**Electronic supplementary materials** *Mendeleev Commun.*, 2016, **26**, 246−247

# Ion exchange conversion of solid electrolyte, potassium sodiostannate, into isomorphous metastable sodium stannate

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**Table S1** Lattice constants of some P2 structures with interlayered potassium and sodium ions.

| compound | a, Å | c, Å |
|---|---|---|
| $K_{0.72}Li_{0.23}Sn_{0.76}O_2$[16] | 3.09884(16) | 12.566(2) |
| $K_{0.72}Na_{0.23}Sn_{0.76}O_2$[17] | 3.19509(15) | 13.7956(10) |
| $Na_{0.72}Na_{0.24}Sn_{0.76}O_2$ | | |
| way 1 (pellet) | 3.151(3) | 11.40(2) |
| way 2 (melted $NaNO_3$) | 3.1562(3) | 11.3642(15) |
| way 3 (MW) | 3.1641(13) | 12.080(9) |
| $Na_{0,6}Cr_{0,6}Ti_{0,4}O_2$[19] | 2.97 | 11.24 |
| $Na_{0.7}Cr_{0.85}Sb_{0.15}O_2$[20] | 2.96 | 11.19 |

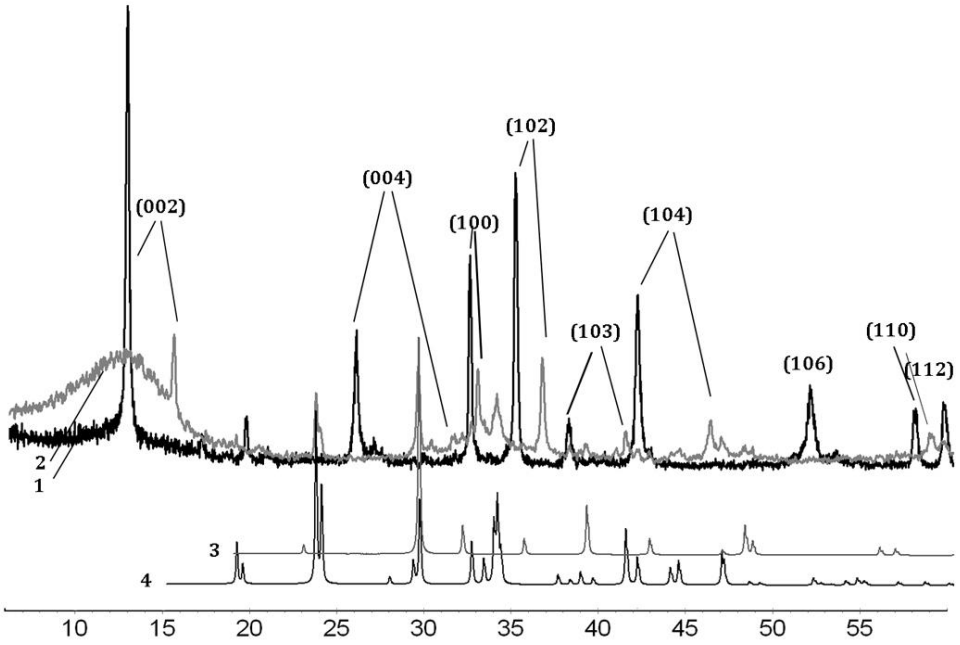


**Figure S1** Powder patterns (with intensity vertical displacement):

(1) initial potassium sodiostannate $K_{0.72}Na_{0.24}Sn_{0.76}O_2$ (a=3.19Å, c=13.79Å),
(2) sample which was obtained by ion exchange reaction in a pressed pellet at 350 °C,
(3) $NaNO_3$, Pdf-2 Card № 361474 [1],
(4) $KNO_3$, Pdf-2 Card № 050377 [1].

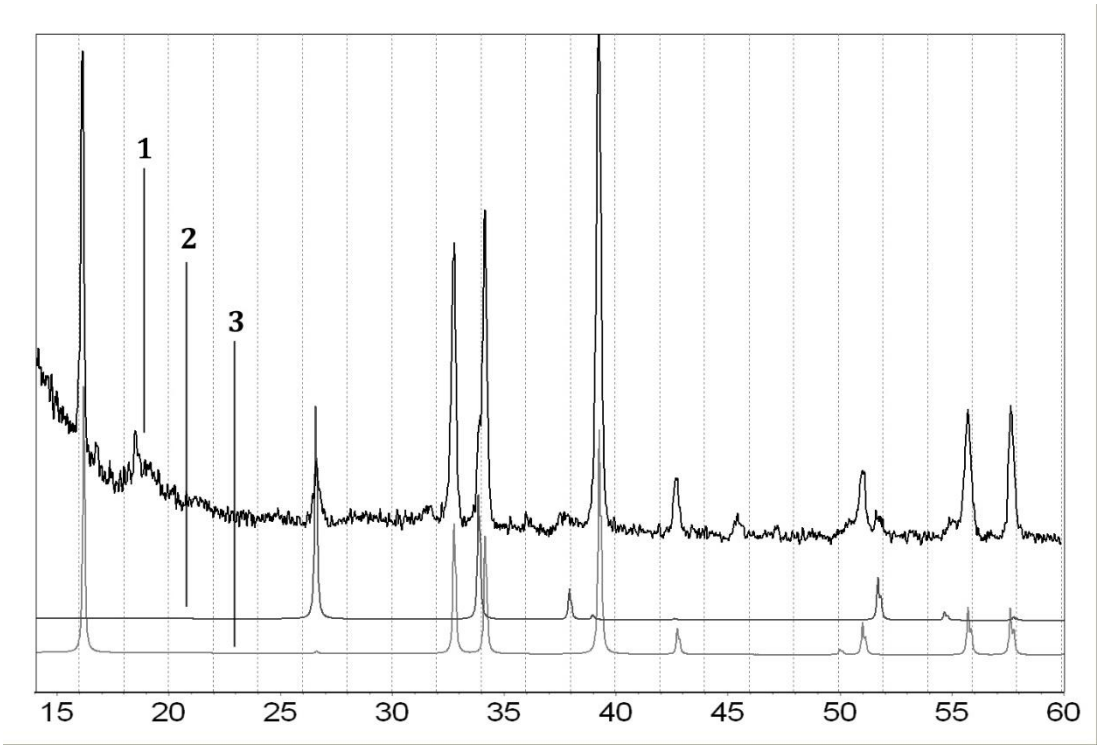


**Figure S2** Powder patterns of
(1) obtained sodium stannate $Na_{1.92}Sn_{1.52}O_4$ after 2 h. heating at 900 $^0$C,
(2) tin oxide $SnO_2$ Pdf-2 Card № 00-88-0287 [1],
(3) sodium stannate $Na_2SnO_3$ Pdf-2 Card № 00-30-1252 [1].

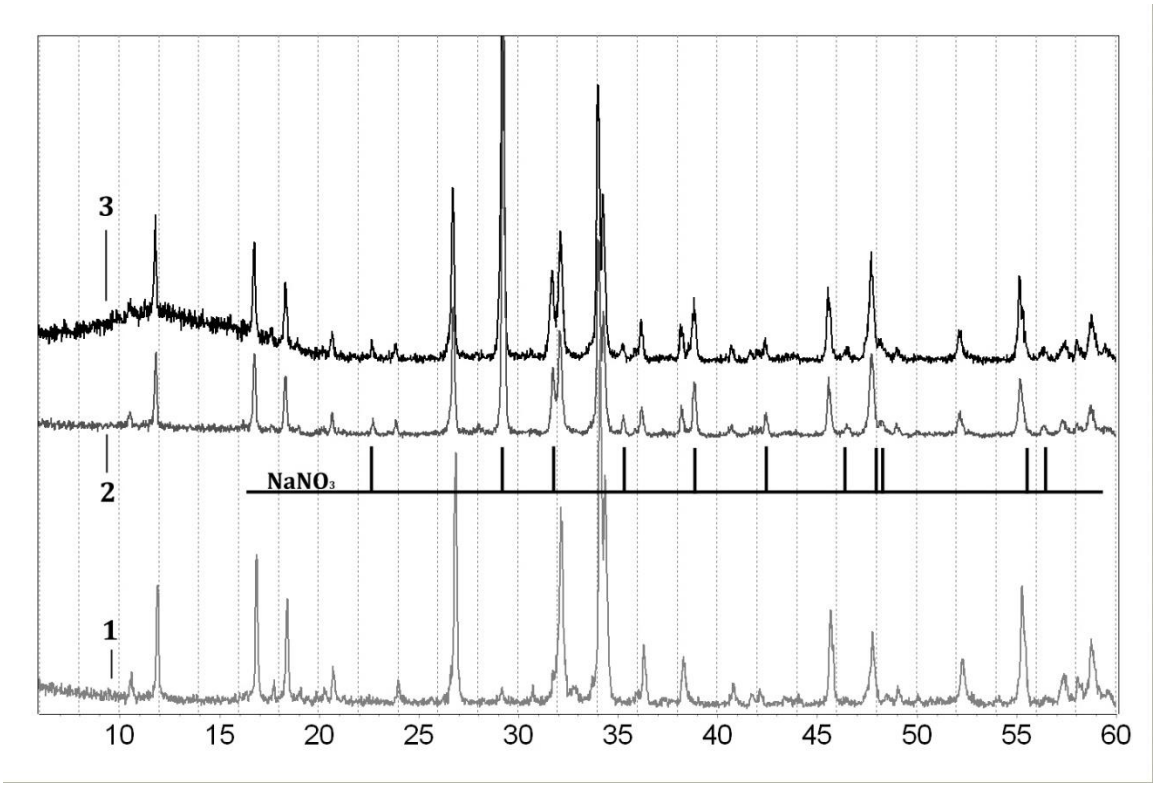


**Figure S3** Powder patterns:
(1) sample of $K_{0.72}Na_{0.24}Sn_{0.76}O_2$ which was taken for ion exchange,
(2) phase which was obtained by ion exchange experiment in DMF solution,
(3) sample (2) after heating at 350 $^0$C for 1.5 h.
$NaNO_3$ peaks were taken from Pdf-2 Card № 361474 [1].

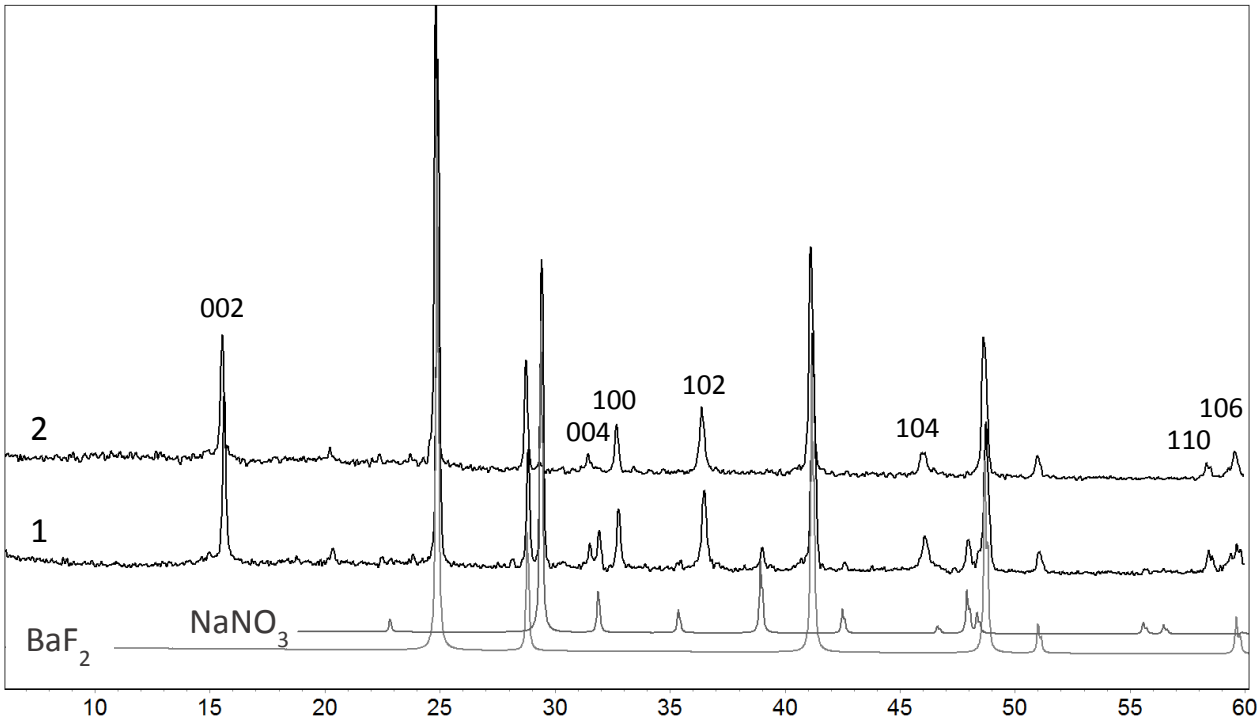


**Figure S4** Powder patterns:
(1) sample which was obtained by ion exchange reaction in the crucible with holed bottom;
(2) the same sample after washing with methanol.
$NaNO_3$ Pdf-2 Card № 361474 [1],
$BaF_2$ (a=6.1979 Å).

[1] International Centre for Diffraction Data (ICDD). ICDD Powder Diffraction Data File, Release 2008.