

Supporting Information

Conversion Cathodes for Rechargeable Lithium and Lithium-Ion Batteries

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Table. S1

Operating parameters of each material in our calculation of energy densities and specific energies

Materials	Volumetric capacity (mAh·cm ⁻³)	Density (g·cm ⁻³)	Average discharge voltage (Graphite)	Average discharge voltage (Silicon)	Average discharge voltage (Lithium)
LFP	594	3.6	3.2	3.0	3.3
LCO	740	5.1	3.7	3.5	3.8
High Voltage LCO	944	5.1	3.85	3.65	3.95
NCA	890	4.45	3.6	3.4	3.7
NCM(111)	716	4.65	3.6	3.4	3.7
NCM(532)	790	4.65	3.6	3.4	3.7
NCM(811)	860	4.65	3.6	3.4	3.7
LiMnO ₂	595	4.25	3.2	3.0	3.3
LiMn ₂ O ₄	510	4.25	3.8	3.7	4.0
Li ₂ S	1937	1.66	2.0	1.8	2.1
Li ₂ Se	1659	2.87	1.8	1.6	1.9
LiBr	1073	3.46	3.3	3.1	3.4
FeF ₂ /Fe-2LiF	2002	4.02	2.3	2.1	2.4
FeF ₃ /Fe-3LiF	2196	3.65	2.4	2.2	2.5
CuF ₂ /Cu-2LiF	2002	4.31	3.2	3.0	3.3
FeCl ₃ /Fe-3LiCl	1172	2.67	2.5	2.3	2.6
Graphite	669	2.23	-	-	-
Lithiated Silicon	2196	0.63	-	-	-
Lithium	2062	0.534	-	-	-
O ₂ /Li ₂ O ₂	2699	2.31	-	-	2.65
O ₂ /LiOH	1634	1.46	-	-	2.65