

## Electronic Supplementary Information

### Microwave-assisted solvothermal synthesis of $\text{LiV}_y\text{M}_{1-y}\text{OPO}_4$ ( $\text{M} = \text{Mn, Cr, Ti, Zr, Nb, Mo, W}$ ) for cathode materials in lithium-ion batteries

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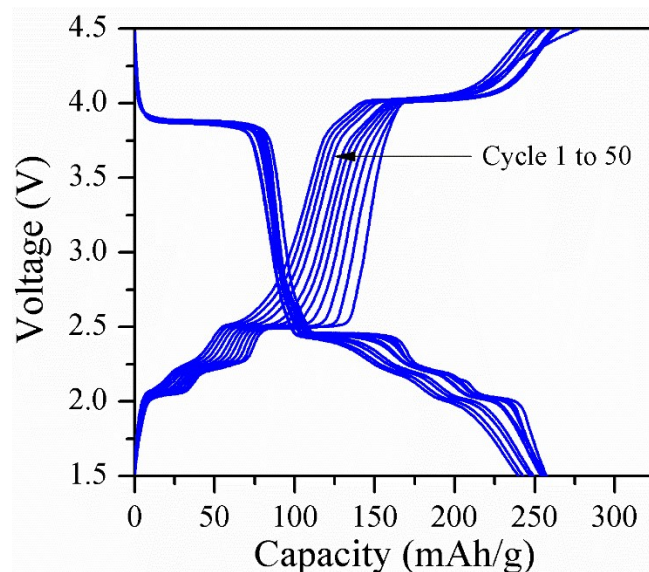


Fig. S 1. Long term cycling of sample [3] showing every 5th cycle up to 50 cycles run at a rate of C/10 ( $C = 1 \text{ Li}$  or  $0.53 \text{ mA/cm}^2$ ) to show the emergence of the feature at 3.5 V.

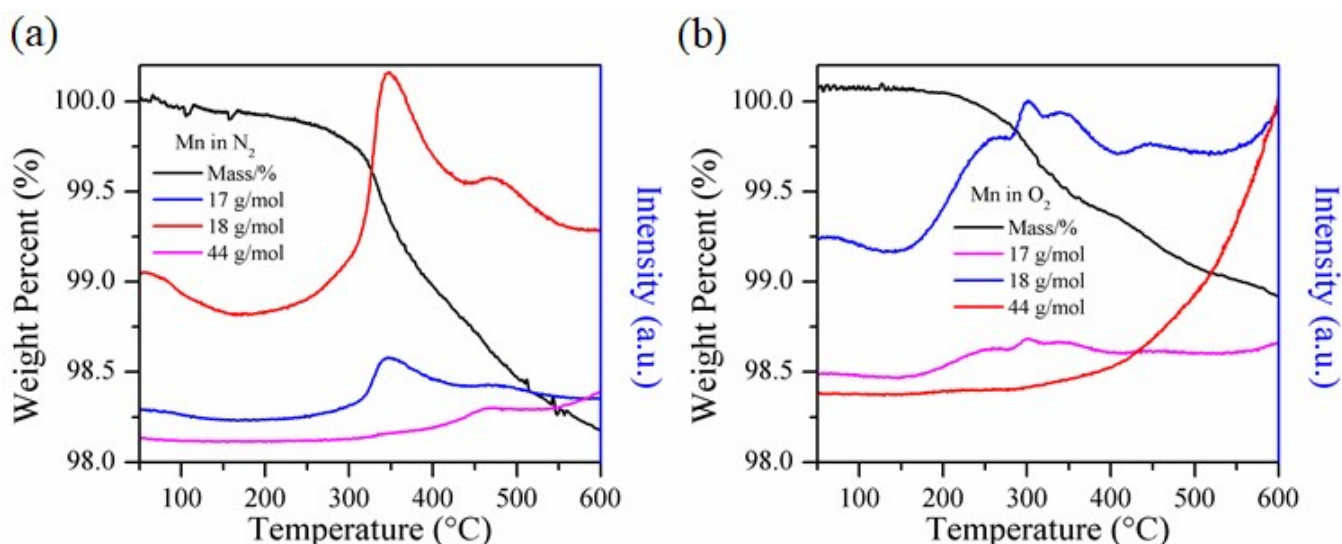


Fig. S 2. TGA-MS of Mn-substituted LVP in (a)  $\text{N}_2$  and (b)  $\text{O}_2$  atmospheres.

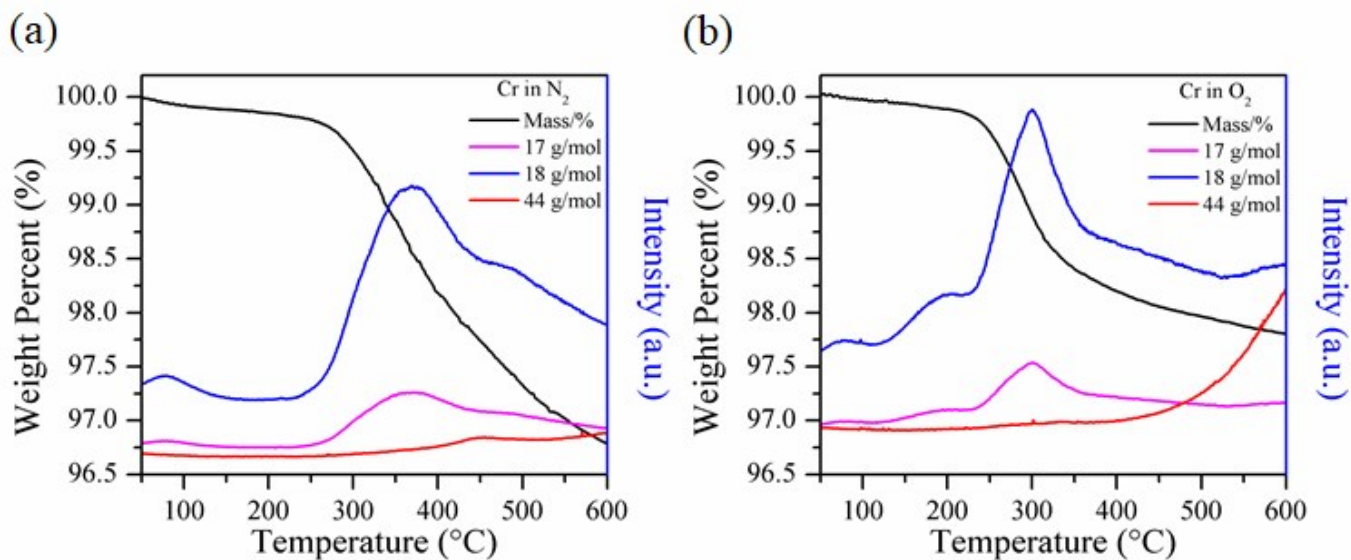


Fig. S 3. TGA-MS of Cr-substituted LVP in (a)  $N_2$  and (b)  $O_2$  atmospheres.

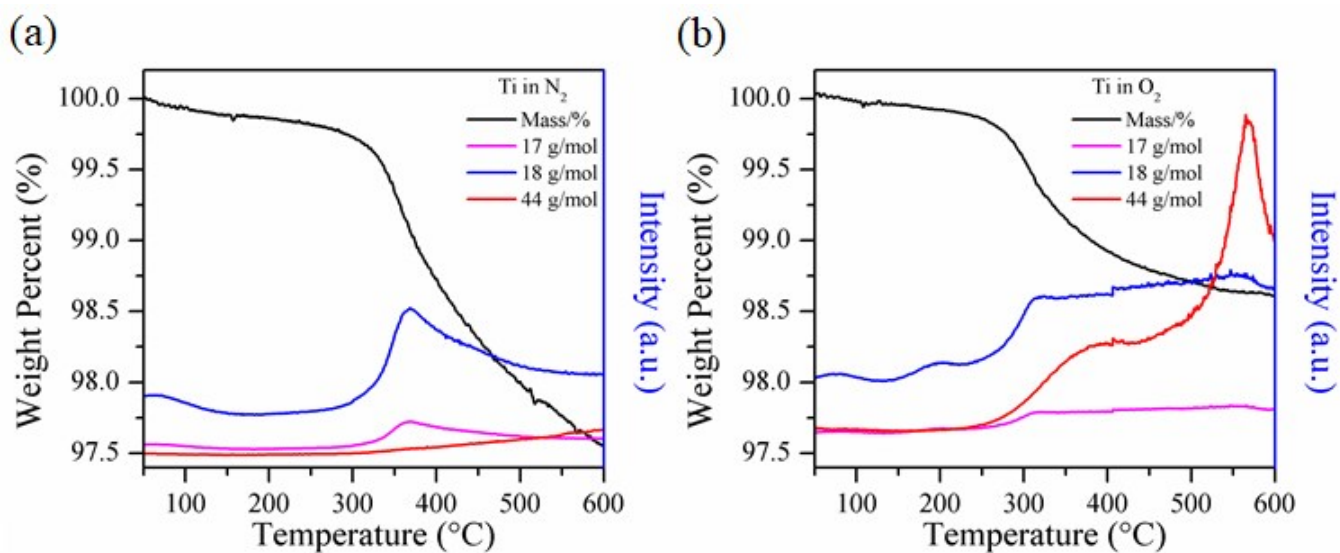


Fig. S 4. TGA-MS of Ti-substituted LVP in (a)  $N_2$  and (b)  $O_2$  atmospheres.

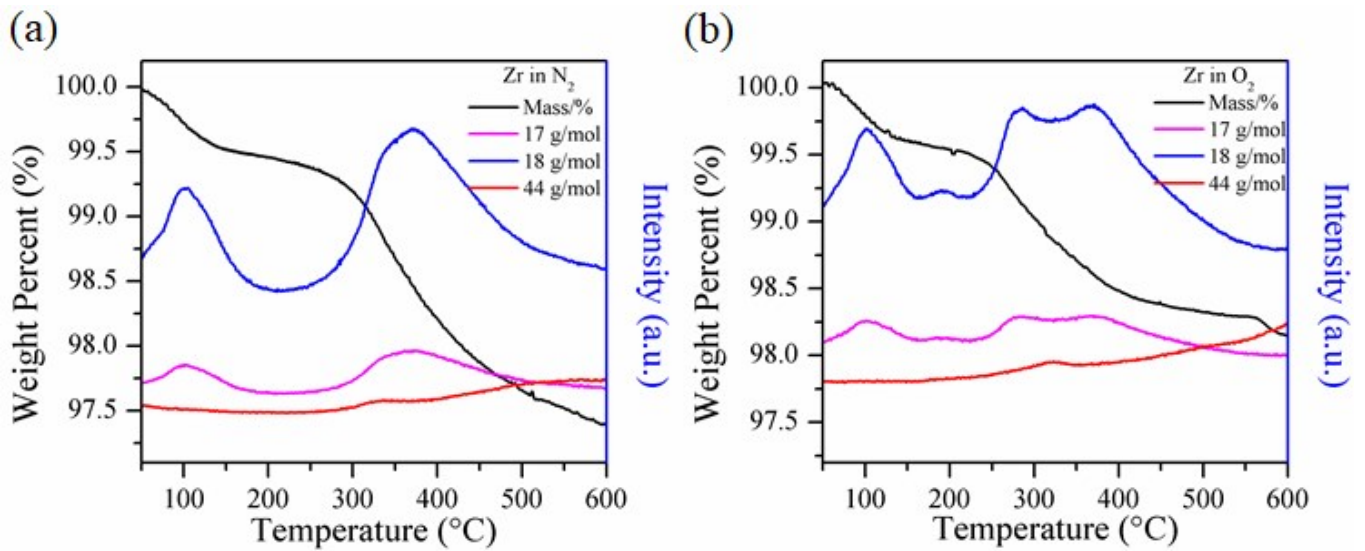


Fig. S 5. TGA-MS of Zr-substituted LVP in (a) N<sub>2</sub> and (b) O<sub>2</sub> atmospheres.

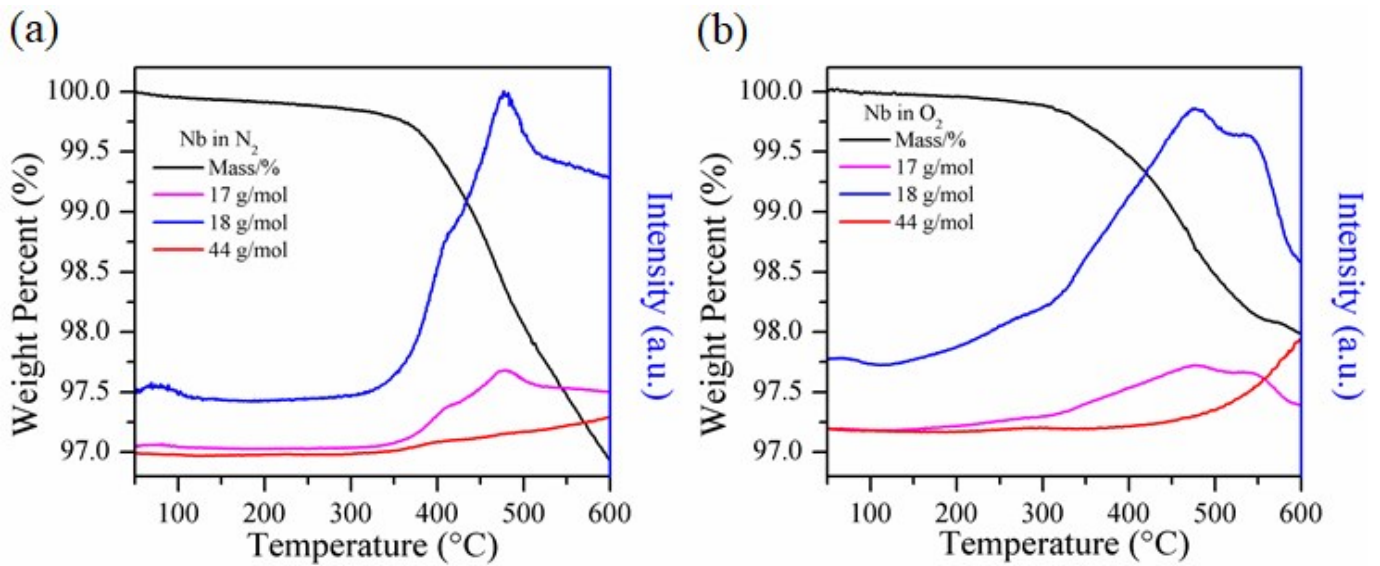


Fig. S 6. TGA-MS of Nb-substituted LVP in (a) N<sub>2</sub> and (b) O<sub>2</sub> atmospheres.

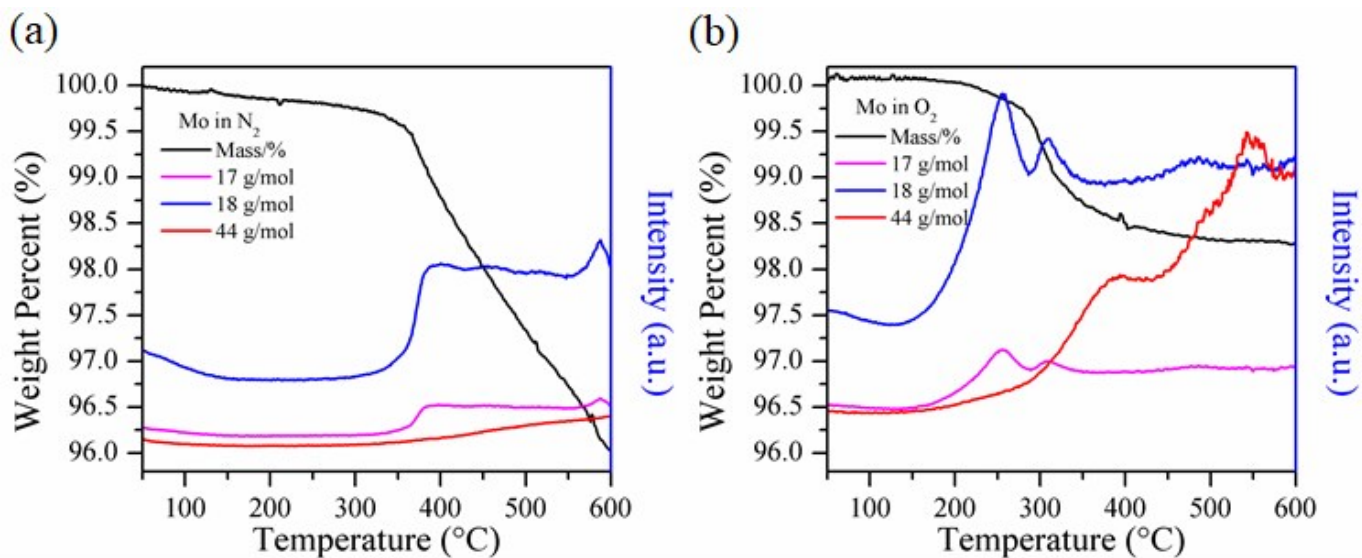


Fig. S 7. TGA-MS of Mo-substituted LVP in (a)  $N_2$  and (b)  $O_2$  atmospheres.

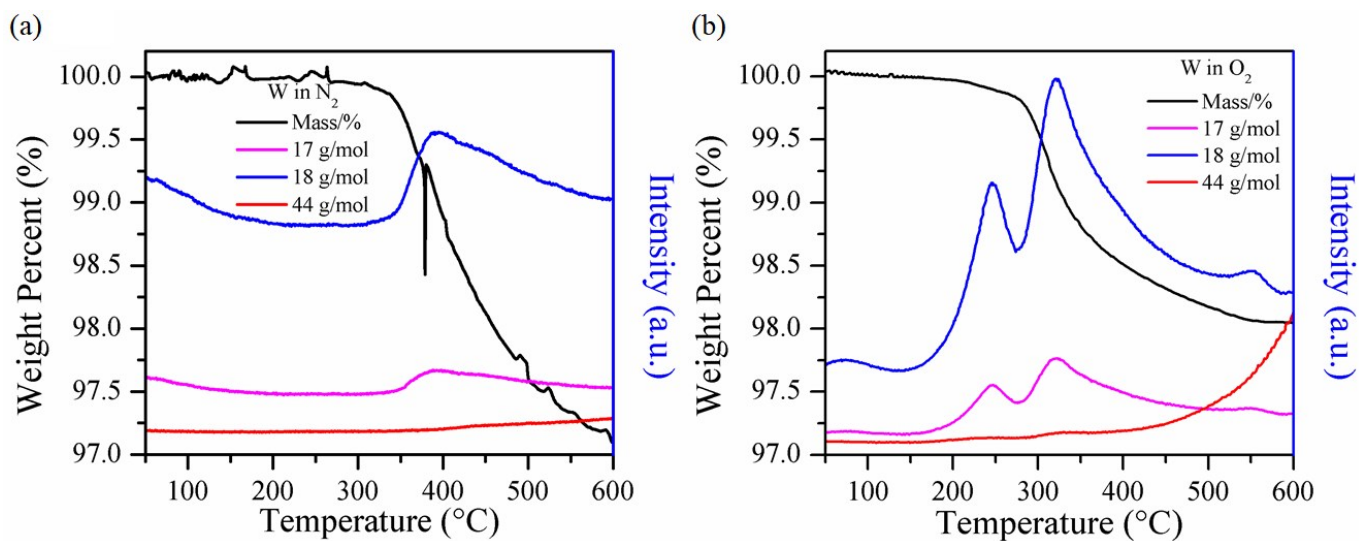


Fig. S 8. TGA-MS of W-substituted LVP in (a)  $N_2$  and (b)  $O_2$  atmospheres.