

Synthesis and characterization of lead iodovanadinite using PdI_2 , an iodine source for the immobilisation of radioiodine

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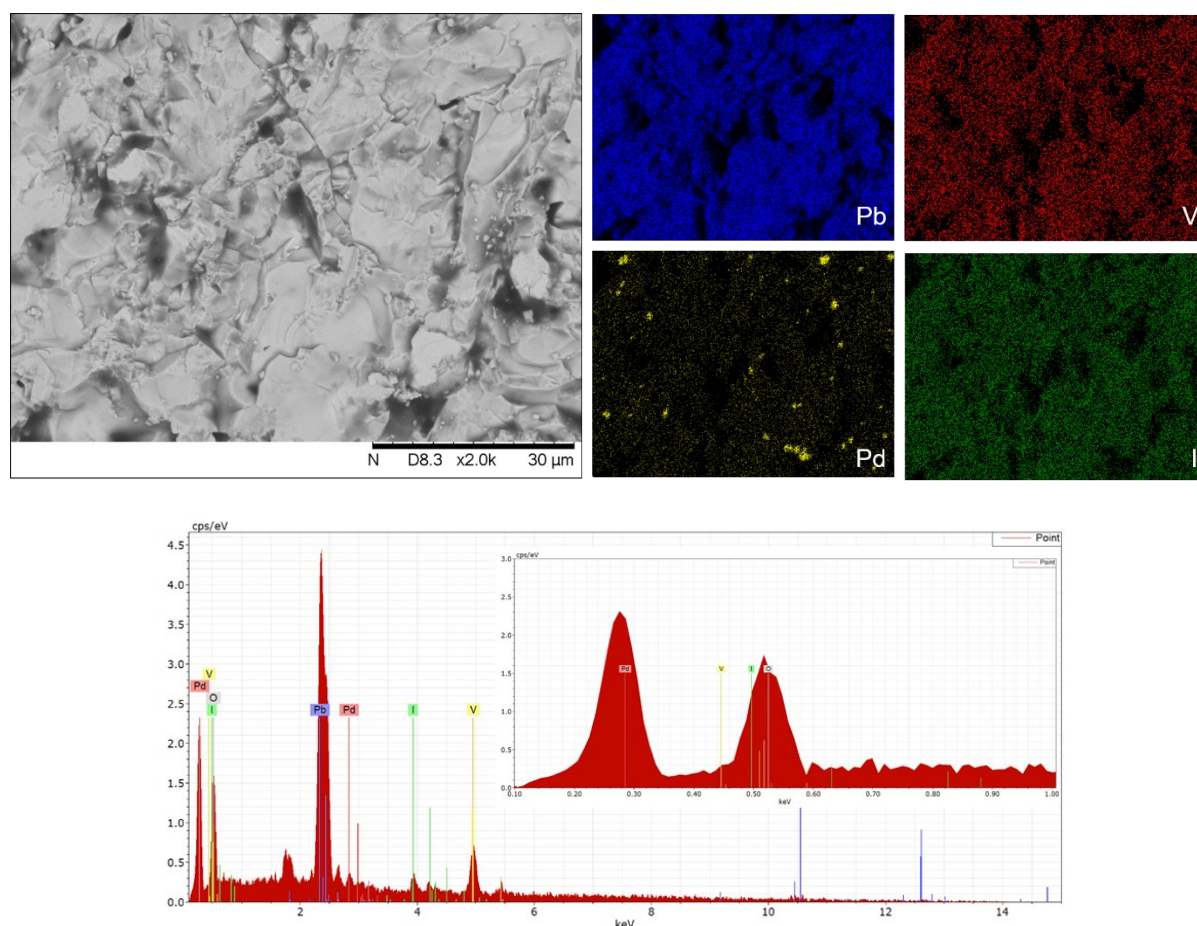


Figure S1. SEM-BSE image (x2000 magnification) and EDX elemental distribution plots for Pb, V, Pd, and I of a sectioned pellet of $\text{PdPb}_9(\text{VO}_4)_6\text{I}_2$ reacted at 700 °C for 5 hr. Scale bar shown at bottom of SEM image represents 30 μm . EDX spectrum corresponds to field of view in SEM-BSE and element distribution maps.

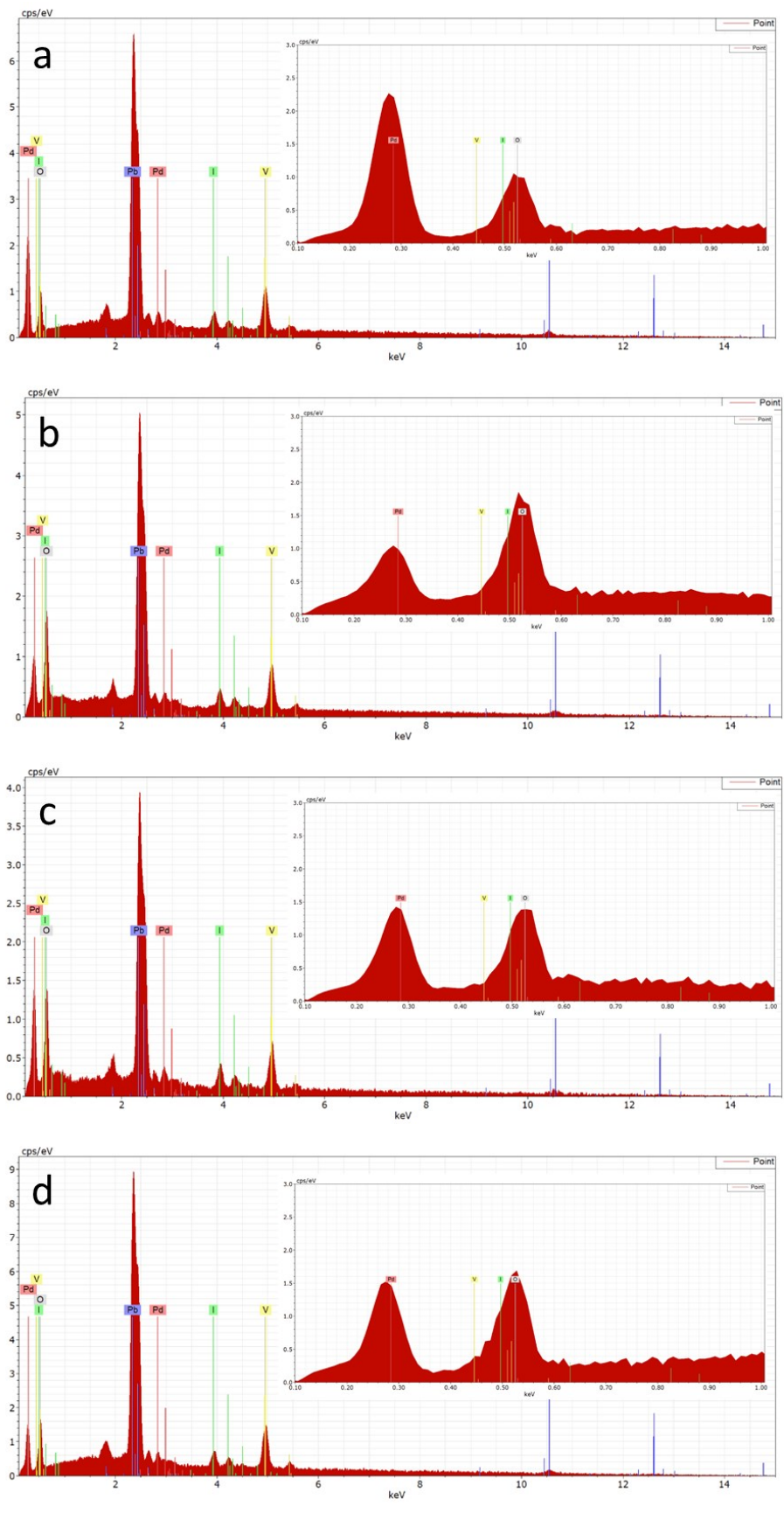


Figure S2. EDX spectra corresponding to field of view in SEM-BSE and element distribution maps in: a) Figure 2, b) Figure 7, c) Figure 12, d) Figure 13.

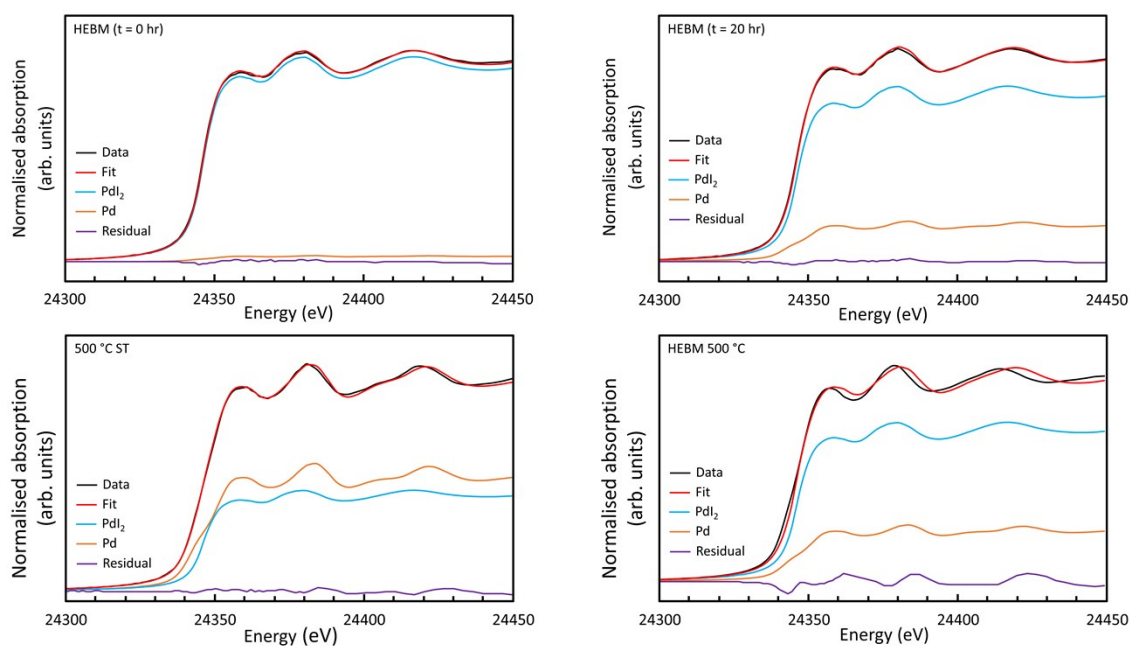


Figure S3. Linear combination fits to Pd L₃ XANES data from “PdPb₉(VO₄)₆I₂” produced by conventional solid state reaction (500°C ST) or High Energy Ball Milling (HEBM), with data shown for initial reaction mixture (HEBM 0hr), after 20 h (HEBM t = 20 hr), and after subsequent reaction at 500°C (HEBM 500°C); plus reference compounds of Pd, PdI₂ and PdO.

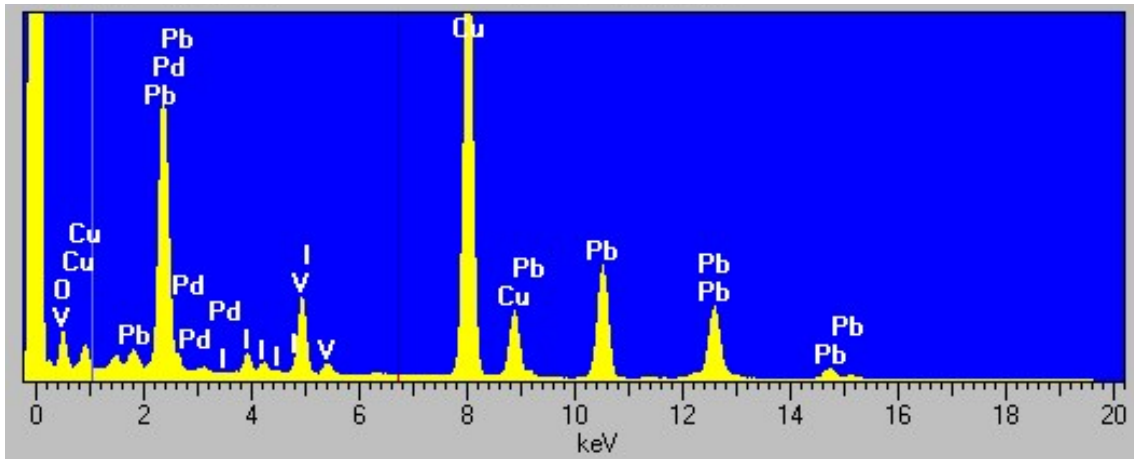


Figure S4. TEM-EDX spectrum of a single-grain of “PdPb₉(VO₄)₆I₂” reacted at 500 °C for 5 hr yielding peaks for Pb, Pd, V, O, and I..

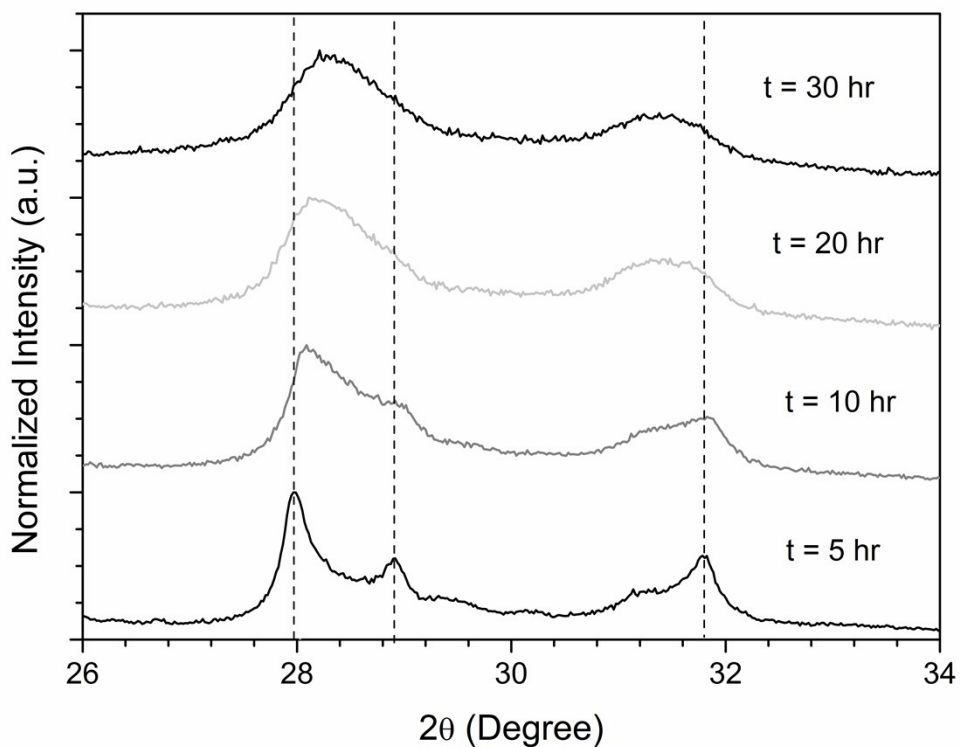


Figure S5. Expert from the PXR patterns of batched β -Pb₃(VO₄)₂ and PdI₂ subjected to HEBM after t = 5, 10, 20, and 30 hr showing the amorphization and peak shift of the most intense reflections between $2\theta = 27$ to 33° .

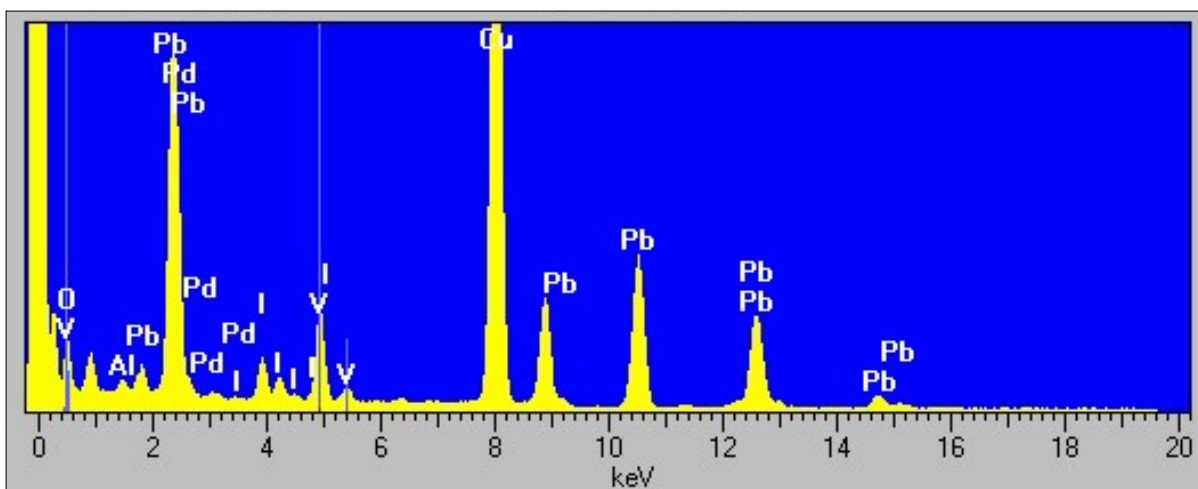


Figure S6. TEM-EDX spectrum of a single-grain of HEBM “PdPb₉(VO₄)₆I₂” reacted at 500 °C for 1 hr yielding peaks for Pb, Pd, V, O, and I.

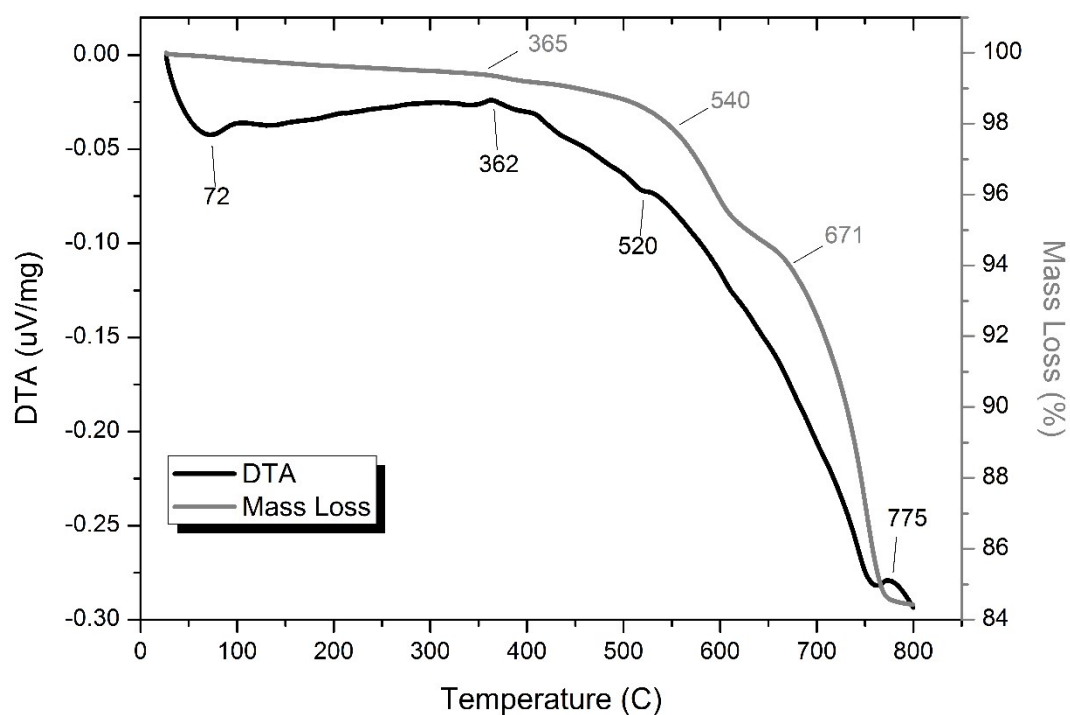


Figure S7. TGA-DTA analysis of “PdPb₉(VO₄)₆I₂” subjected to HEBM 30 hr and reacted at 200 °C for 1 hr in a sealed vessel under vacuum.