

Electronic Supplementary Information

Purification of indium by solvent extraction with undiluted ionic liquids

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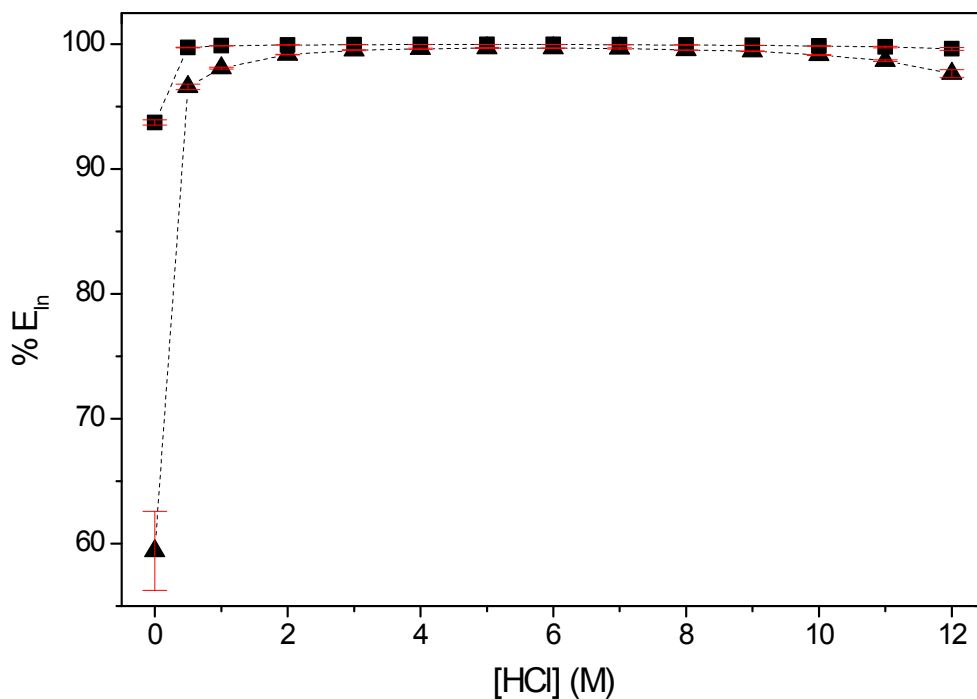


Fig. S1 Percentages extraction of indium(III) ($\%E_{in}$) as a function of the HCl concentration for the HCl–Cyphos® IL 101 (●) and HCl–Aliquat® 336 (■) system at 60 °C. The volume ratio of the aqueous to the organic phase is 1:1. Aqueous phase: Initial indium(III) concentration 5 g L⁻¹.

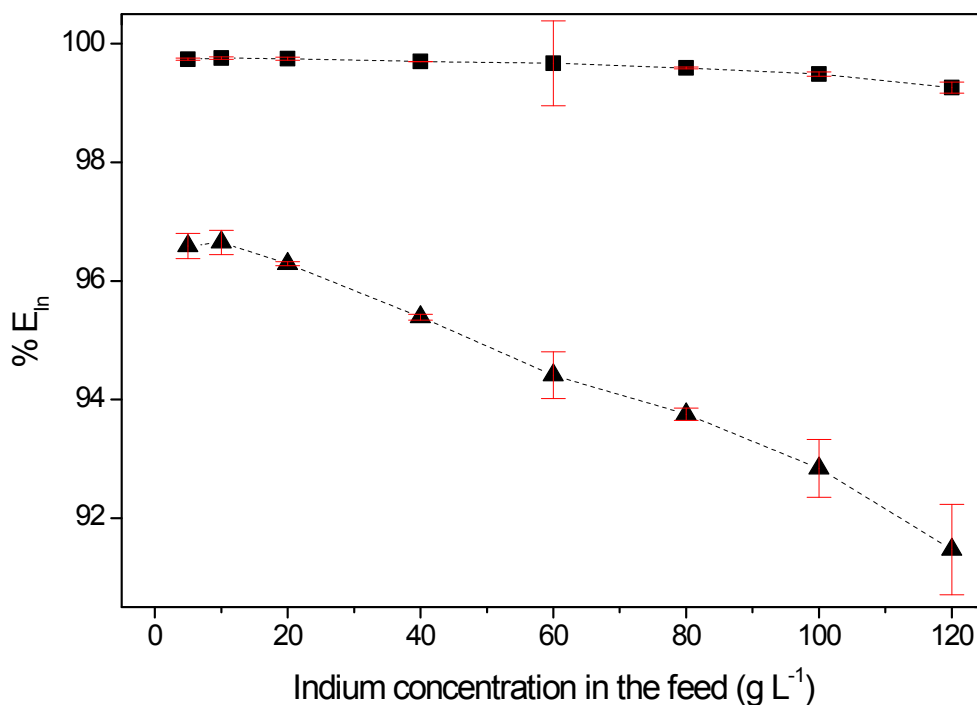


Fig. S2 Percentage extraction of indium(III) ($\%E_{in}$) as a function of the indium(III) concentration in the aqueous feed solution for the HCl–Cyphos® IL 101 (●) and HCl–Aliquat® 336 (■) system at 60 °C. The volume ratio of the aqueous to the organic phase is 1:1. Aqueous phase: Initial HCl concentration 0.5 M.

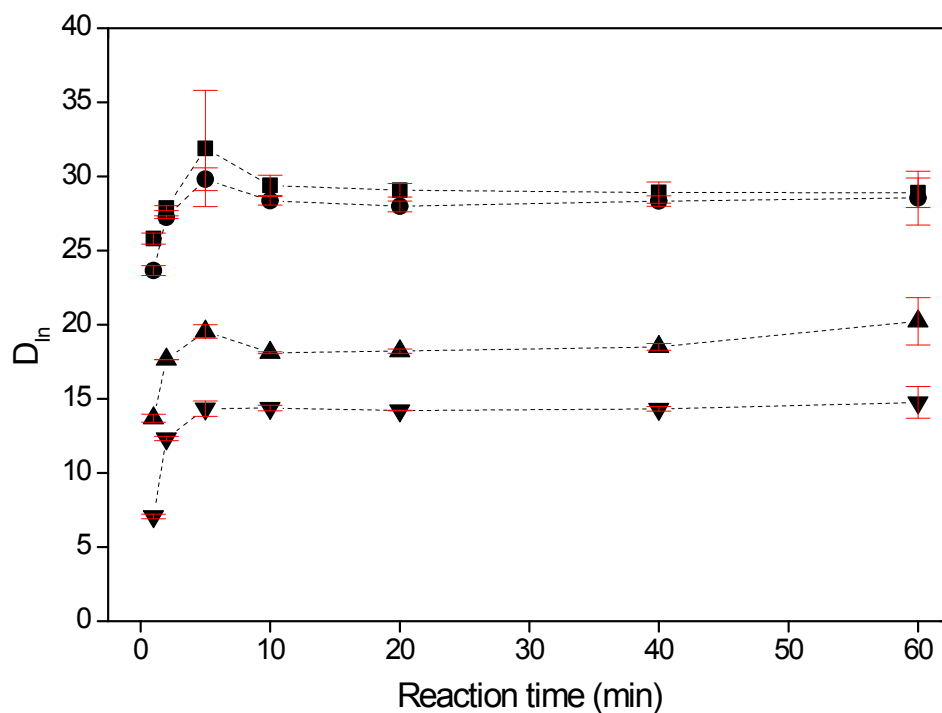


Fig. S3 Distribution ratios of indium(III) (D_{In}) as a function of the reaction time for various indium(III) concentration in the aqueous feed solution at 60 °C for the HCl–Aliquat® 336 system: 5 g L⁻¹ In (○), 10 g L⁻¹ In (⊗), 60 g L⁻¹ (▲) and 100 g L⁻¹ (◻). The volume ratio of the aqueous to the organic phase is 1:1. Aqueous phase: Initial HCl concentration 0.5 M.

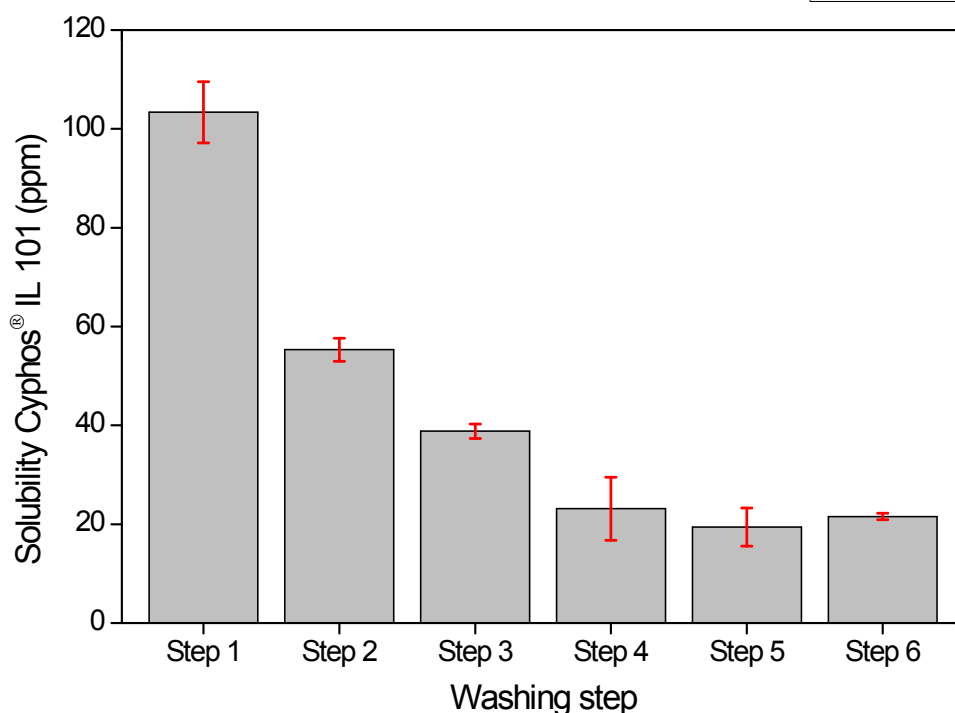


Fig. S4 Amount of Cyphos® IL 101 dissolved in a 0.05 M NaCl solution after each washing step at room temperature, for a 1:25 volume ratio.

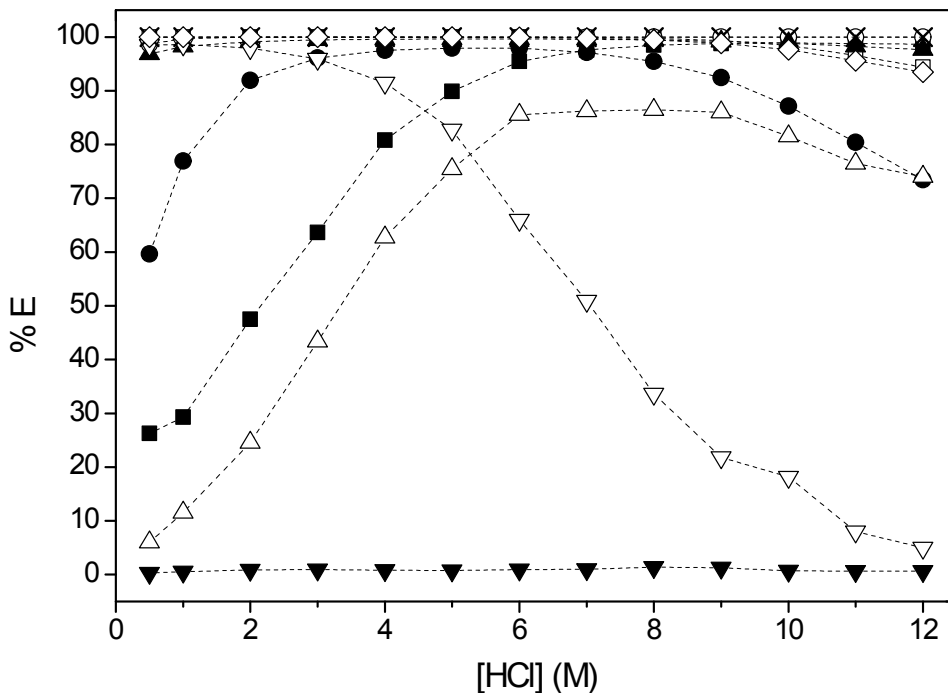


Fig. S5 Percentages extraction (%E) as a function of the HCl concentration for the HCl–Cyphos® IL 101 system at 60 °C. The volume ratio of the aqueous to the organic phase is 1: 1. Aqueous phase: Initial metal concentrations: 5 g L⁻¹ of cadmium(II) (●), copper(II) (⊗), iron(III) (⊞), indium(III) (▲), manganese(II) (◻), nickel(II) (◻), tin(IV) (⊚) and zinc(II) (✱) and 1 g L⁻¹ of arsenic(III) (○) and lead(II) (◐).

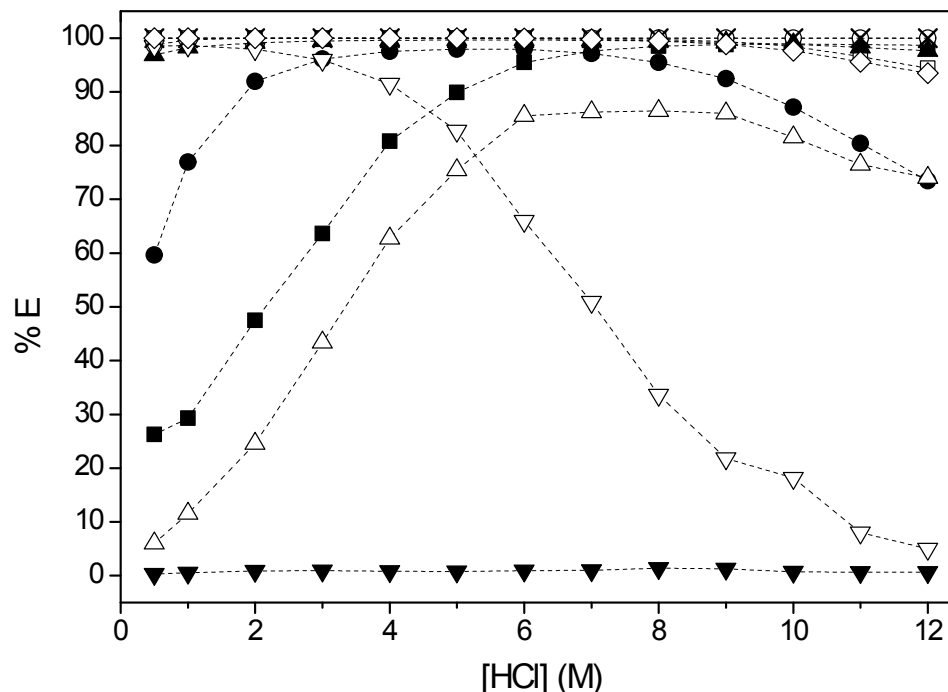


Fig. S6 Percentages extraction (%E) as a function of the HCl concentration for the HCl–Aliquat® 336 system at 60 °C. The volume ratio of the aqueous to the organic phase is 1: 1. Aqueous phase: Initial metal concentrations: 5 g L⁻¹ of cadmium(II) (●), copper(II) (⊗), iron(III) (⊞), indium(III) (▲), manganese(II)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