

Supplementary Information

Molybdenum Speciation In Uranium Mine Tailings Using X-Ray Absorption Spectroscopy

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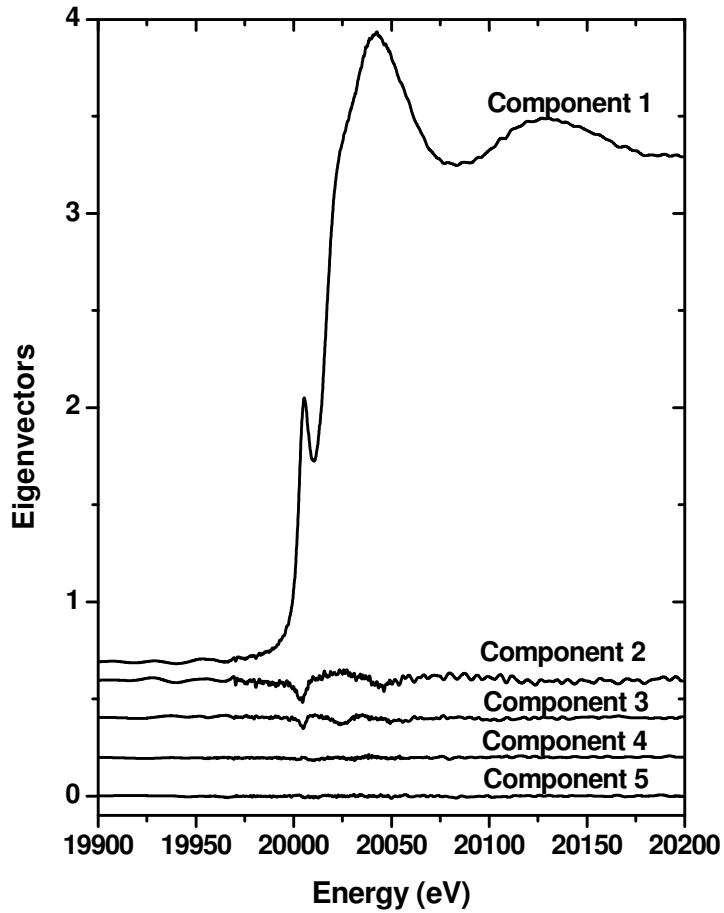


Figure S1. Results of principal component analysis (PCA) of the set of tailings spectra (Figure 1). The analysis, shown by the eigenvectors, indicates only three out of the seven components (five shown for clarity) are needed to reproduce the entire set of spectra from the mine tailing samples.

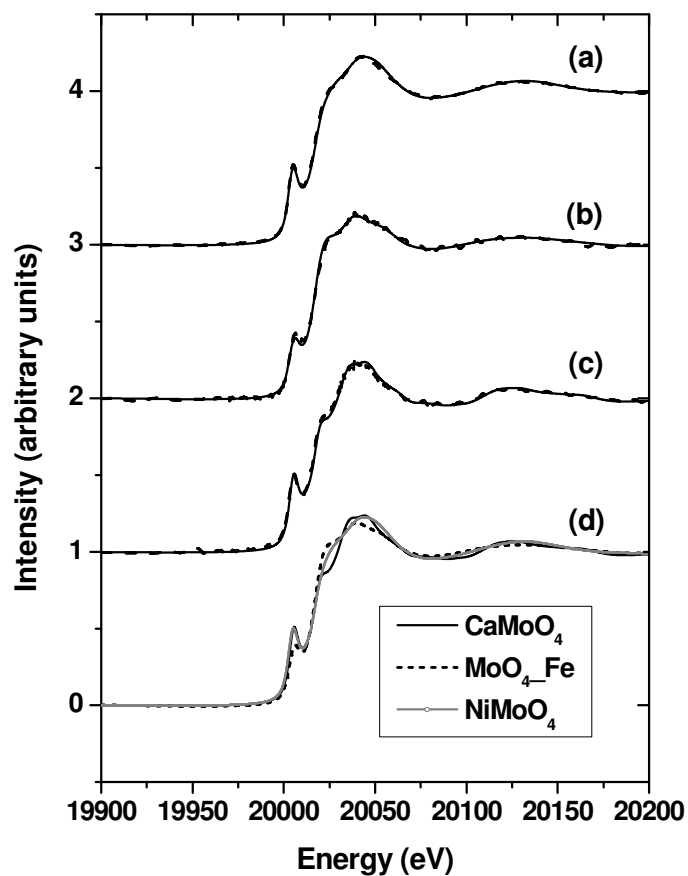


Figure S2. Target transform results (dashed curves) for (a) NiMoO₄, (b) molybdate adsorbed on ferrihydrite (MoO₄_Fe(OH)₃), and (c) CaMoO₄. Solid curves are the corresponding experimental near-edge spectra. (d) Superimposed near-edge spectra of CaMoO₄, NiMoO₄, and MoO₄_Fe(OH)₃.

Table S1. Residual and SPOIL values for the standard spectra.

| Compound | Residual ^a ×1000 | SPOIL ^b |
|---------------------------------------|-----------------------------|--------------------|
| MoS ₂ | 16.88 | 7.25 |
| MoO ₃ | 1.25 | 3.22 |
| NiMoO ₄ | 0.183 | 2.97 |
| MoO ₄ _Fe(OH) ₃ | 0.275 | 2.85 |
| H ₂ MoO ₄ | 0.367 | 3.07 |
| FeMoO ₄ | 0.821 | 3.28 |
| PbMoO ₄ | 0.447 | 5.81 |
| CaMoO ₄ | 0.729 | 4.69 |