Electronic Supplementary Information

Purification of indium by solvent extraction with undiluted ionic liquids

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Fig. S1 Percentages extraction of indium(III) ($\% E_{in}$) as a function of the HCl concentration for the HCl–Cyphos® IL 101 (○) and HCl–Aliquat® 336 (□) system at 60 °C. The volume ratio of the aqueous to the organic phase is 1:1. Aqueous phase: Initial indium(III) concentration 5 g L⁻¹.

Fig. S2 Percentage extraction of indium(III) ($\% E_{in}$) as a function of the indium(III) concentration in the aqueous feed solution for the HCl–Cyphos® IL 101 (○) and HCl–Aliquat® 336 (□) system at 60 °C. The volume ratio of the aqueous to the organic phase is 1:1. Aqueous phase: Initial HCl concentration 0.5 M.
Fig. S3 Distribution ratios of indium(III) ($D_{in}$) as a function of the reaction time for various indium(III) concentration in the aqueous feed solution at 60 °C for the HCl–Aliquat® 336 system: 5 g L$^{-1}$ In (○), 10 g L$^{-1}$ In (▲), 60 g L$^{-1}$ (▲) and 100 g L$^{-1}$ (▲). The volume ratio of the aqueous to the organic phase is 1:1. Aqueous phase: Initial HCl concentration 0.5 M.

Fig. S4 Amount of Cyphos® IL 101 dissolved in a 0.05 M NaCl solution after each washing step at room temperature, for a 1:25 volume ratio.
Fig. S5 Percentages extraction (%E) as a function of the HCl concentration for the HCl–Cyphos® IL 101 system at 60 °C. The volume ratio of the aqueous to the organic phase is 1:1. Aqueous phase: Initial metal concentrations: 5 g L⁻¹ of cadmium(II) (○), copper(II) (◁), iron(III) (◇), indium(III) (▲), manganese(II) (□), nickel(II) (□), tin(IV) (■) and zinc(II) (▲) and 1 g L⁻¹ of arsenic(III) (○) and lead(II) (◇).

Fig. S6 Percentages extraction (%E) as a function of the HCl concentration for the HCl–Aliquat® 336 system at 60 °C. The volume ratio of the aqueous to the organic phase is 1:1. Aqueous phase: Initial metal concentrations: 5 g L⁻¹ of cadmium(II) (○), copper(II) (◁), iron(III) (◇), indium(III) (▲), manganese(II) (□), nickel(II) (□), tin(IV) (■) and zinc(II) (▲) and 1 g L⁻¹ of arsenic(III) (○) and lead(II) (◇).