Supporting information

The ethylene glycol-mediated sol-gel synthesis of nano AlF₃: structural and acidic properties after different post-treatments

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Figure S1 FT-IR spectra of the precursor (dried gel-180) and the resulting nano AlF₃ samples (AlF₃-F(180) and AlF₃-c(180)).
Figure S2 XRD patterns of the precursor (dried gel-180) and the resulting nano AlF$_3$ samples (AlF$_3$-F(180) and AlF$_3$-c(180)).
Figure S3 TG-DTA-MS of dried gel-180 under air. (a) TG-DTA curve and (b) MS curves of m/z 18 ($\text{H}_2\text{O}^+$), m/z 19 ($\text{F}^+$), m/z 31 (EG fragment), m/z 43 (isopropanol fragment) and m/z 44 ($\text{CO}_2^+$).
Figure S4 in situ FT-IR spectra of dried gel-120 calcined in the temperature range of room temperature~450 °C.
Figure S5 TEM element mapping of the precursor (dried gel-120) and the resulting nano AlF$_3$ samples (AlF$_3$-F and AlF$_3$-c).
Figure S6 Solid-state MAS NMR spectra of the precursor (dried gel-180) and the resulting nano AlF$_3$ after different post treatments. (a) central transition of $^{27}$Al NMR spectra, (b) $^{19}$F MAS NMR spectra and (c) rotor synchronized $^{19}$F spin-echo MAS NMR spectra.
Figure S7 HRTEM of AlF$_3$-c.
Figure S8 IR spectra of pyridine adsorbed on AlF₃-F and AlF₃-c.