Supporting Information to *Dalton Transactions*

**Molten BaCN₂ for the sintering and crystal growth of dielectric oxynitride perovskite Sr₁₋ₓBaₓTaO₂N (x = 0.04–0.23)**

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Fig. S1 XRD patterns of (1) $\alpha$-SrCN$_2$ and (2)BaCN$_2$ powders for (a)as-prepared and (b)the annealed samples. $\alpha$-SrCN$_2$ and BaCN$_2$ were annealed at approximately 1100 and 900 °C for 5 h. Indexed diffraction peaks shown in (1)(a), (2)(a), and (2)(b) are $\alpha$-SrCN$_2$ (JCPDS 51-541), tetragonal new phase of BaCN$_2^{26}$, and rhombohedral BaCN$_2$ (JCPDS 51-542), respectively. Inverse triangles, diamonds, circles, arrows, and question marks indicate Sr(OH)$_2$ (ICSD 26029), graphite (ICSD 53781), SrC$_2$ (JCPDS 3-0542), Ba(OH)$_2$ (ICSD 56828), and unknown phases, respectively.