

Supplementary

Fabricated Flexible Composite for a UV-LED Color Filter and Anti-Counterfeiting Application of Calcium Molybdate Phosphor Synthesized at Room Temperature

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Calculation of Doped Rare Earths in Lattice

The known lattice parameters of CaMoO_4 : $a = 0.522\text{nm}$, $b = 0.522\text{nm}$, $c = 1.143\text{nm}$

The volume of a single unit cell(v): $v = a \times b \times c = 0.3114\text{ nm}^3 = 31.14 \times 10^{-23}\text{cm}^3$

The doping level of RE^{3+} in CaMoO_4 : $<0.5\text{ mol\%} = 5 \times 10^{-3}\text{ RE atoms per 1 RE unit cell}$

Then, the doping concentration of RE in CaMoO_4 is

$$c = \frac{5 \times 10^{-3}\text{ RE atoms}}{31.14 \times 10^{-23}\text{ cm}^3} = 1.557 \times 10^{19}\text{ RE atoms/cm}^3$$

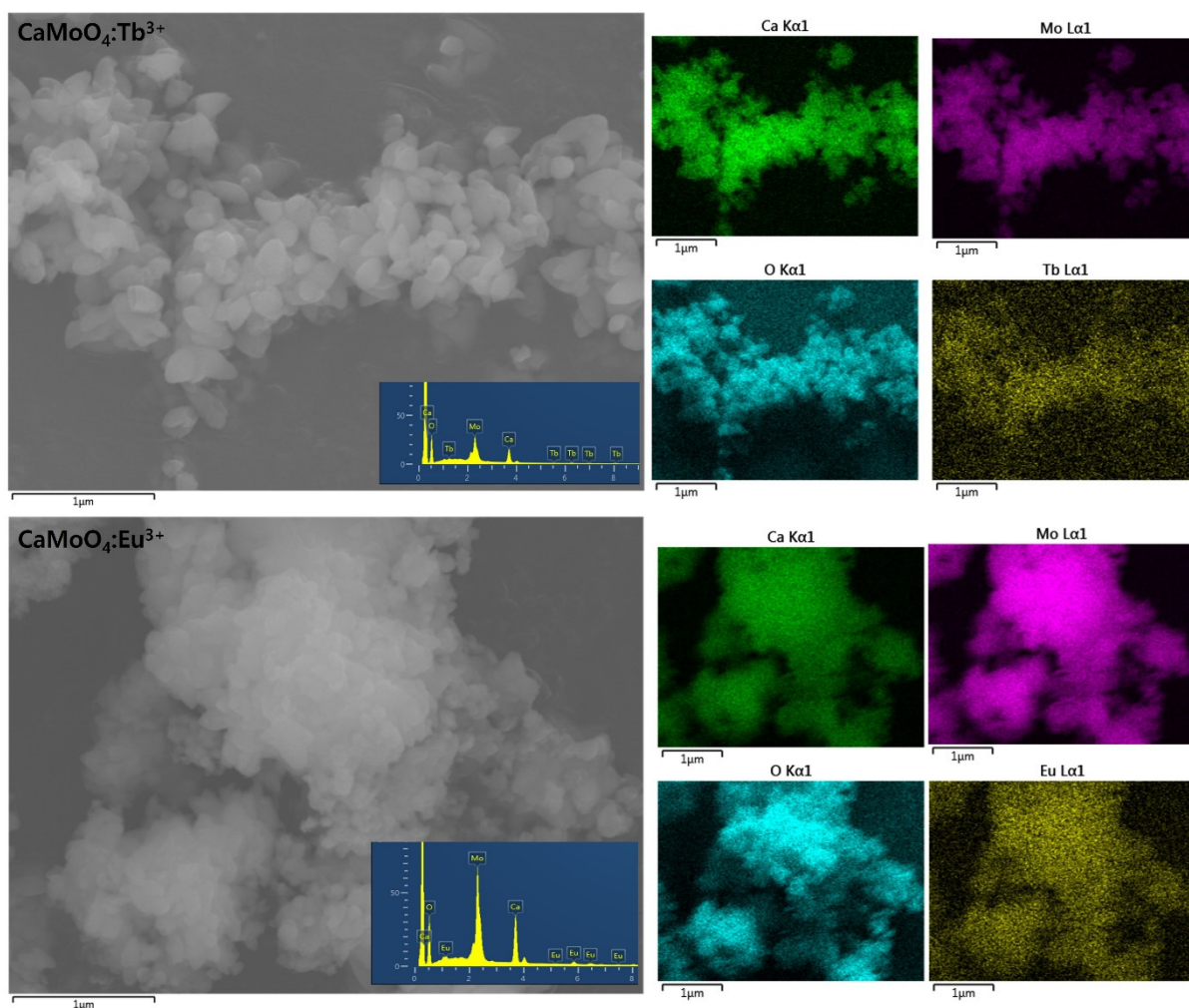


Figure S1. SEM-EDS mapping data of $\text{CaMoO}_4\text{:Tb}^{3+}$ (up) and $\text{CaMoO}_4\text{:Eu}^{3+}$ (down).

Table S1. The comparison among similar literature.

No.1	Method	Working Temp.	Working Time	Dopant	Color	Lifetime
[1]	hydrothermal	180 °C	1 h	Tb, Sm	green, red	0.52, 0.69 μ s
[2]	precipitation	120/900 °C	20/5 h	Eu	red	558 μ s
[3]	co-deposition	50/800 °C	2/6 h	Eu	red	0.637 μ s
[4]	solid-state	800 °C	5 h	Dy	greenish yellow	0.227 μ s
[5]	sol-gel	50/700 °C	2/3 h	Eu	red	20 μ s
This work	co-precipitation	25 °C	1 h	Tb, Eu	green, red	431, 654 μ s

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