Electronic Supplementary Material (ESI) for Dalton Transactions.

Supporting information

Eu^{3+} functionalized robust membrane based on the post-synthetic copolymerization of metal-organic framework and ethyl methacrylate

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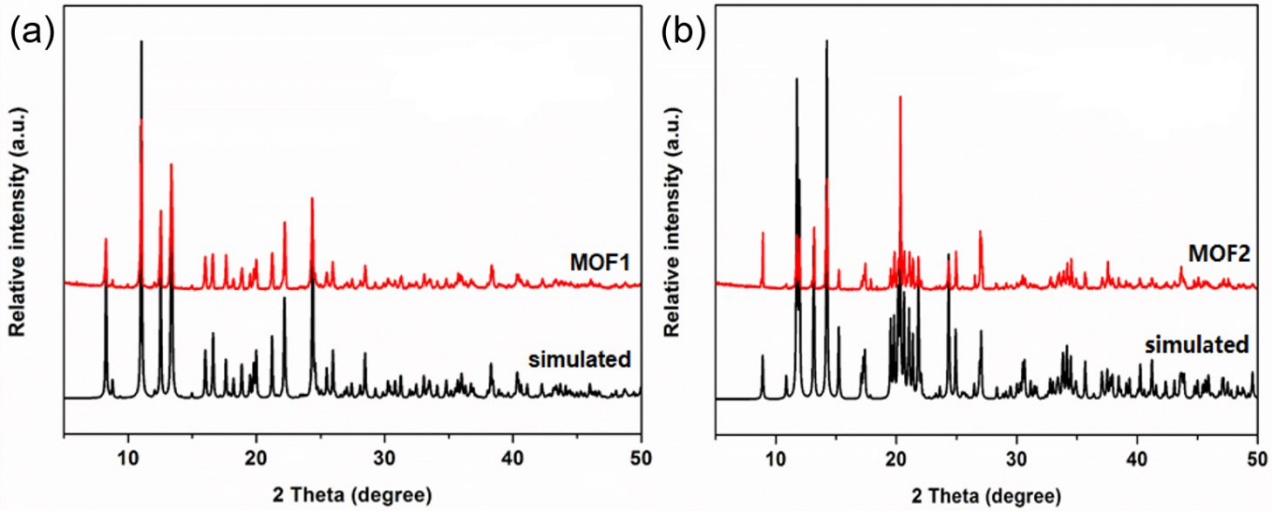

Figure S1 PXRD patterns of solid-state (a) MOF1 and (b) MOF2.

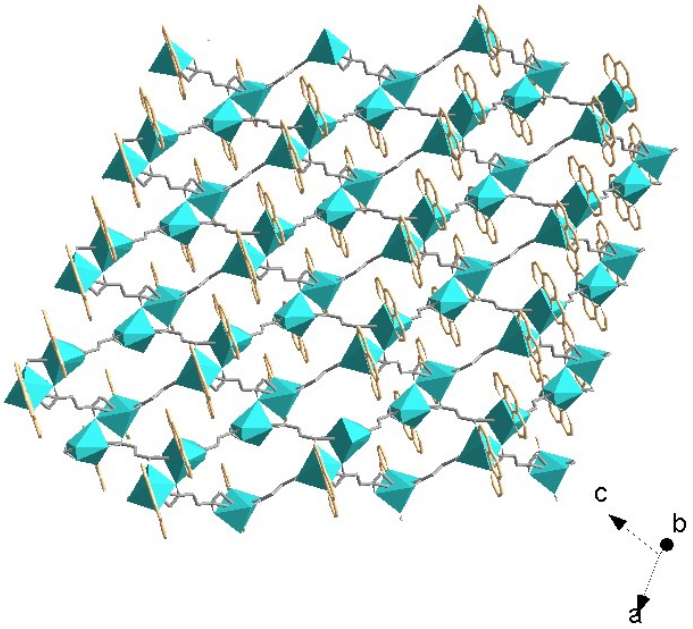

Figure S2 The undulating network of MOF1 with polymerizable groups.

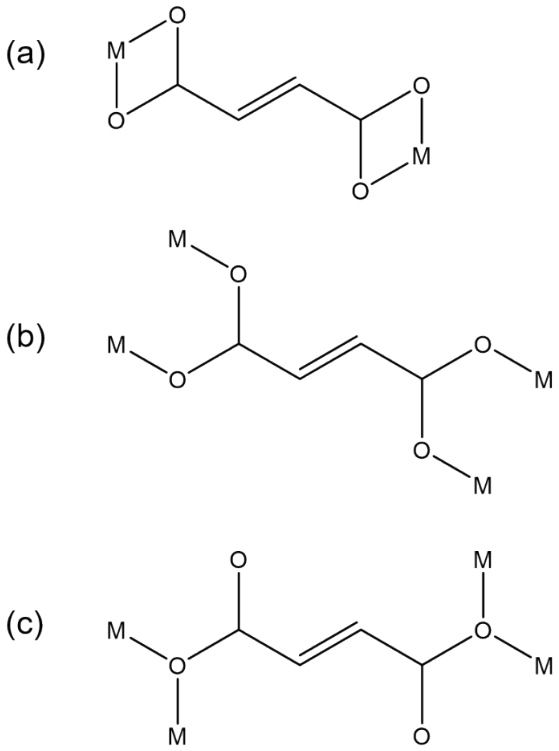

Figure S3 The coordination modes of fma (fumaric acid) ligands in MOF1 and MOF2.

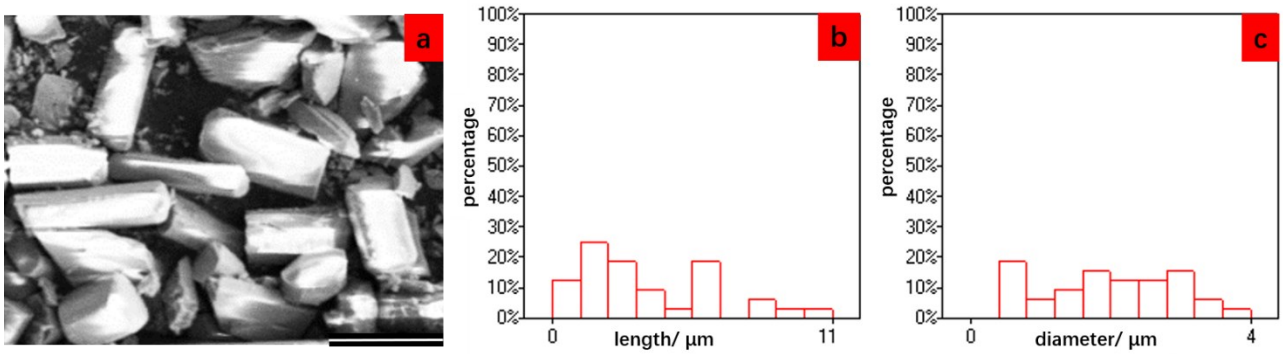

Figure S4 (a) SEM image of MOF1 particles. (scale bar: 4 um); corresponding length distribution (b) and diameter distribution (c).

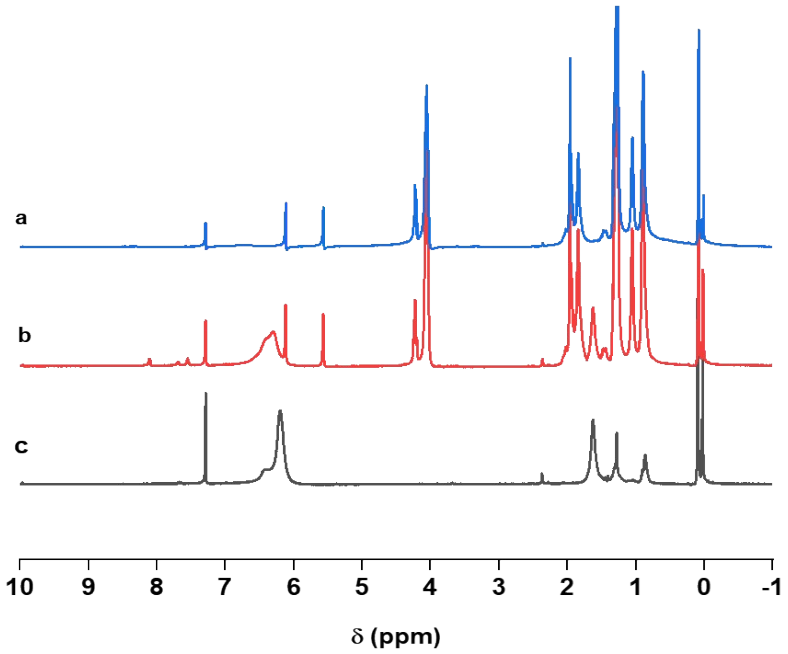

Figure S5 The NMR analysis of (a) PEMA, (b) MOF1-Eu^{3+}@PEMA membrane and (c) ligands of MOF1. The spectra were recorded with the solutions obtained by degrading corresponding material in HF/$CDCl_3$ (1/10, v/v).

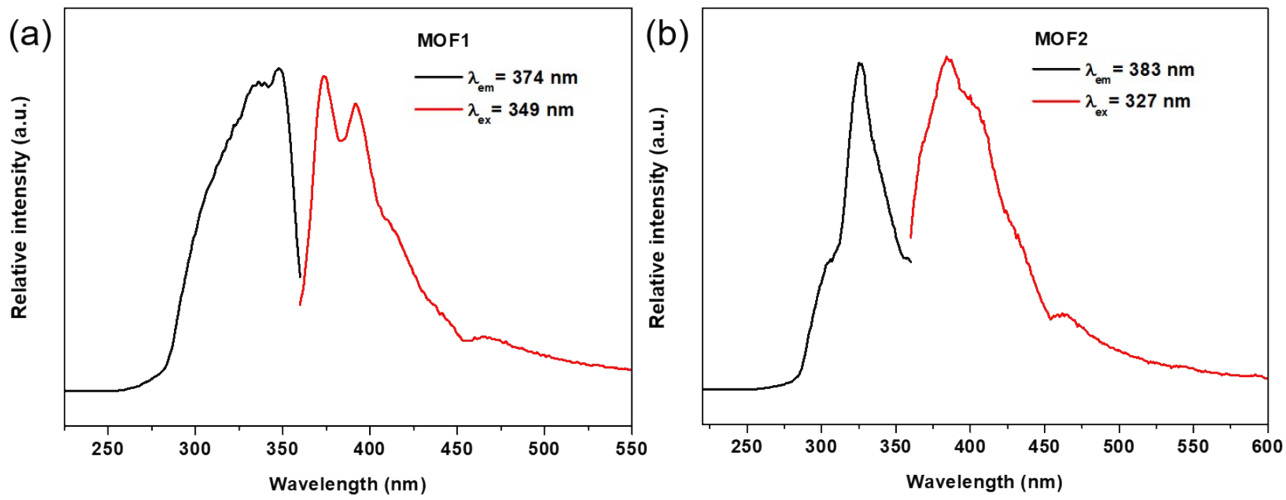

Figure S6 Excitation and emission spectra of solid-state (a) MOF1 and (b) MOF2 at room temperature.

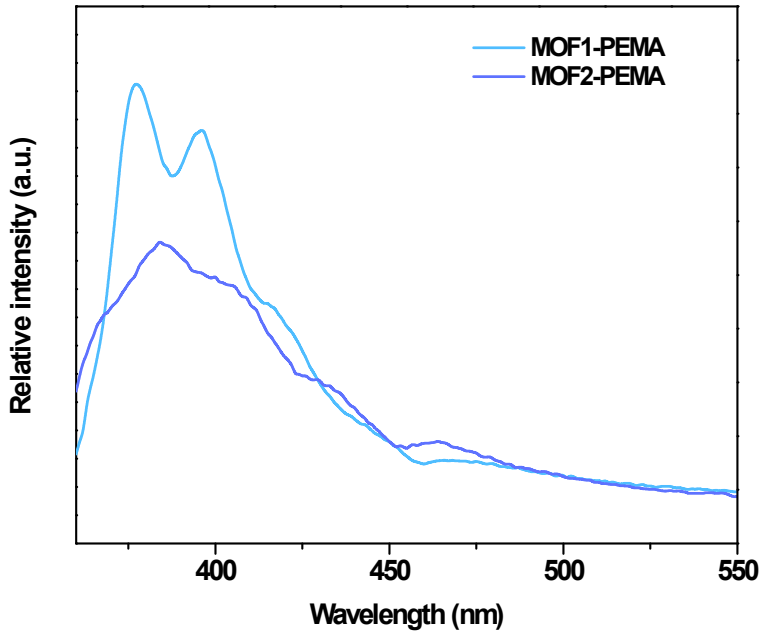

Figure S7 Fluorescence emission of MOF1-PEMA membrane and MOF2-PEMA membrane at room temperature.

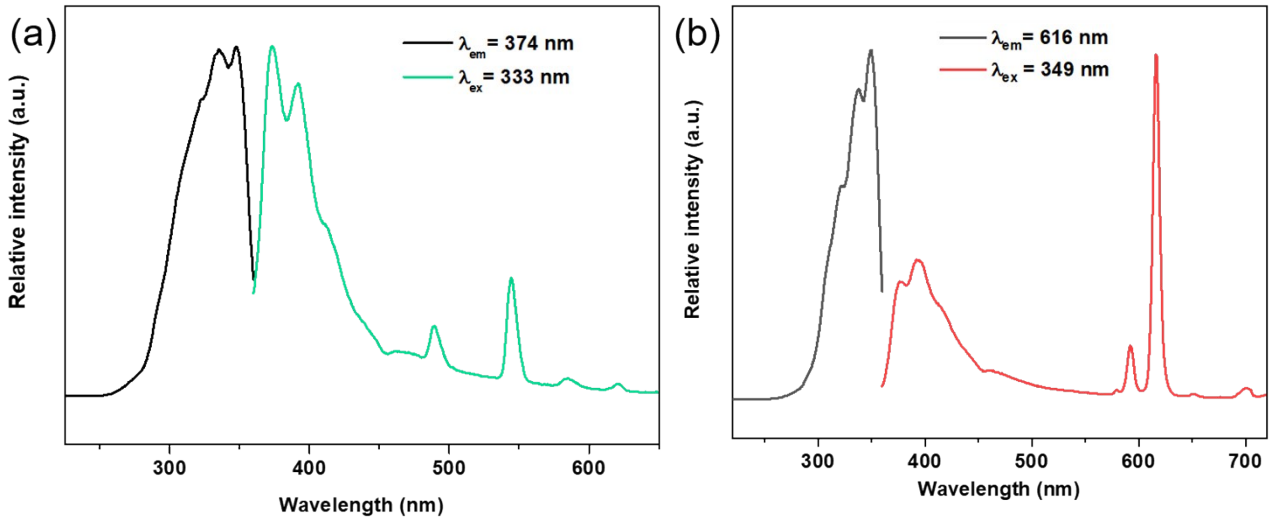

Figure S8 Excitation and emission spectra of (a) MOF1-Tb^{3+}@PEMA membrane and (b) MOF1-Eu^{3+}@PEMA membrane at room temperature.

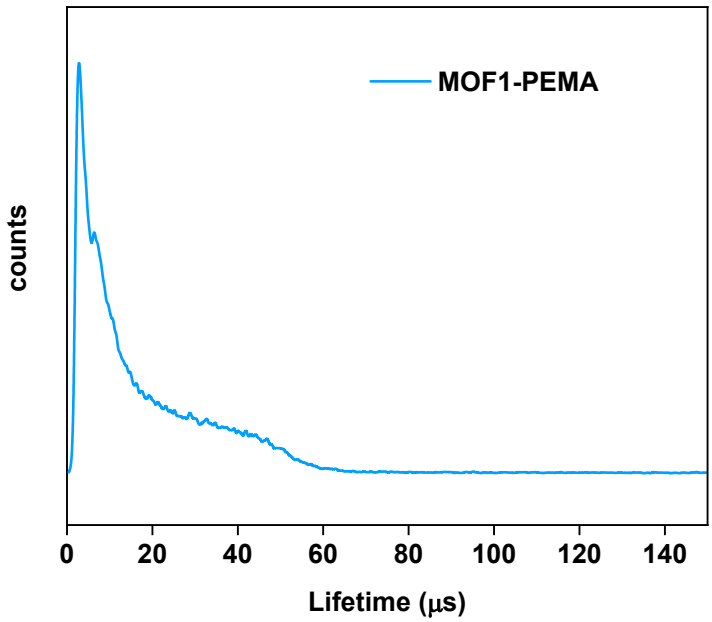

Figure S9 Decay curve of MOF1- PEMA membrane monitored at its maximum emission wavelength of 374 nm.

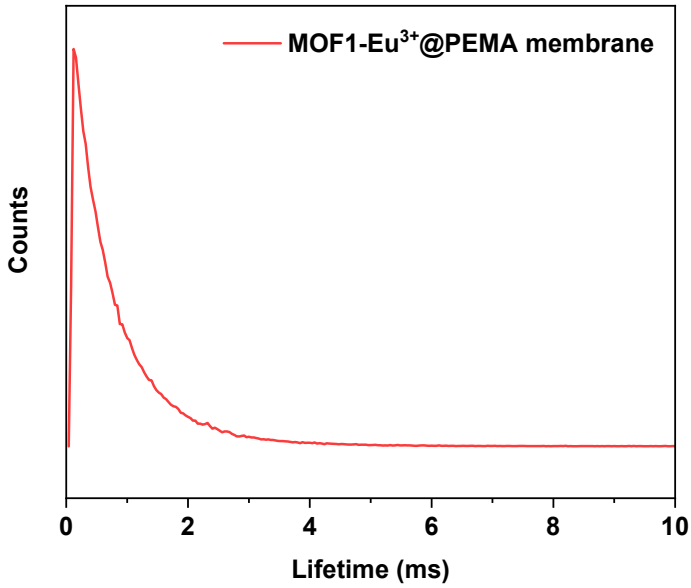

Figure S10 Decay curve of MOF1-Eu^{3+}@PEMA membrane monitored at its maximum emission wavelength of 616 nm.

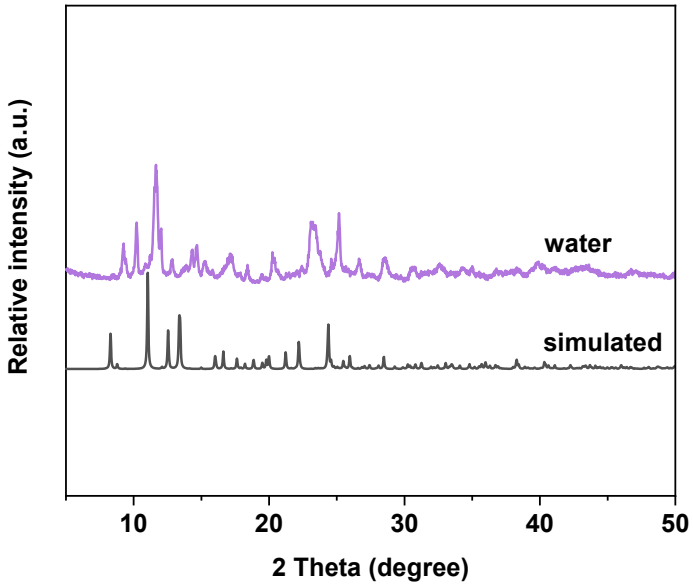

Figure S11 PXRD profile of MOF1 powders after immersion in water for 24 hours.

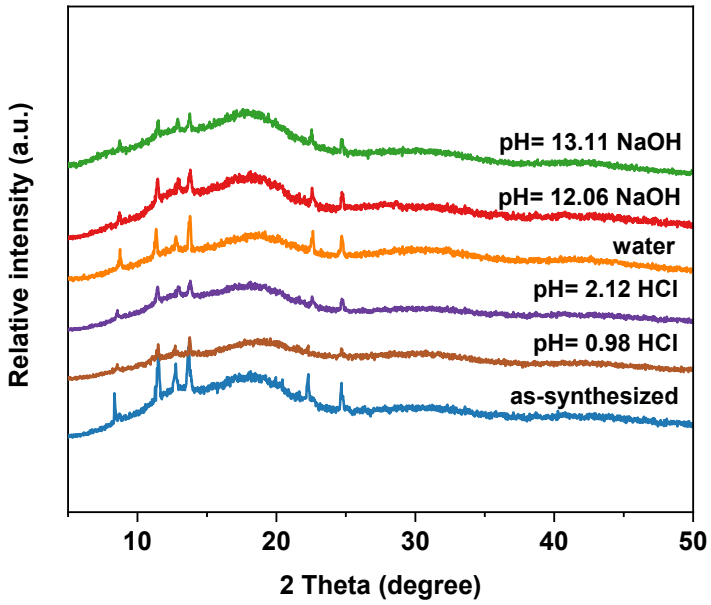

Figure S12 PXRD patterns of MOF1-Eu^{3+}@PEMA membrane after immersion in various pH aqueous solutions for 24 hours.

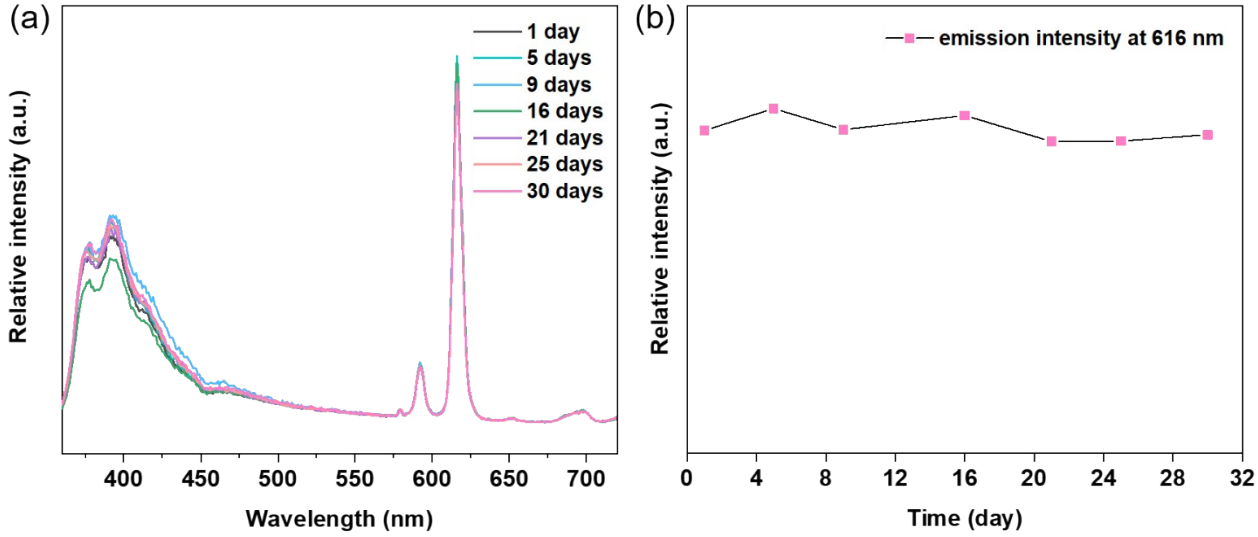

Figure S13 (a) Day-to-day fluorescence stability of MOF1-Eu^{3+}@PEMA membrane under excitation at 349 nm; (b) Corresponding variation of emission intensity at 616 nm with time.

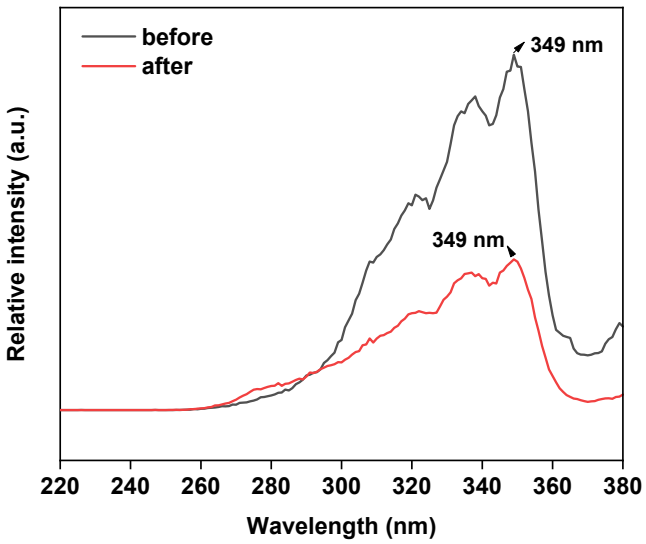

Figure S14 Excitation spectra of MOF1-Eu^{3+}@PEMA membrane before and after the 30 minutes exposure to gaseous toluene at 50 ℃ (λ_{em} = 616 nm).

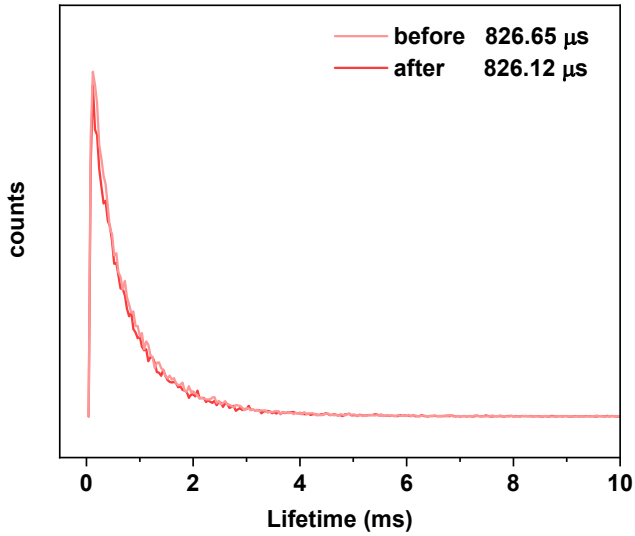

Figure S15 Decay curves of MOF1-Eu^{3+}@PEMA membrane before and after the 30 minutes exposure to gaseous toluene at 50 ℃ (λ_{em} = 616 nm) under its maximum emission wavelength of 616 nm.