SYNTHESIS, CHARACTERIZATION, AND APPLICATIONS OF SUPPORTED POLYMERIC IONIC LIQUIDS (SILPS)

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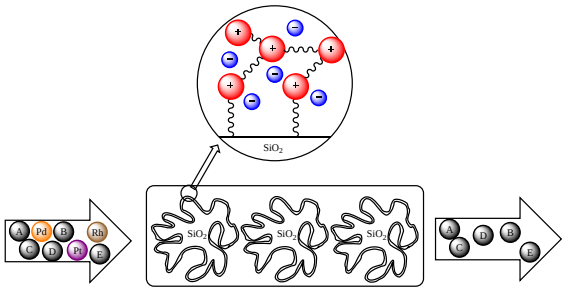
In the last few years, supported ionic liquid phases (SILPs) have witnessed a surge in interest from diverse fields, especially in the areas of catalysis and separation [1]. SILP systems comprise a thin layer of ionic liquid immobilized on a porous solid with a high surface area. Thus, their use can minimize the required amount of ionic liquids and overcome mass transfer limitations. However, their application in liquid phase systems often suffers from ionic liquid leaching, particularly in case of continuous processing [2]. To address this issue, the use of a thin layer of crosslinked polymeric ionic liquid, anchored to the solid support (polySILPs), can be a suitable alternative strategy.

Herein, the synthesis and characterization of silica supported crosslinked polymeric ionic liquid materials are presented. The polymeric layer was covalently attached to the silica surface *via* a thiol linker. After thorough characterization, these materials have been implemented in the separation of platinum group metals (Pt, Pd, Rh). This novel approach enables fast and effective separation of the platinum group metals from multi-element acidic mixtures.



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[1] Fehrmann, R.; Riisager, A.; Haumann, M. Supported Ionic Liquids: Fundamentals and Applications; Wiley-VCH: Weinheim, 2014.

[2] Van Doorslaer, C.; Wahlen, J.; Mertens, P.; Binnemans, K.; De Vos, D. Dalton Trans. **2010**, 39, 8377-8390.