Supporting Information

A multicomponent assembly approach for the design of deep desulfurization heterogeneous catalysts

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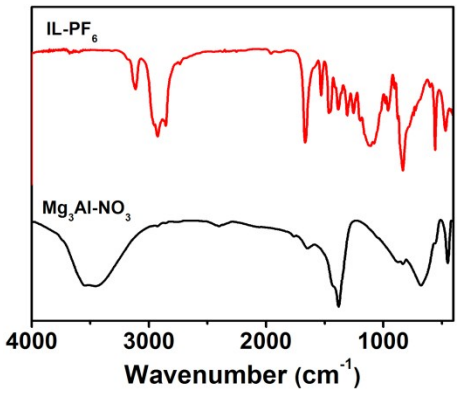

Fig. S1. FT-IR spectra of $Mg_3Al\text{-}NO_3$ and $IL\text{-}PF_6$.

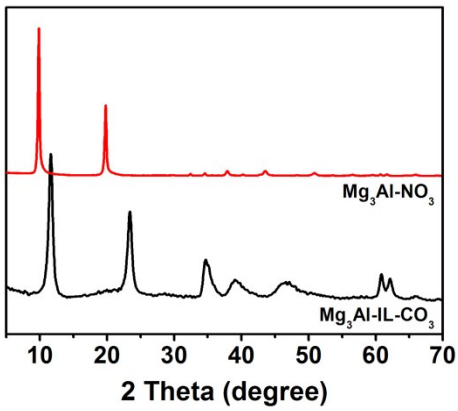

Fig. S2. XRD patterns of $Mg_3Al\text{-}IL\text{-}CO_3$ and $Mg_3Al\text{-}NO_3$.

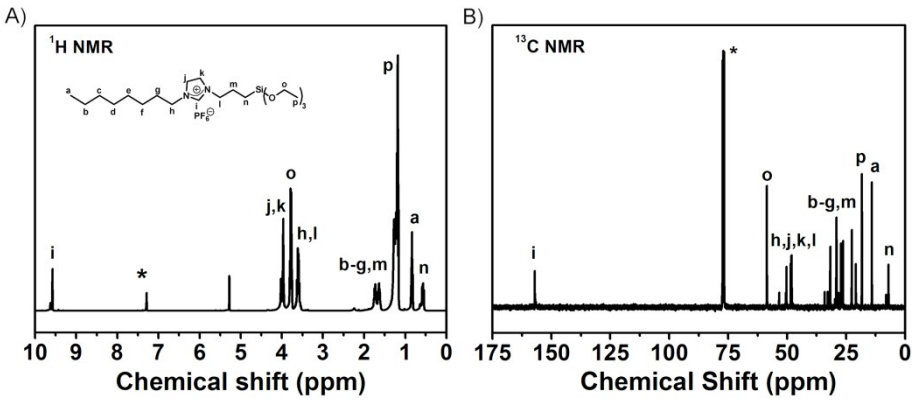

Fig. S3. A) The ^1H NMR and B) ^{13}C NMR ($CDCl_3$) spectra of $IL\text{-}PF_6$.

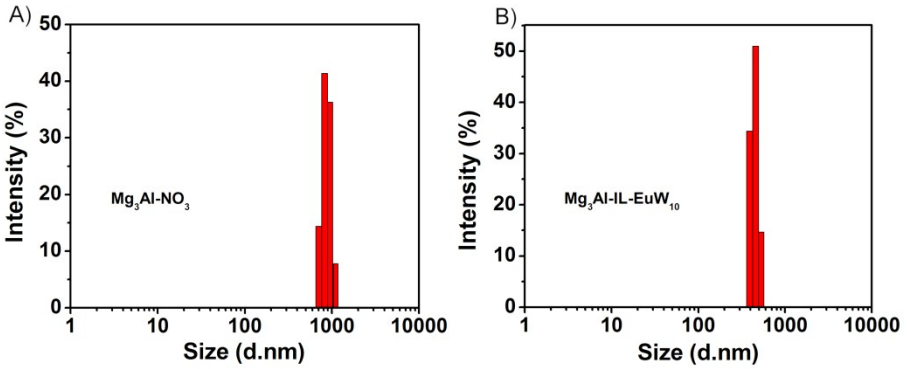

Fig. S4. Particle size distributions of A) $Mg_3Al\text{-}NO_3$ and B) $Mg_3Al\text{-}IL\text{-}EuW_{10}$.

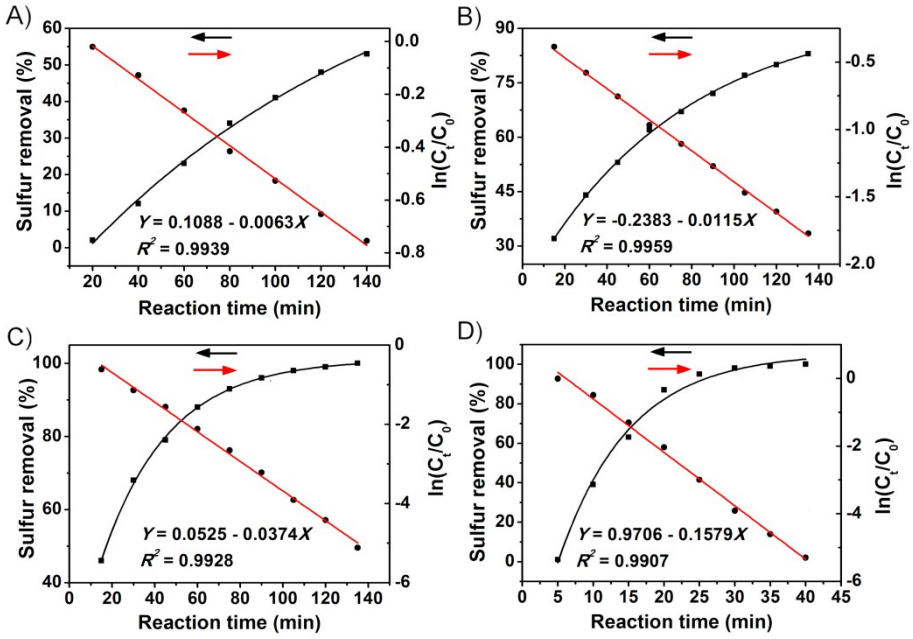

Fig. S5. Sulfur removal of DBT; $\ln(C_t/C_0)$ as a function of reaction time at A) 30, B) 40, C) 50 and D) 60 °C, respectively. Reaction conditions: H_2O_2/DBT/EuW_{10} = 40:8:1, (H_2O_2 = 0.08 mL, model oil = 5 mL, S = 1000 ppm).

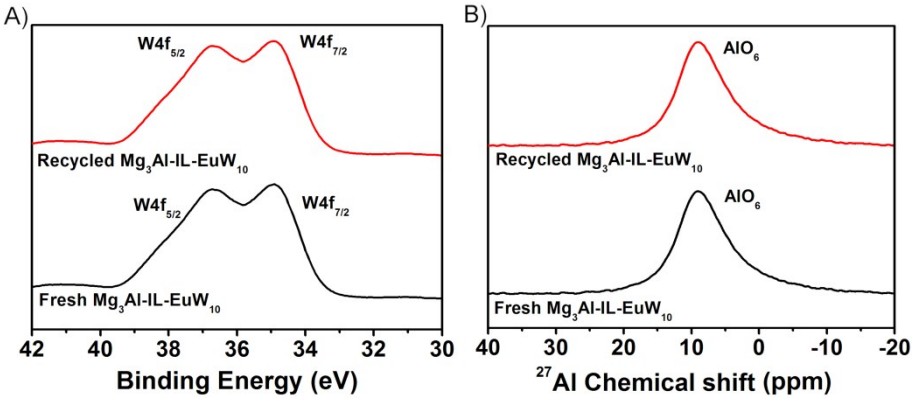

Fig. S6. The XPS and B) ^{27}Al CP/MAS NMR spectra of recycled and fresh Mg_3Al-IL-EuW_{10}.

Table S1. Comparison of physicochemical properties of Mg_3Al-EuW_{10} and Mg_3Al-IL-EuW_{10}.

Entry	Catalyst	Surface area/m^2g^{-1}	Pore volume/cm^3g^{-1}	Pore size/nm
1	Mg_3Al-EuW_{10}	33.61	0.31	4.20
2	Mg_3Al-IL-EuW_{10}	41.82	0.58	5.78