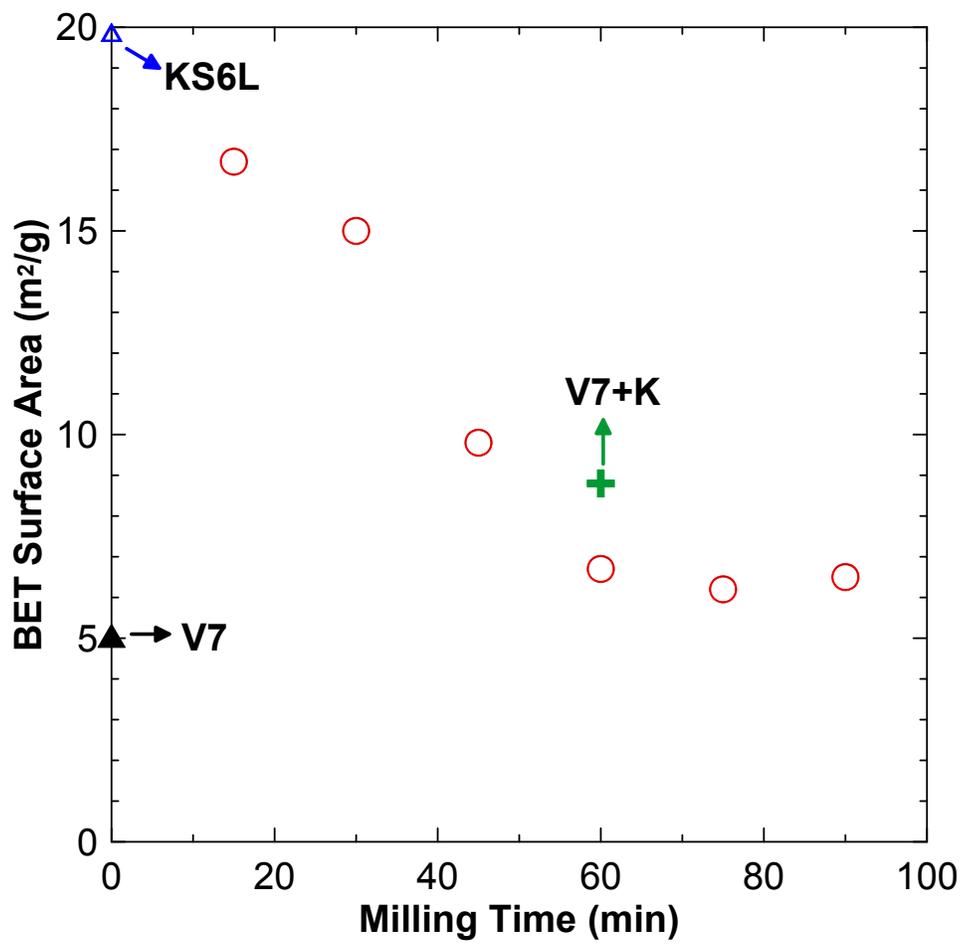


Figure S1 BET surface area of samples.

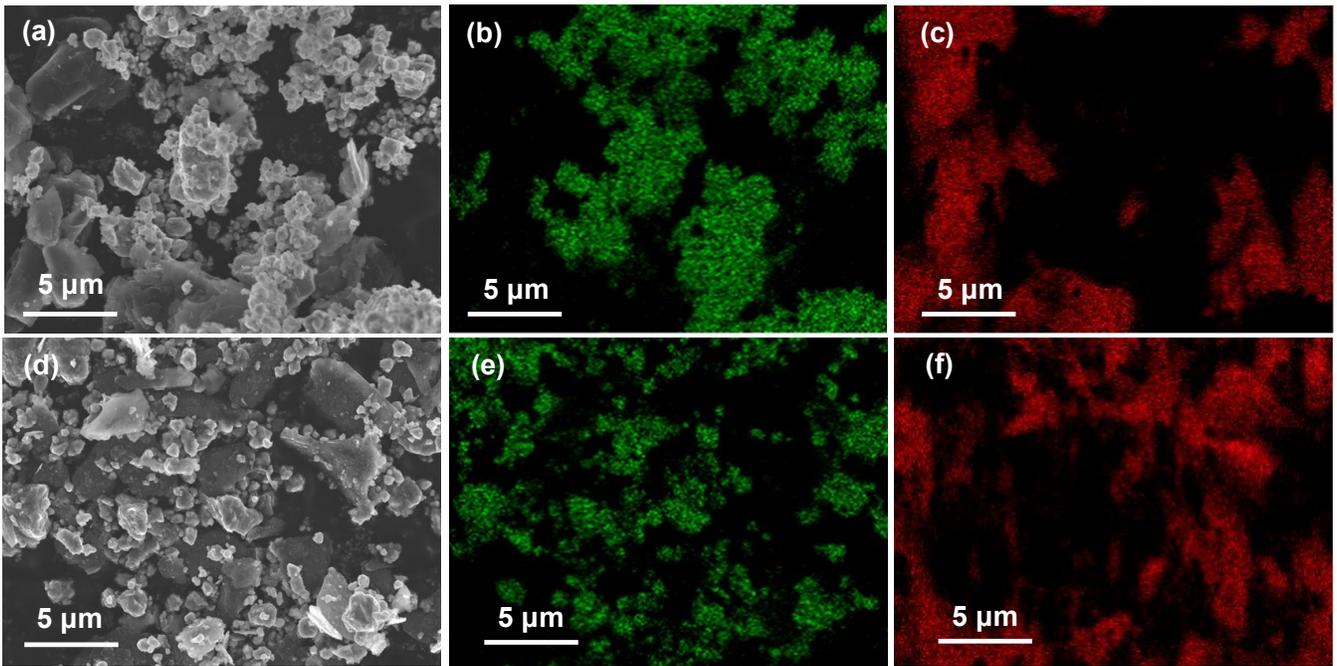


Figure S2 SEM image (a) and corresponding EDS mapping of Si (b) and C (c) elements in planetary milled V7+K. The V7 alloy particles and KS6L graphite flakes are still agglomerated. SEM image (d) and corresponding EDS mapping of Si (e) and C (f) elements in Mechanofusion dry processed VK30 composite. The alloy particles are broken down to small primary particles and dispersed uniformly.

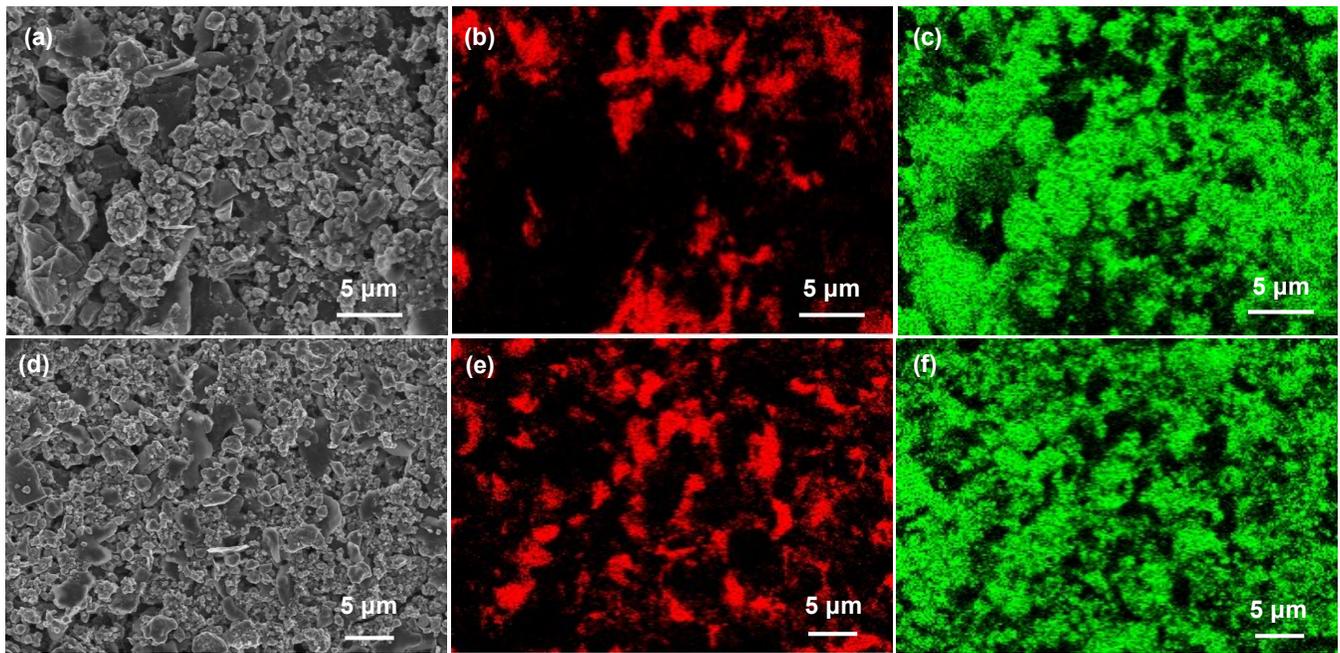


Figure S3 SEM image (a) and corresponding EDS mapping of C (b), Si (c) elements in uncalendered V7+K electrode; SEM image (d) and corresponding EDS mapping of C (e), Si (f) elements in uncalendered VK60 electrode. The dispersions of V7 alloy particles and graphite are better in MF processed VK sample than those in planetary milled V7+K sample.

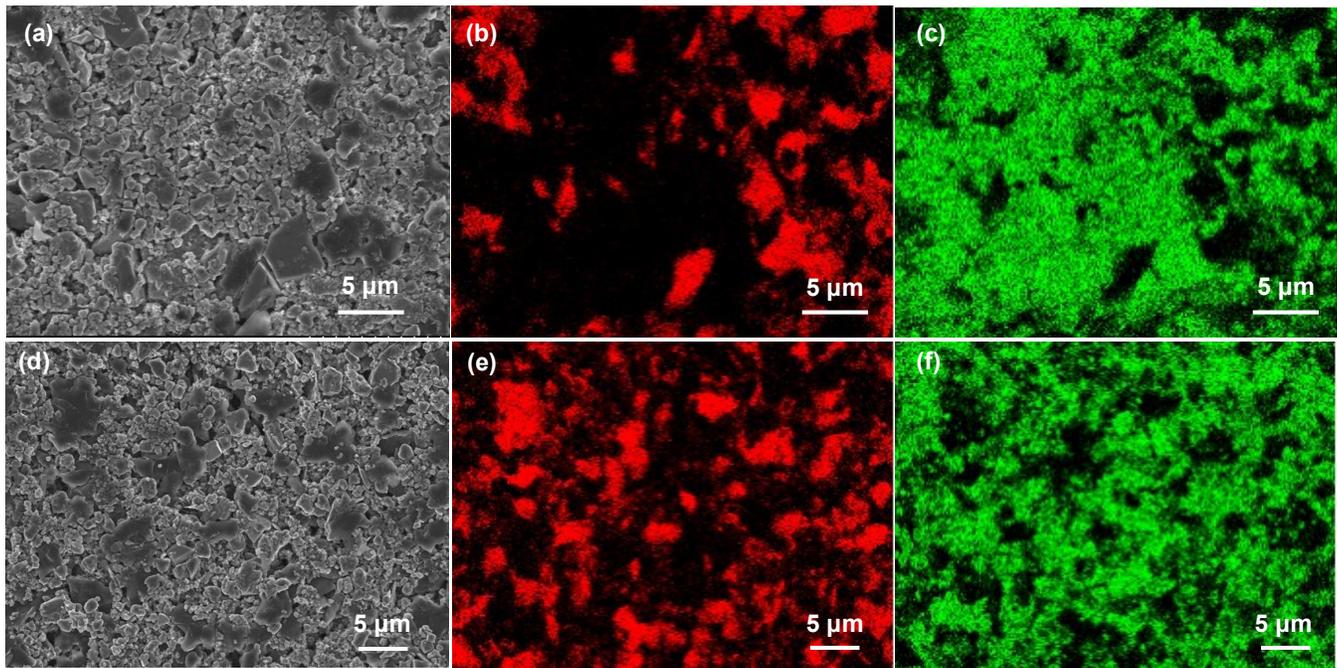


Figure S4 SEM image (a) and corresponding EDS mapping of C (b), Si (c) elements in calendered V7+K electrode; SEM image (d) and corresponding EDS mapping of C (e), Si (f) elements in calendered VK60 electrode. The dispersions of V7 alloy particles and graphite are better in MF processed VK sample than those in planetary milled V7+K sample.

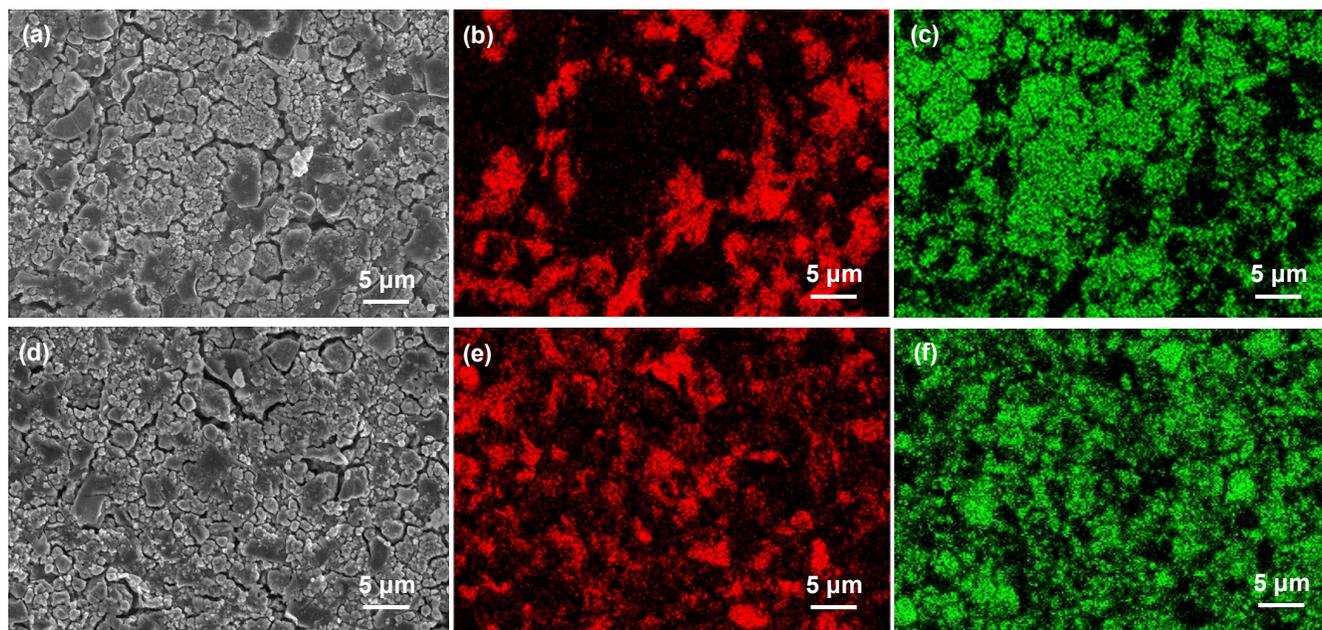


Figure S5 SEM image (a) and corresponding EDS mapping of C (b), Si (c) elements in V7+K-c electrode after 50 discharge/charge cycles; SEM image (d) and corresponding EDS mapping of C (e), Si (f) elements in VK60-c electrode after 50 discharge/charge cycles. Less cracks and pulverization are observed in VK electrode compared to V7+K electrode.

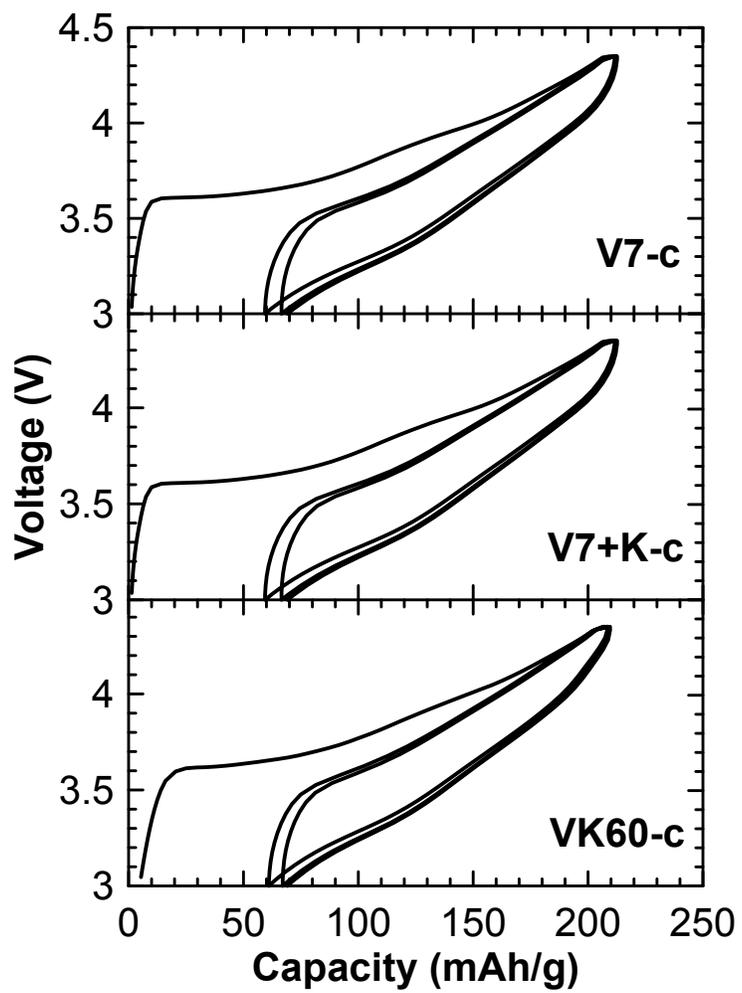


Figure S6 Voltage curves of full cells.