

Supplementary Materials

Boosting the power of $\text{Na}_{0.44}\text{MnO}_2$: unlocking its potential for aqueous sodium ion storage through nanostructuring and hybridization

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S1. Rietveld Analysis of the products of hydrothermal synthesis

In the following figures, the recorded pattern is represented by a black line, the calculated pattern by red circles, and the difference between observed and calculated data by a blue line. The details of the synthesis procedure are reported in Table 1 of the main text. The following figures are referred to in the manuscript.

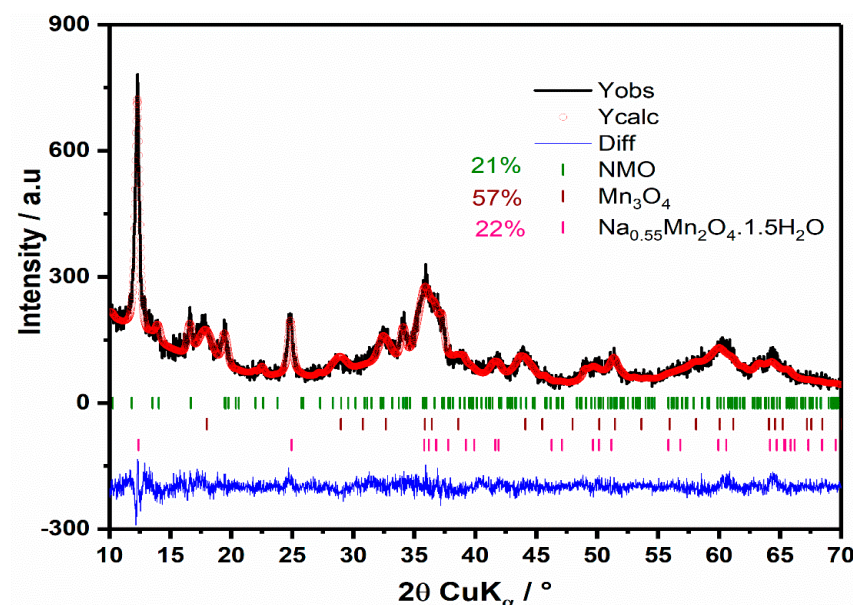


Figure S1. Rietveld refinement of the XRD pattern of the product of the synthesis step HT#1. R values: $R_{wp}=10.33\%$; $R_p = 8.01\%$; goodness of fit: $S = 1.10$.

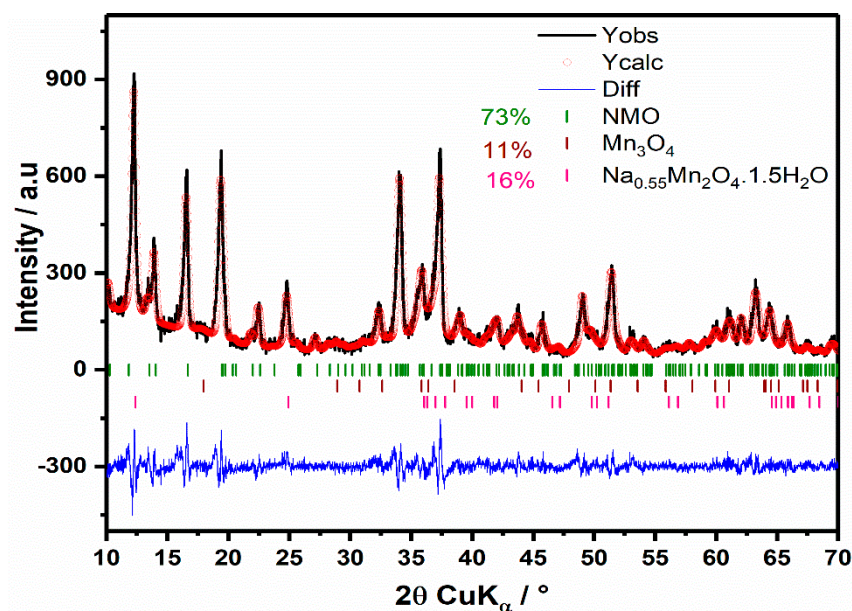


Figure S2. Rietveld refinement of the XRD pattern of the product of the synthesis step HT#2. R values: R_{wp} =10.71%; R_p = 8.28%; goodness of fit: S = 1.28.

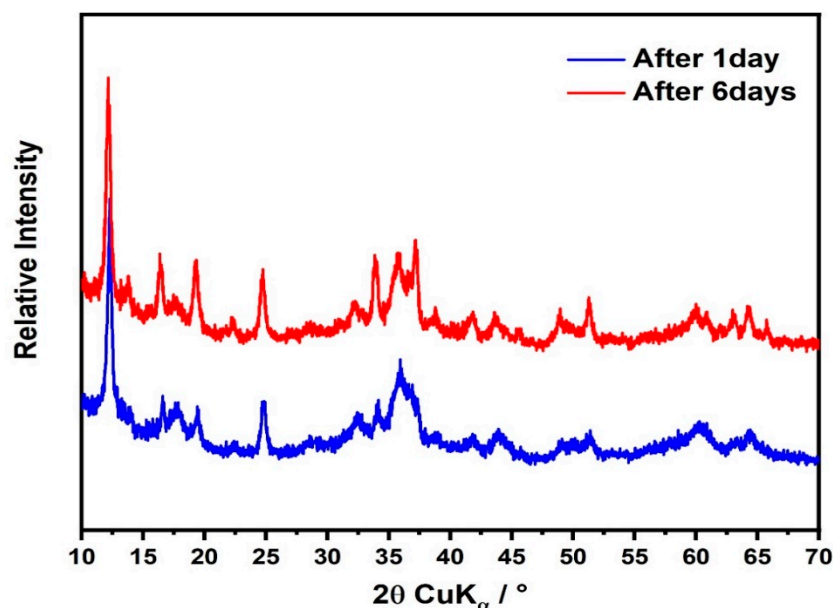


Figure S3. Comparison of XRD patterns of the product of the hydrothermal synthesis step HT#1 (labelled “after 1 day” in the plot legend) and of the product obtained in the same conditions but after 6 days of continuous treatment. Apparently, XRD patterns show striking similarities, and the Rietveld analysis authenticated their equivalent phase composition: 22% birnessite, 57% Mn_3O_4 , and 21% NMO. Noteworthy, by resuming the last test using fresh NaOH solution and the same step path as for HT#2 and HT#3 (see Table 1 of the main text), NMO nanowires were obtained with a percentage fraction of about 98.5%, as for HT#3.

S2. BET surface area measurements

The surface area of sample H-NMO (HT#3 in Table 1 of the manuscript) was derived from the BET analysis of N_2 adsorption at 77.35 K. The mass of the sample was 0.1611 g. The resulting adsorption

and desorption isotherms and BET surface area plots are shown in Figure S4 and Figure S5, respectively.

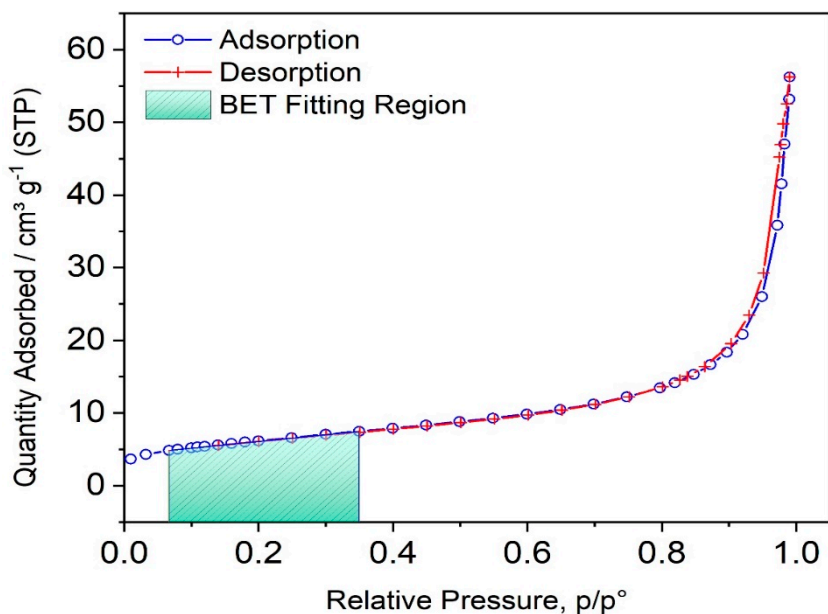


Figure S4. Isotherm plot of the product of the hydrothermal synthesis step HT#3 (H-NMO sample).

The linear BET plot is made in the p/p_0 range from 0.066 to 0.35 and shown in Figure S5. The results of the linear fit are summarized in Table S1.

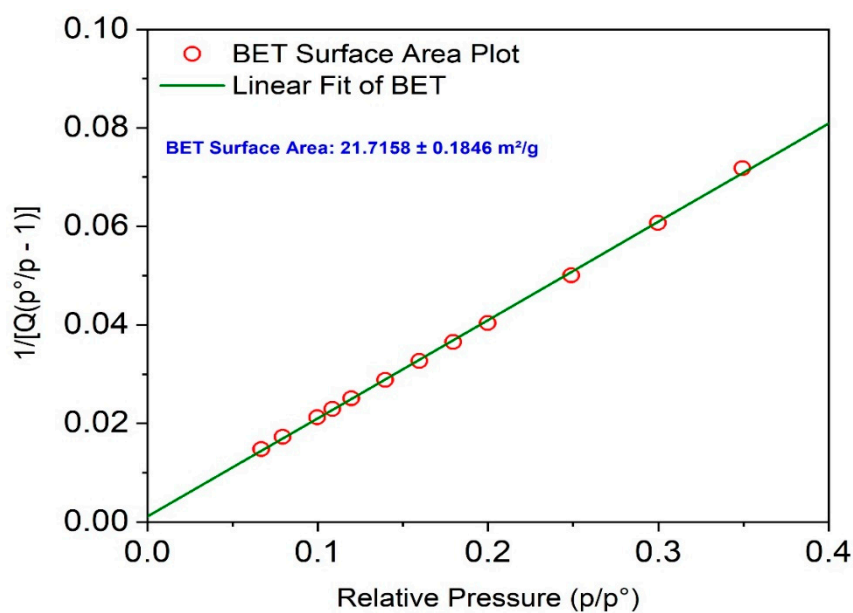


Figure S5. BET surface area plot of the hydrothermal synthesis step HT#3 (H-NMO sample).

Table S1: Summary of results obtained from linear fitting of BET plot.

BET Surface Area	21.71 ± 0.18 m²/g
Slope:	0.1993 ± 0.0017
Y-Intercept:	0.00112 ± 0.00032
C:	179.21
VM:	4.98847 cm ³ /g STP
Correlation Coefficient	0.99965