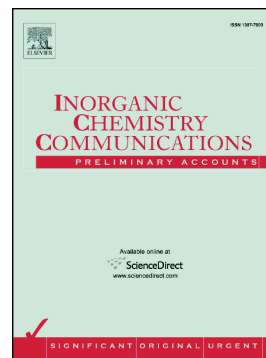


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A feasible Method to Measure the Content of Core and Shell in Heterostructural Perovskite MOFs through Differential Scanning Calorimetry

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Abstract

The core-shell heterostructures of $[(\text{CH}_3)_2\text{NH}_2][\text{Mn}(\text{HCOO})_3]@[(\text{CH}_3)_2\text{NH}_2][\text{Co}(\text{HCOO})_3]$ and $[(\text{CH}_3)_2\text{NH}_2][\text{Mn}(\text{HCOO})_3]@[(\text{CH}_3)_2\text{NH}_2][\text{Ni}(\text{HCOO})_3]$ were prepared via epitaxial growth. The obtained heterostructural crystals were characterized by single-crystal and powder X-ray diffraction analysis, and energy dispersive spectrometer (EDS) elemental mappings. Investigation on the differential scanning calorimetry (DSC) of the heterostructural crystals with different mole ratio of the core to shell indicates that the plot of DSC peak area versus mole ratio of core to shell exhibits a linear relationship. Thus, to an unknown heterostructural compounds with distinct phase transition, the mole ratio of core to shell can be easily obtained just by measuring their DSC data.

Keywords: Core-Shell Composite, Perovskite MOFs, Epitaxial growth, DSC

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