Electronic Supplementary Material (ESI) for CrystEngComm.

Two solvent-stable MOFs as a recyclable luminescent probe for detecting dichromate or chromate anions

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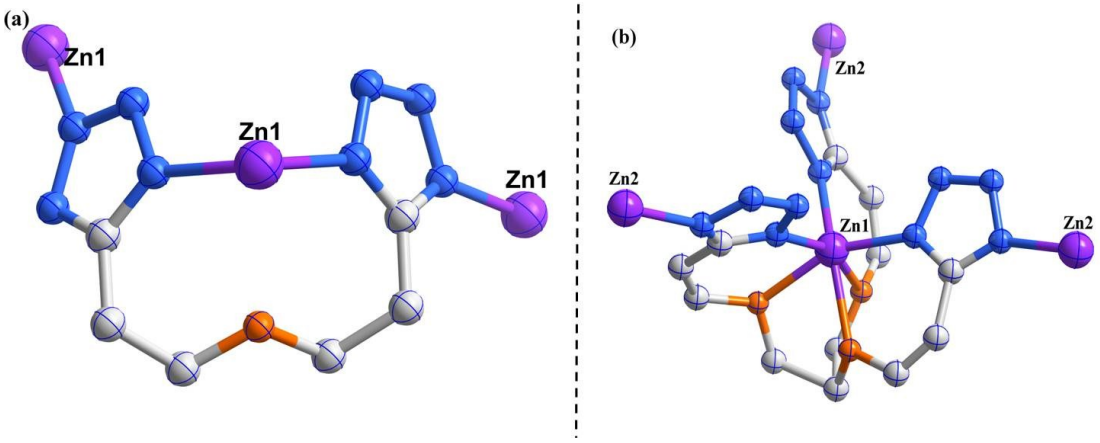

Figure S1. (a) The coordinated environments of H_2btz ligand in **1** and (b) H_3ttz ligand in **2**.

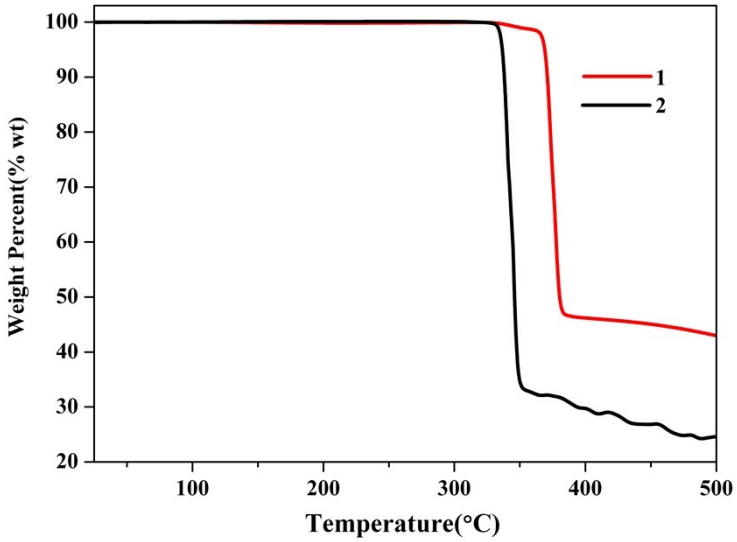

Figure S2. Thermogravimetric analyses curves of **1** (red) and **2** (black).

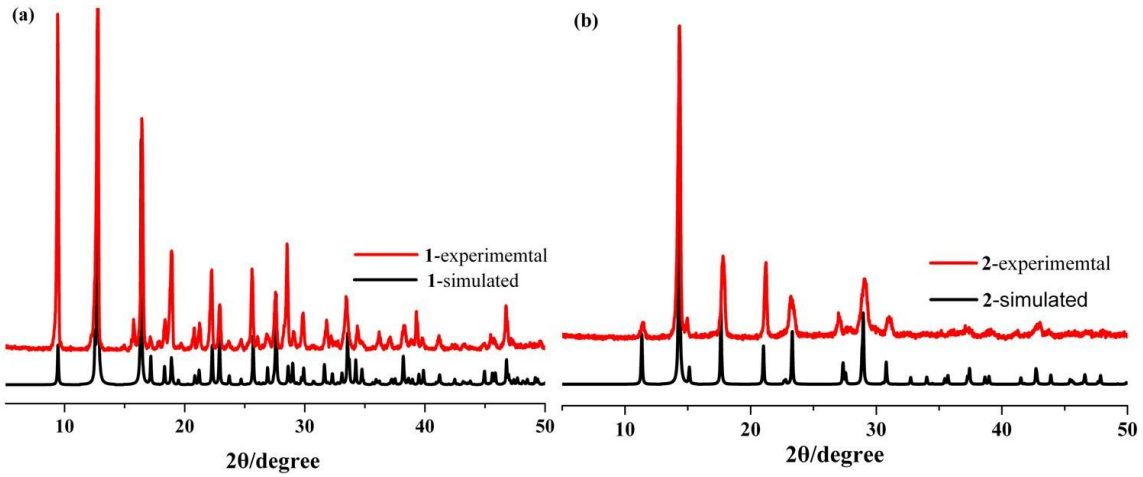

Figure S3. The PXRD patterns of **1** (a) and **2** (b), simulated from the single-crystal data (black), synthesized compounds (red).

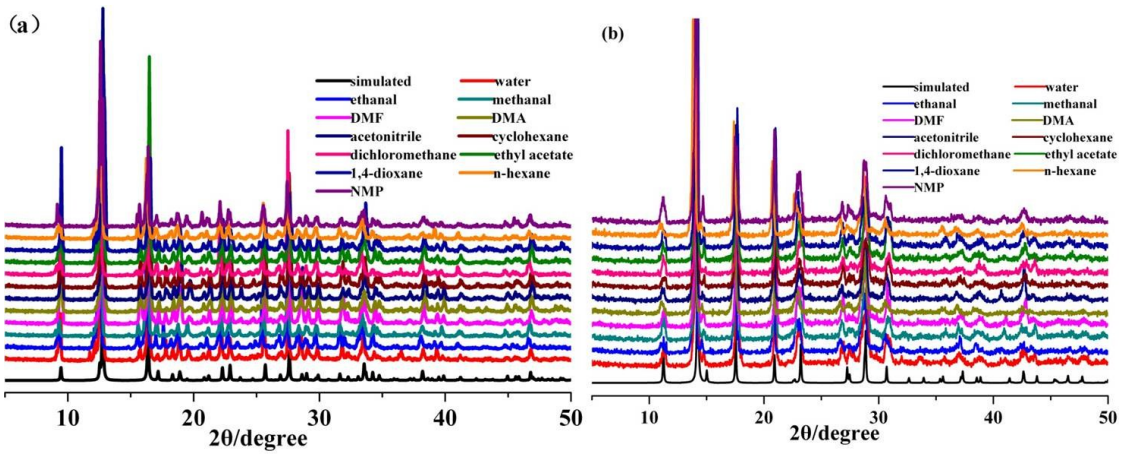

Figure S4. The PXRD patterns of compound **1** (a) and **2** (b) after immersing in various organic solvents.

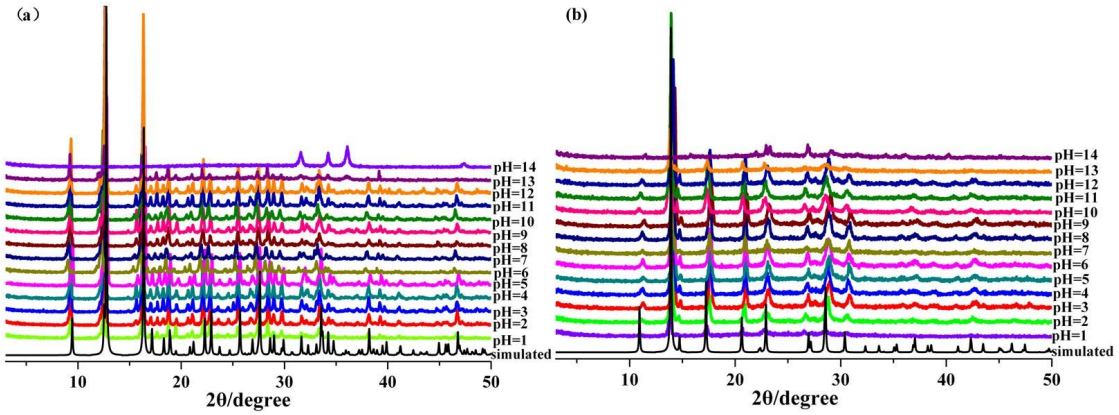

Figure S5. The PXRD patterns of **1** (a) and **2** (b) after being exposured to aqueous solutions with various pH values from 1.0 to 14.0.

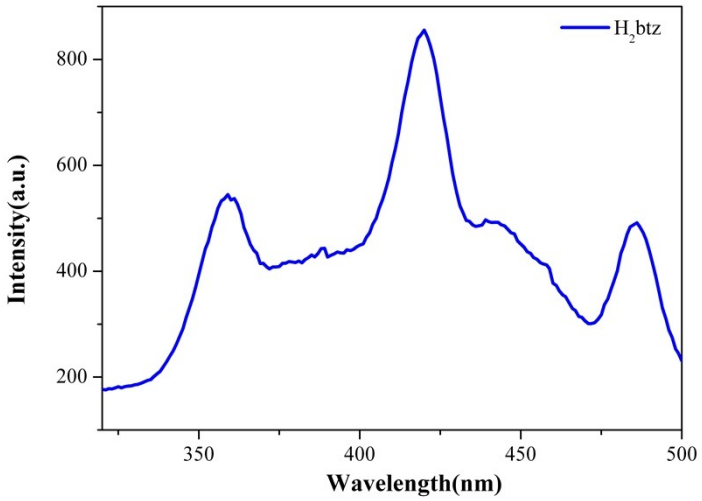

Fig. S6. Solid-state photoluminescence spectra of H_2btz ($\lambda_{excited}$ = 260 nm).

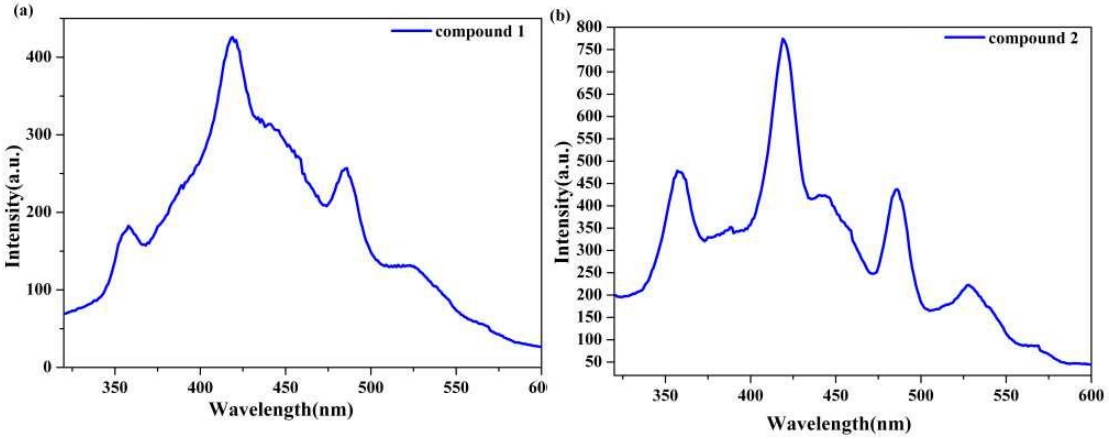

Fig. S7. The emission spectra of **1** (a) and **2** (b) ($\lambda_{excited}$ = 260 nm).

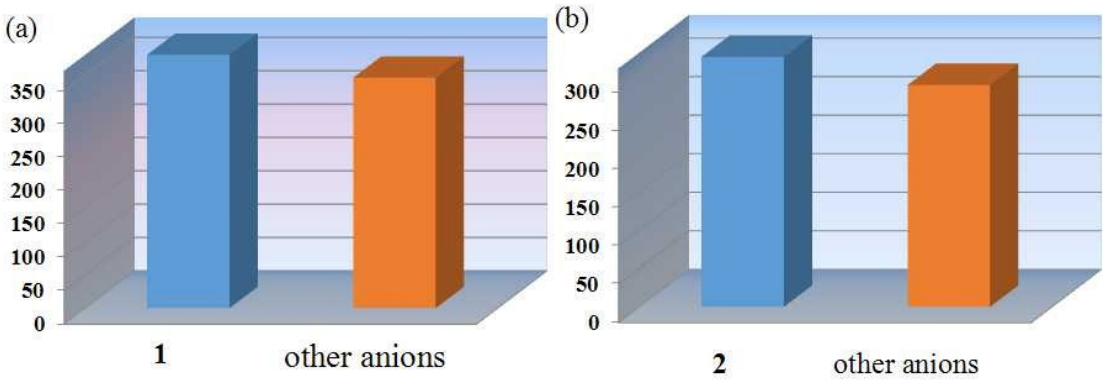

Fig. S8. The fluorescence intensity of **1** (a) and **2** (b) before and after dropping others anions except for $Cr_2O_7^{2-}$ or CrO_4^{2-}

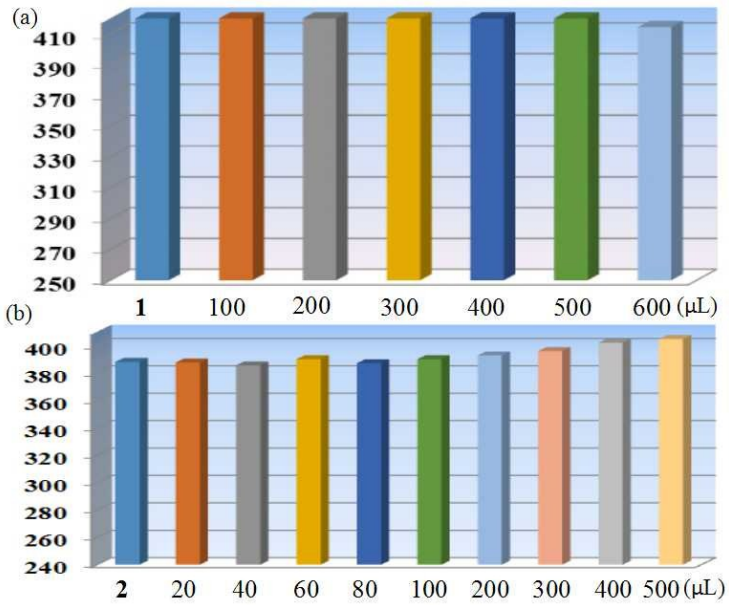

Fig. S9. The fluorescence intensity of **1** (a) and **2** (b) before and after dropping some amount of pure water.

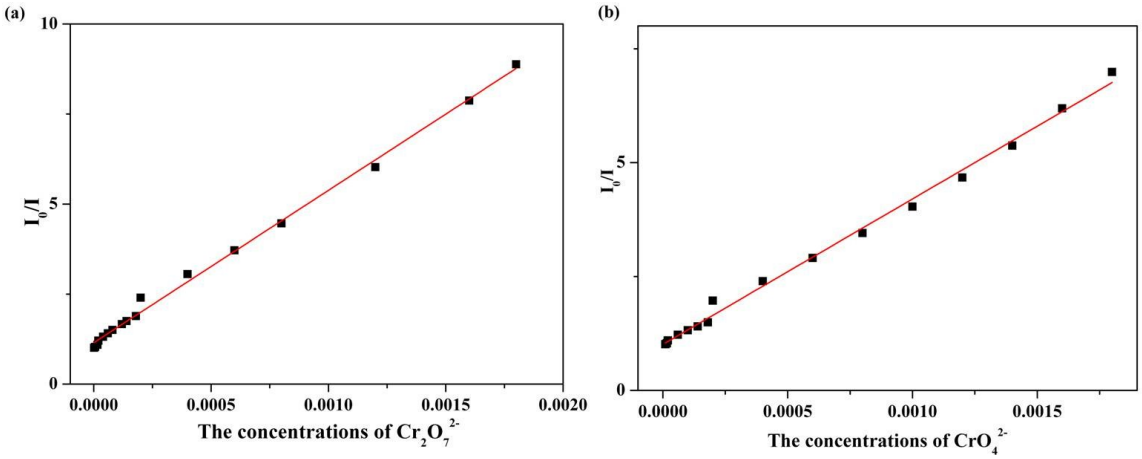

Fig. S10. The intensity plots of **1** *vs* log [$Cr_2O_7^{2-}$] (a) and **1** *vs* log [CrO_4^{2-}] (b).

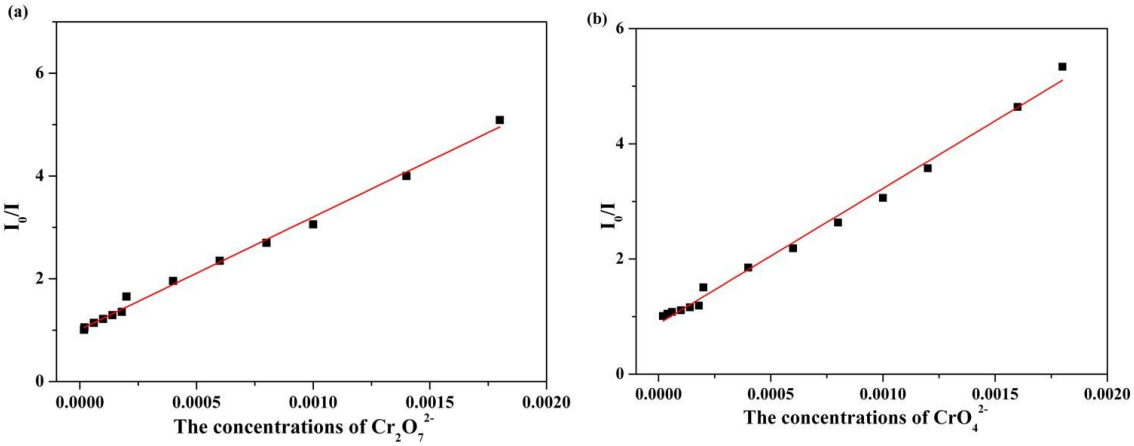

Fig. S11. The intensity plots of **2** *vs* log [$Cr_2O_7^{2-}$] (a) and **2** *vs* log [CrO_4^{2-}] (b).

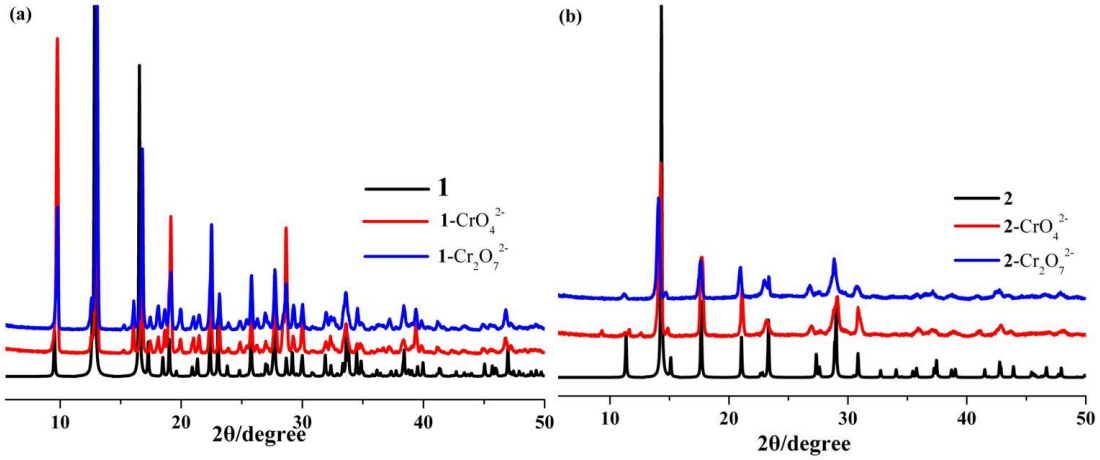

Fig. S12. The PXRD patterns of **1** (a) and **2** (b) after five recyclings.

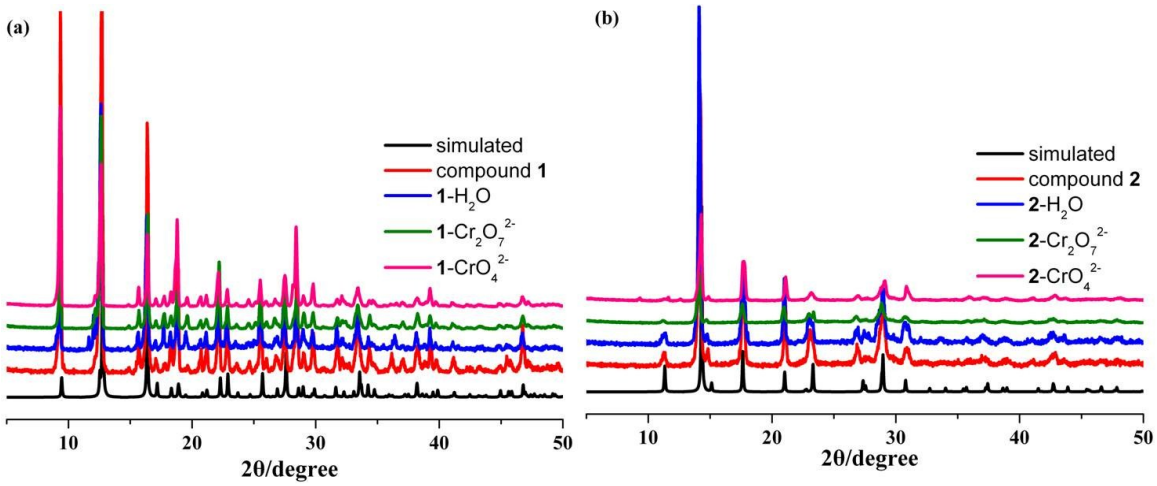

Fig. S13. The PXRD patterns of **1** (a) and **2** (b)， simulated from the single-crystal data (black), as-synthesized compound (red), **1** immersing in H_2O (blue), $Cr_2O_7^{2-}$ (green) and CrO_4^{2-} (pink).

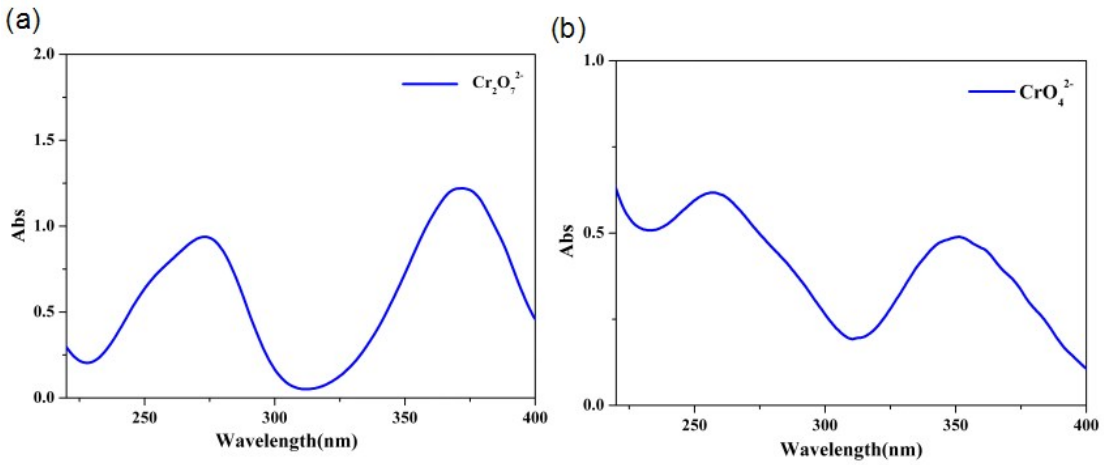

Fig. S14. UV-vis spectra of the $K_2Cr_2O_7$ (a) and K_2CrO_4 (b) solutions

Samples	concentration range (mol L^{-1})	b	K_{sv}	$I_0/I=b+ K_{sv}[C]$
1-$Cr_2O_7^{2-}$	$2.0\times10^{-6}\sim1.8\times10^{-3}$	1.149	4.23×10^3 L mol^{-1}	$I_0/I = 1.149+ 4.23\times10^3\times[Cr_2O_7^{2-}]$
1- CrO_4^{2-}	$1.0\times10^{-5}\sim1.8\times10^{-3}$	1.010	3.19×10^3 L mol^{-1}	$I_0/I = 1.010+ 3.19\times10^3\times[CrO_4^{2-}]$
2-$Cr_2O_7^{2-}$	$1.8\times10^{-5}\sim1.8\times10^{-3}$	1.113	2.19×10^3 L mol^{-1}	$I_0/I = 1.113+ 2.19\times10^3\times[Cr_2O_7^{2-}]$
2- CrO_4^{2-}	$2.0\times10^{-5}\sim1.8\times10^{-3}$	0.8777	2.35×10^3 L mol^{-1}	$I_0/I = 0.8777+ 2.35\times10^3\times[CrO_4^{2-}]$

Table S1. the relationship between the concentration of $Cr_2O_7^{2-}$/ CrO_4^{2-} and the quenching effect.

Compounds	Cr (VI) of CrO_4^{2-} (ppm)	Cr (VI) of $Cr_2O_7^{2-}$ (ppm)
1	2.042	0.1140
2	0.0081	0.0141
detectable limit	0.0036	

Table S2 The ICP results of recycled **1** and **2**