Electronic Supplementary Material (ESI) for Environmental Science: Nano.

Supporting information for:

Inorganic Tin Aluminophosphate Nanocomposite for Reductive Separation of Pertechnetate

Tatiana G. Levitskaia[a]*, Sayandev Chatterjee,[a]* Natasha K. Pence,[a] Jesus Romero,[a] Tamas Varga,[b] Mark H. Engelhard,[b] Yingge Du,[b] Libor Kovarik,[b] Bruce W. Arey,[a] Mark E. Bowden[b] and Eric D. Walter[b]

[a] Energy and Environment Directorate, Pacific Northwest National Laboratory, Richland, WA 99354, United States.

[b] Environmental and Molecular Sciences Laboratory, Pacific Northwest National Laboratory, Richland, WA 99354, United States

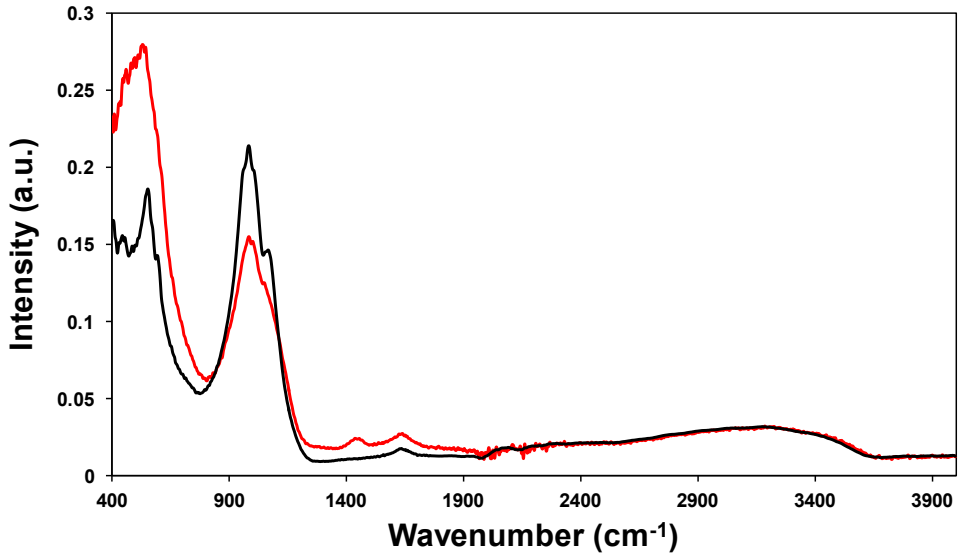

Figure S1. IR spectra of the **Sn-Al-PO$_4$** composite (black trace) before TcO_4^- exposure and (red trace) after 24 hour exposure to TcO_4^-.

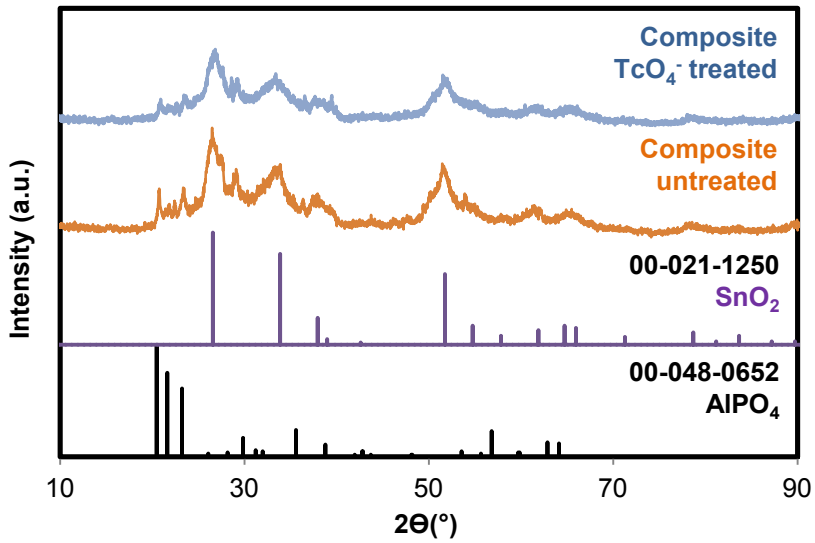

Figure S2. XRD patterns of the **Sn-Al-PO_4** composite before and after exposure to an aqueous solution of TcO_4^-

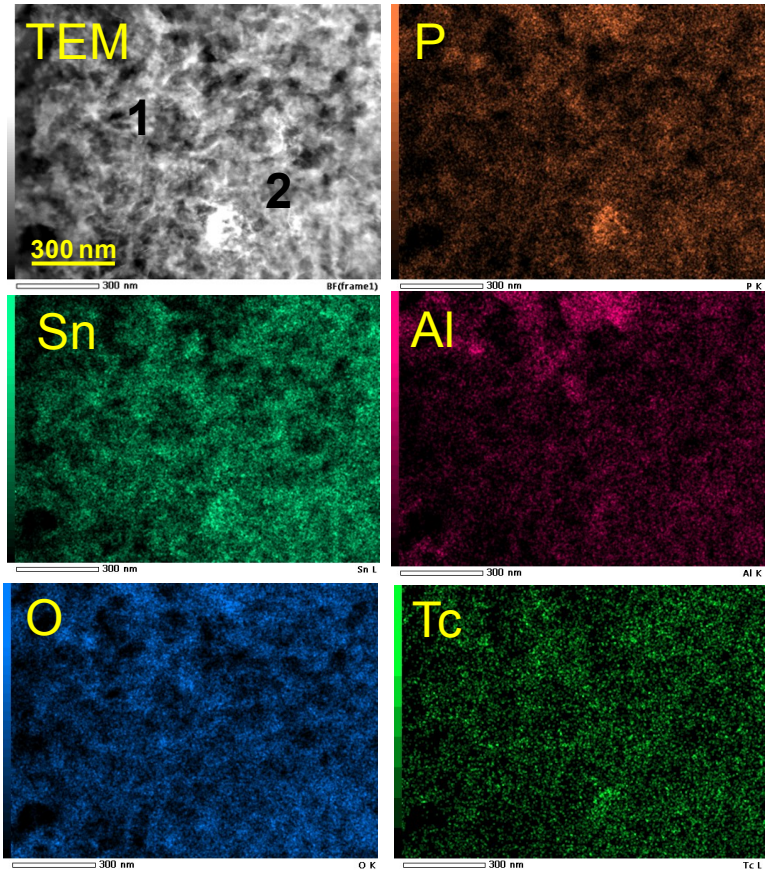

Figure S3. Representative elemental distribution in the amorphous matrix the 24 hour TcO_4^- treated **Sn-Al-PO_4** composite.

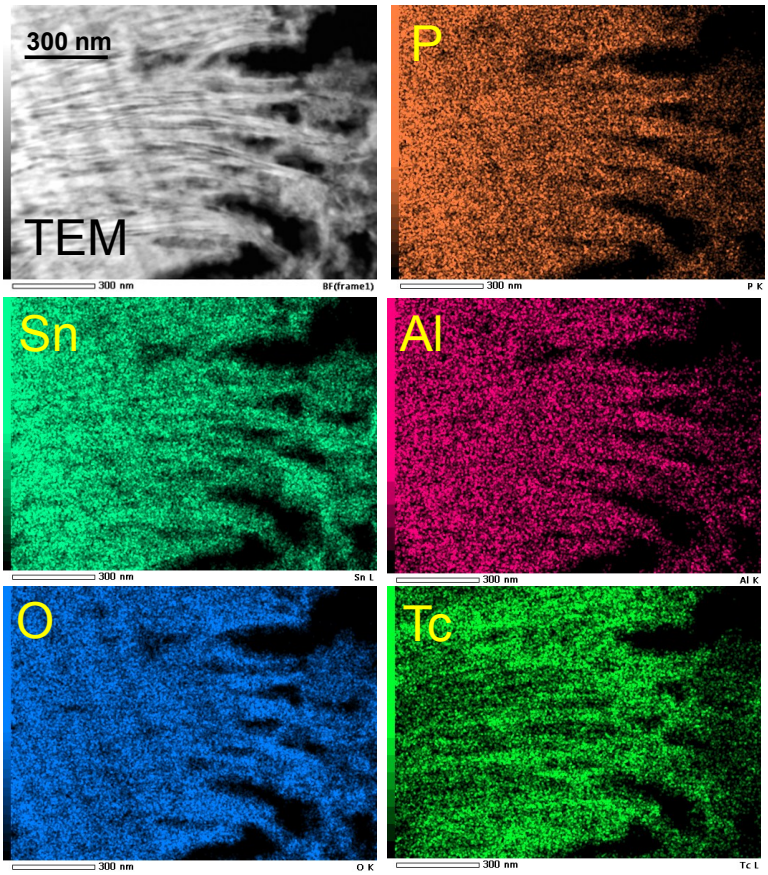

Figure S4. Representative elemental distribution in the crystalline fibers for the 24 hour TcO_4^- treated **Sn-Al-PO$_4$** composite.

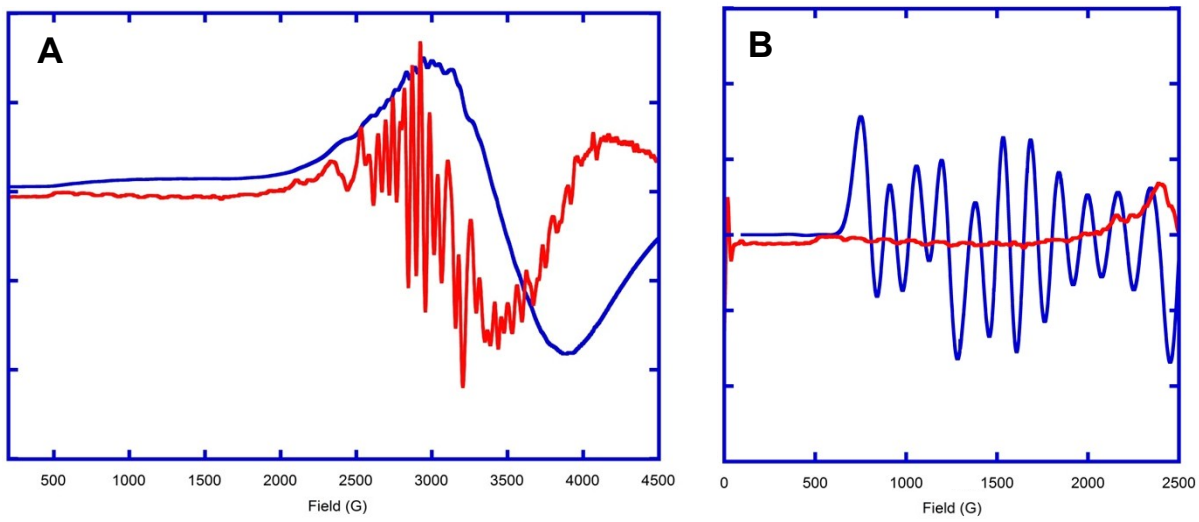

Figure S5. (A) EPR spectrum of Tc-loaded **Sn-Al-PO$_4$** composite at 2.5 K (blue trace) and its first derivative (red trace). **(B)** Overlay of the first derivative of the experimental spectrum of Tc-loaded **Sn-Al-PO$_4$** composite (red trace) with the spectrum simulated using the parameters reported for Tc(IV) in the SnO_2 cassiterite structure.[1]

References:

(1) Pieper, H. H.; Schwochau, K. *J Chem Phys* **1975**, *63*, 4716.