An optimized LiNO$_3$/DMSO electrolyte for high-performance rechargeable Li-O$_2$ batteries

Bing Sun, Xiaodan Huang, Jinqiang Zhang, Shuangqiang Chen and Guoxiu Wang*

Centre for Clean Energy Technology, School of Chemistry and Forensic Science, University of Technology Sydney, Broadway, Sydney, NSW 2007, Australia

Fig. S1 Charge/discharge voltage curves of Li-O$_2$ batteries with (a) Super-P carbon black and (b) Vulcan XC-72 carbon as the cathode catalysts in two DMSO based electrolytes.
**Fig. S2** (a – c) Charge/discharge curves of Li-O<sub>2</sub> batteries in DMSO-based electrolyte with different concentration of LiClO<sub>4</sub>. (d) The mean voltages of charge and discharge vs. cycle number.
**Fig. S3** EIS spectra of symmetric Li/Li cells store for 8 days in (a) LiClO$_4$/DMSO electrolyte, (b) LiNO$_3$/DMSO based electrolyte at open circuit voltage. EIS spectra of Li-O$_2$ cells store for 8 days in (c) LiClO$_4$/DMSO electrolyte, (d) LiNO$_3$/DMSO based electrolyte at open circuit voltage.