Supporting Information

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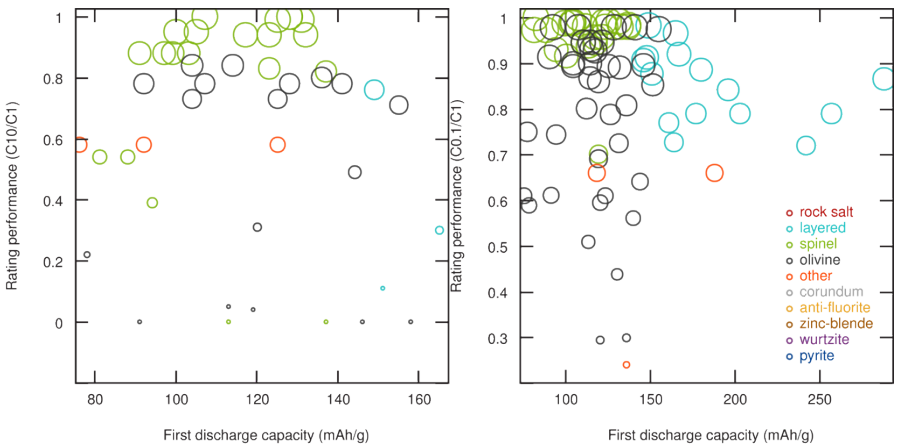


Figure S1. Rating performance of cathode materials grouped by structural type is plotted against first discharge capacity. The marker size (radius) is proportional to the rate capability for clarity. Rating performance is separated into two groups, high rate capability (left) and low rate capability (right).

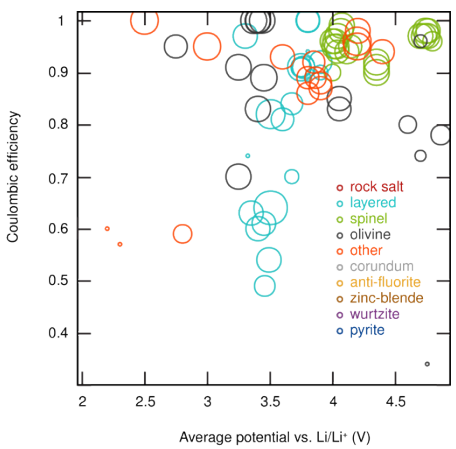


Figure S2. Coulombic efficiency of cathode materials grouped by structure type is plotted against average potential. The marker size (radius) is proportional to the capacity retention after 50th cycle.

By definition, coulombic efficiency is the ratio of the discharged capacity to the capacity needed to be charged to the initial state before discharge.[1] Inefficiency comes from a side reaction such as material corrosion, and electrolyte decomposition, etc. Plotting the coulombic efficiency versus the average potential (Figure S2) shows a lower coulombic efficiency of layered structures that can be attributable to slow diffusion of lithium and population at the surface of the layered material.[2] Lower coulombic efficiency at higher potentials is also expected;[3] however, spinels exhibit a highly stable performance.

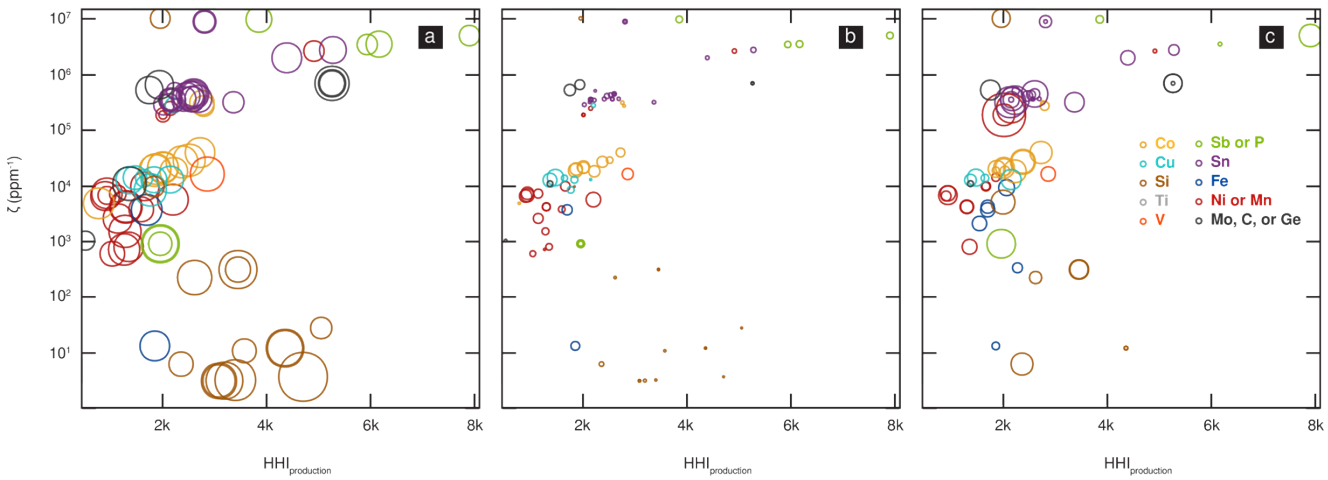
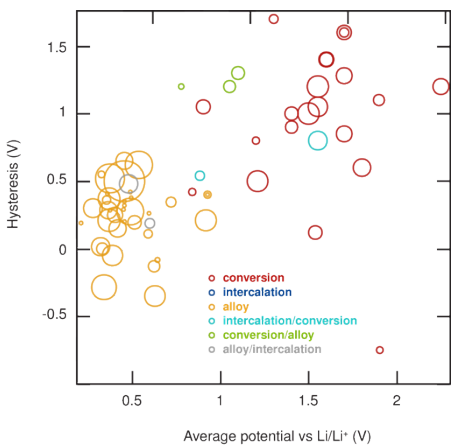


Figure S3. Resource consideration of a wide variety of anode materials grouped by material composition. Scarcity is plotted against HHI_P. The marker size (radius) here is proportional to first discharge capacity (a), average potential (b), and capacity retention at 50th cycle (c).



References

1. R. M. Dell and D. A. J. Rand, *The Royal Society of Chemistry*, Editon edn., 2001.
2. J.-K. Park, *Principles and applications of lithium secondary batteries*, John Wiley & Sons, 2012.
3. M. R. Palacín, *Chemical Society Reviews*, 2009, **38**, 2565-2575.