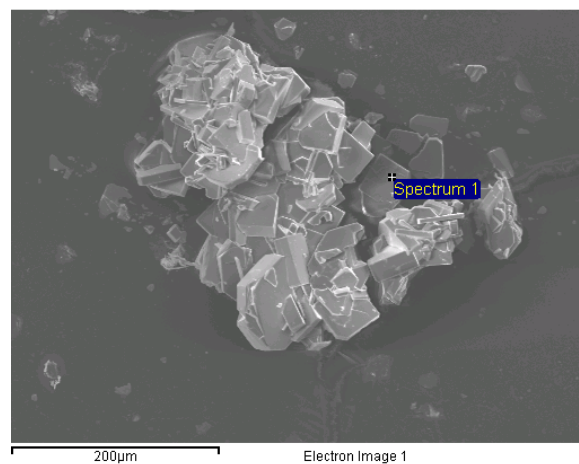
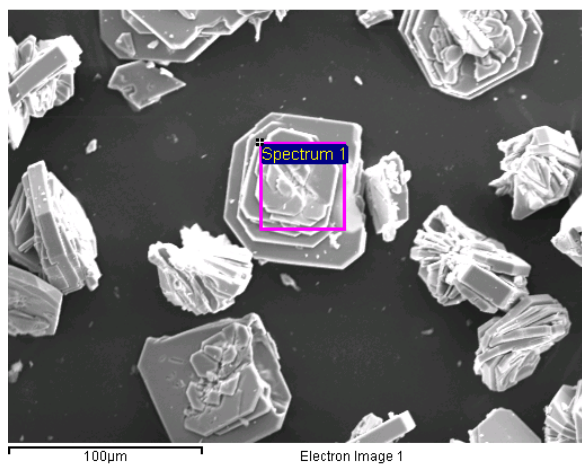


Electronic Supplementary Information

- (i) SEM micrographs
- (ii) EDX Analysis data Table 1



SEM micrographs for $[\text{NH}_4]_{12}[(\text{MoO}_2)_2\text{O}(\text{HPO}_4)_2]_4[\text{PO}_4]\text{X}$. The images above show the Cl (Left) and the Br (Right).

Table 1. EDX data for $[\text{NH}_4]_{12}[(\text{MoO}_2)_2\text{O}(\text{HPO}_4)_2]_4[\text{PO}_4]\text{Cl}$

	Mo%	P%	Cl%	Mo/P	Mo/Cl
	18.85	18.77	2.46	1.004	7.663
	20.70	20.89	2.75	0.991	7.527
	22.45	23.44	2.79	0.957	8.047
	21.26	21.78	2.54	0.976	8.370
	21.18	22.63	2.83	0.936	7.484
	20.71	20.90	2.49	0.991	8.317
	20.82	21.99	2.92	0.947	7.130
Average	20.85	21.49	2.68	0.972	7.791

Calculated values based upon chemical formula: Mo/P/Cl = 1/0.889/8

Table 2. EDX data for $[\text{NH}_4]_{12}[(\text{MoO}_2)_2\text{O}(\text{HPO}_4)_2]_4[\text{PO}_4]\text{Br}$

	Mo%	P%	Br%	Mo/P	Mo/Br
	24.27	23.38	2.73	1.038	8.890
	24.62	24.05	2.69	1.024	9.152
	22.26	22.91	2.57	0.972	8.661
	22.67	22.67	2.74	1.000	8.274
	21.75	23.30	2.96	0.933	7.348
	22.04	22.28	3.09	0.989	7.133
Average	22.94	23.10	2.80	0.993	8.243

Calculated values based upon chemical formula: Mo/P/Br = 1/0.889/8