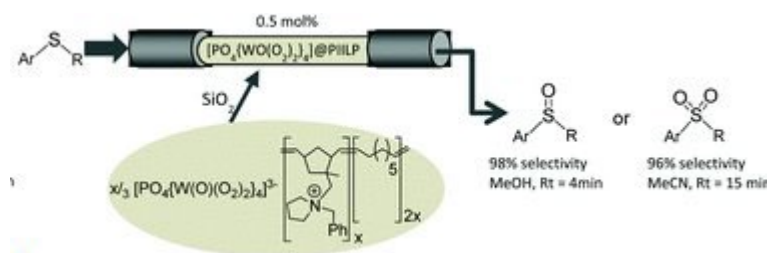


Publication 41: Selective and Efficient Oxidation of Thioethers to Sulfoxides and Sulphones under Segmented and Continuous Flow-through Conditions



The peroxometalate-based polymer immobilized ionic liquid phase catalyst $[\text{PO}_4\{\text{WO}(\text{O})_2\}_4]@\text{PIILP}$ was immobilised on silica gel and shown to be an efficient catalyst for the oxidation of sulfides by hydrogen peroxide to either sulfoxides or sulfones under either continuous or segmented flow-through conditions.

In MeOH 92% selectivity for sulfoxide was achieved at 96% conversion and a $R_t=4 \text{ min}$, whilst 96% selectivity for sulfoxide was observed at 96% conversion in acetonitrile for $R_t=8 \text{ min}$.

Minimal catalyst leaching was observed permitting 6.5g of substrate to be processed over an 8h period with a stable activity/selectivity profile ($\text{TON}=46,428$). Moreover, a single catalyst cartridge could be used for the consecutive oxidation of multiple substrates giving activity-selectivity profiles that matched those obtained with fresh catalyst.

[S. Doherty, J. G. Knight, M. A. Carroll, J. R. Ellison, S. J. Hobson, S. Stevens, C. Hardacre and P. Goodrich, Green Chem., 2015, DOI: 10.1039/C4GC01770F](#)