**Supplementary Information**


**Figure S1.** Dynamic thermogravimetric curve (TGA) of ENIL-Rₙ prepared with EtOHmimBF₄ and neat EtOHmimBF₄ (nitrogen atmosphere, 10 °C·min⁻¹).

**Figure S2.** Dynamic thermogravimetric curve (TGA) of ENIL-Rₙ prepared with CholineNTf₂ and neat CholineNTf₂ (nitrogen atmosphere, 10 °C·min⁻¹).
**Figure S3.** Dynamic thermogravimetric curve (TGA) of ENIL-R<sub>n</sub> prepared with (EtOH)<sub>3</sub>MeNMeSO<sub>4</sub> (nitrogen atmosphere, 10 °C·min<sup>-1</sup>).

**Figure S4.** Experimental NH<sub>3</sub> absorption curves for ILs, (■) EtOHmimBF<sub>4</sub>, (■) (EtOH)<sub>3</sub>MeNMeSO<sub>4</sub> and (■) CholineNTf<sub>2</sub> (2000 ppmv of inlet NH<sub>3</sub> concentration, 50 mL·min<sup>-1</sup>, 500 mg of IL, 30 °C.*

*Ammonia absorption experiments were carried out in a TGA analyzer (Mettler Toledo Instrument, TGA/SDTA851e model) with a weight range of 0–1000 mg and a resolution of 0.1 mg. The temperature of the sample was maintained at 30°C using a regulated external bath (Huber minisat 125).
Figure S5. Experimental breakthrough curves of obtained at different inlet NH₃ concentration and ENILs-R₄ prepared with (A) EtOHmimBF₄, (B) CholineNTf₂ and (C) (EtOH)₃MeNMeSO₄ (20 mL·min⁻¹, bed length: 5 cm, 30 °C).