**Research data supporting the publication:** **High-Power Recycling: Upcycling to the Next Generation of High-Power Anodes for Li-ion Battery Applications**

The data set includes:

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| **Characterisation Method** | **Data Sets Included** | **Data Format** |
| Powder X-ray Diffraction (PXRD) | Li Exchange XRDsResulting samples after exchange in:H3PO4 (labelled PA in file name), H2SO4 (SA), and HCl (HA).Li saltsCrystals from H2SO4 exchange, H3PO4 and HCl.Upcycled Ti2Nb10O29Upcycled TiNb2O7Data guide included within this folder. | .xy format available for all samples. Upcycled Ti-Nb-O materials includes .raw file. |
| Electrochemistry  | Upcycled Ti2Nb10O29 and upcycled TiNb2O7. Data guide included which describes the cell test. | .mpr fileBiologic software used to convert to txt file. |
| ICP | Spreadsheet from the collected data.Data includes the use of H2SO4, H3PO4 and HCl in the acid exchange of LTO. The measurements reflect the lithium content in the solution post exchange. The 0.01% and 1% dilutions of the retained solution were measured. | .xlsxMicrosoft Excel. |