Supporting Information

Al(III) and Ga(III) triflate complexes as solvate ionic liquids: speciation and application as soluble and recyclable Lewis acidic catalysts

Justyna Więcławik,[a] Alina Brzęczek-Szafran,[a] Sebastian Jurczyk,[b] Karolina Matuszek,[c] Małgorzata Swadźba-Kwaśny *[d] and Anna Chrobok *[a]

Gas chromatography analysis

GC analyses were performed using a Shimadzu GC-2010 Plus equipped with a ZB-50 column (30m × 0.25mm × 0.25µm film) and an FID detector.

Thermogravimetric analysis

The thermogravimetric analysis was performed for each of the prepared SILs as well as for its precursors on a thermobalance (Mettler Toledo TGA851e). Under N_2 60.0 ml/min applied temperature range 25.0-600.0°C and ramp 10.0°C/min.

Procedure for synthesis of $Al(NTf_2)_3$

The $Al(NTf_2)_3$ was synthesized in a glovebox under an inert argon atmosphere (<0.6 ppm O_2 and H_2O). The $HNTf_2$ (1.07 g, 3.8 mmol) was weighed into a round-bottom flask with anhydrous toluene (11 ml) and trimethylaluminum solution 2.0 M in toluene (1.25 g; 15.1 mmol) was added. The mixture was stirred in glovebox (24°C, 12 h, 200 rpm) and subsequently the solvent was evaporated at Schlenk line to obtain white solid. ^{27}Al NMR ($CDCl_3$) δ_{Al} : -14.8 (s), -16.2 (s), -17.6 ppm (s). ^{19}F NMR ($CDCl_3$) δ_F : -80 to -85 ppm (m).

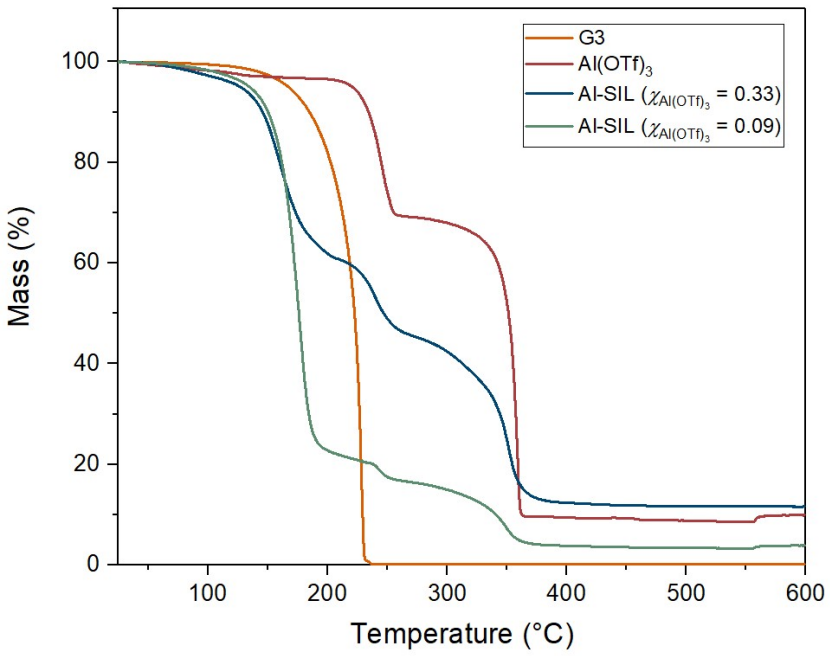

Figure S1. TGA for triglyme, $Al(OTf)_3$, Al-SILs in $\chi_{Al(OTf)3}$ = 0.33 and 0.09.

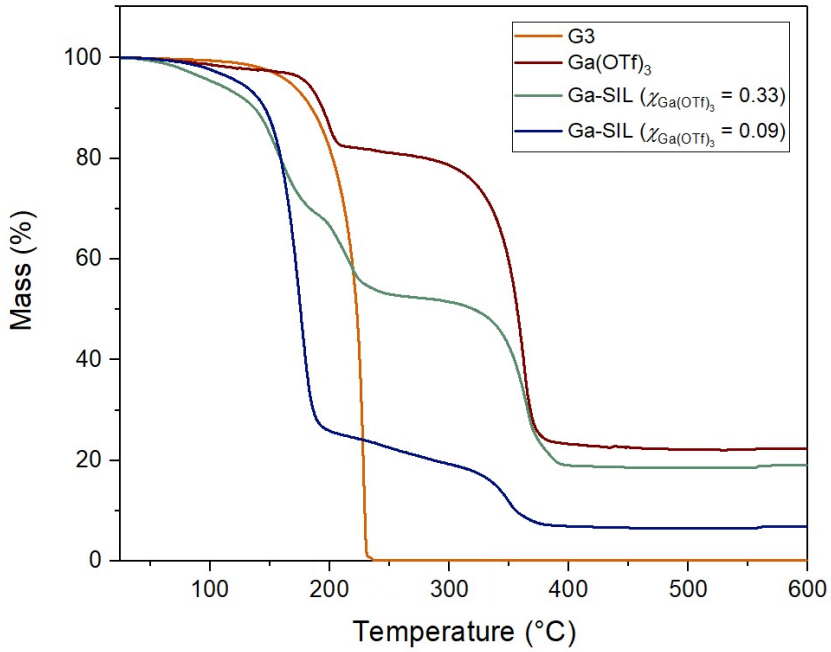

Figure S2. TGA for triglyme, $Ga(OTf)_3$, Ga-SILs in $\chi_{Ga(OTf)3}$ = 0.33 and 0.09.