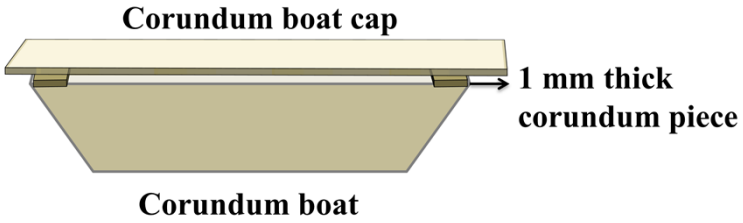

Fig. S1 Sample boat for transitional NH_3 flow

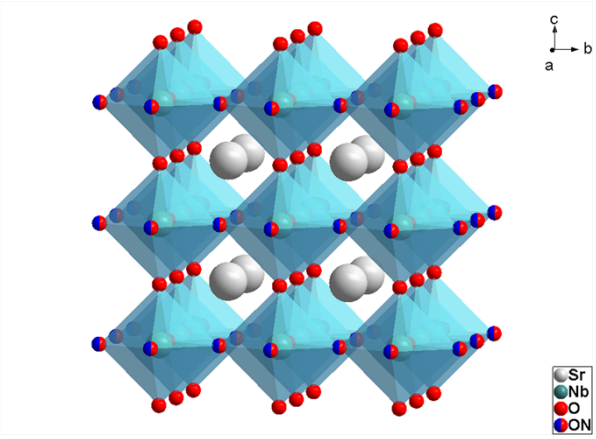

Fig. S2 Schematic illustrations of crystal structures for $SrNbO_2N$, generated from the reported crystal structure data file [1]

1. M. Yang, J. Oró-Solé, J. A. Rodgers, A. B. Jorge, A. Fuertes and J. P. Attfield, *Nat. Chem.*, 2011, **3**, 47-52.

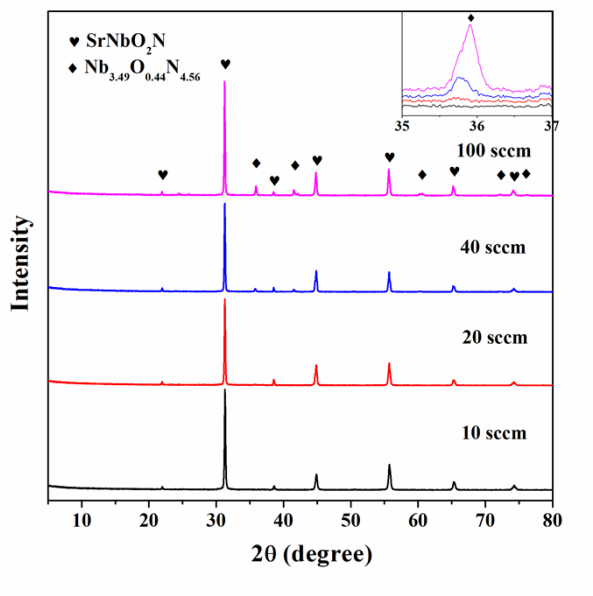

Fig. S3 XRD patterns of samples prepared via thermal ammonolysis at varied direct NH_3 flow rates with $Sr_5Nb_4O_{15}$:NaCl molar ratio of 1:80

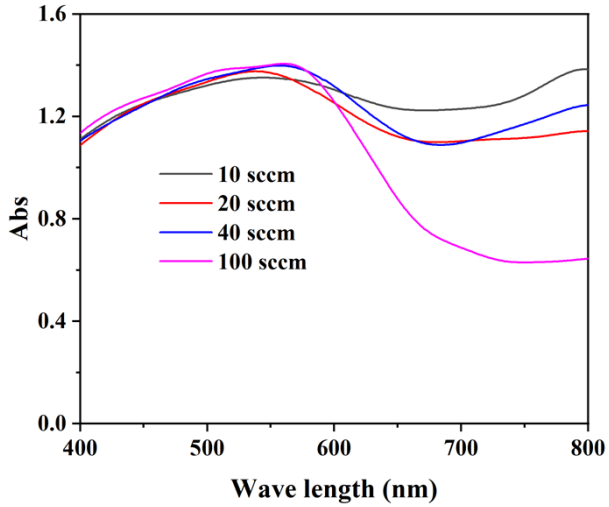

Fig. S4 UV-Vis diffuse reflectance spectra of $SrNbO_2N$ prepared at varied rates of direct NH_3 flow with $Sr_5Nb_4O_{15}$:NaCl molar ratio of 1:80

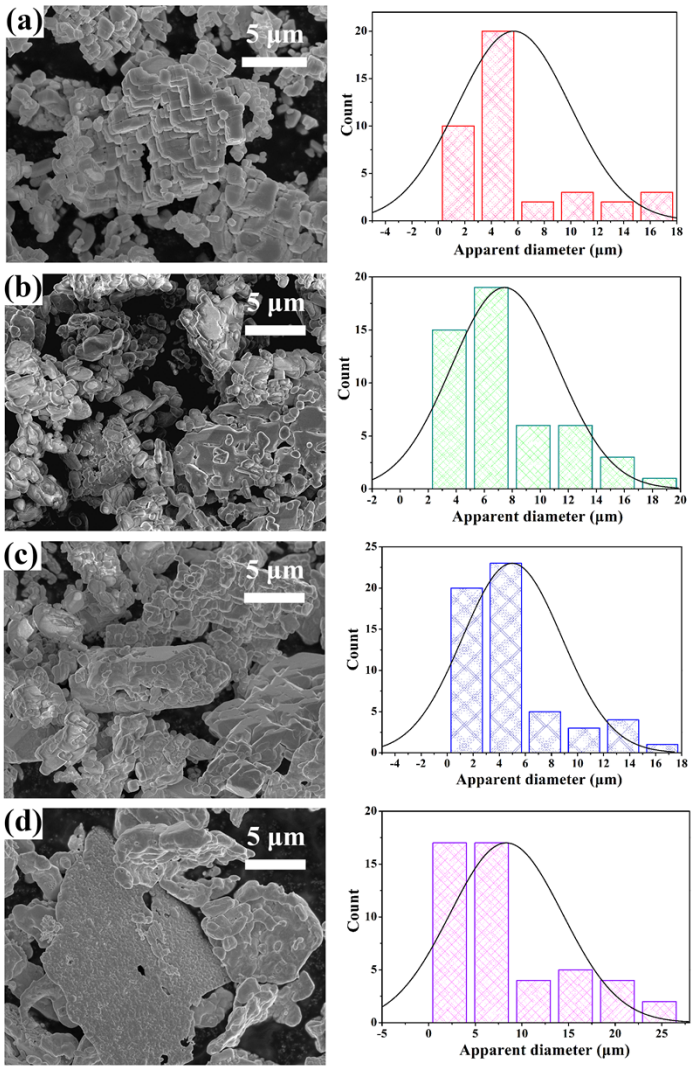

Fig. S5 SEM images of $SrNbO_2N$ prepared with $Sr_5Nb_4O_{15}$:NaCl molar ratio of 1:80 at varied NH_3 flow rates, (a) 100 sccm, (b) 40 sccm, (c) 20 sccm and (d) 10 sccm.

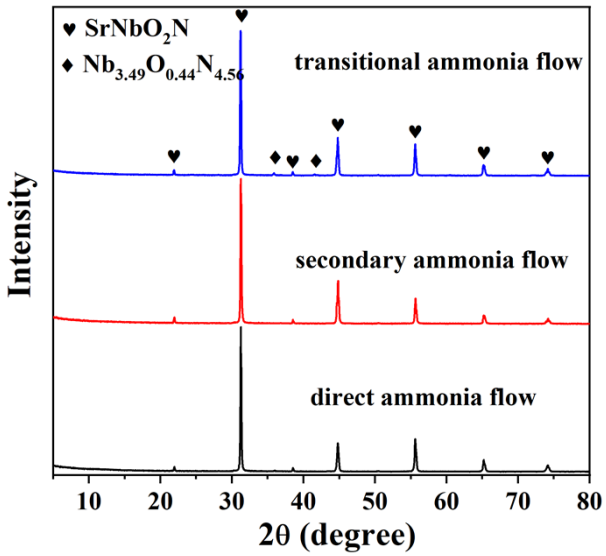

Fig. S6 XRD patterns of $SrNbO_2N$ powders prepared with (a) a direct NH_3 flow and $Sr_5Nb_4O_{15}$:NaCl molar ratio of 1:40, (b) a secondary flow and molar ratio of 1:80, and (c) a transitional flow and molar ratio of 1:80 for assembling photoanodes

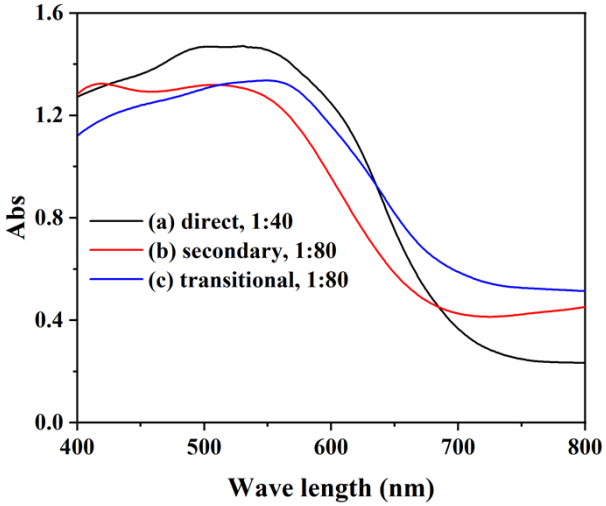

Fig. S7 UV-Vis diffuse reflectance spectrum of $SrNbO_2N$ powders prepared with (a) a direct NH_3 flow and $Sr_5Nb_4O_{15}$:NaCl molar ratio of 1:40, (b) a secondary flow and molar ratio of 1:80, and (c) a transitional flow and molar ratio of 1:80 for assembling photoanodes