

Electronic supplementary information

Experimental details:

A) A mixture of $\text{Zn}(\text{CF}_3\text{SO}_3)_2$ (32 mg, 88 μmol), 1-ethyl-3-methylimidazolium-trifluoromethanesulfonate (Tokyo Kasei Kogyo Co., Ltd., 0.5 cm^3) and toluene (25 cm^3) was heated to reflux temperature. The reaction was started by addition of the substrate (0.1 cm^3 , 0.88 mmol). Samples were taken for GC analysis.

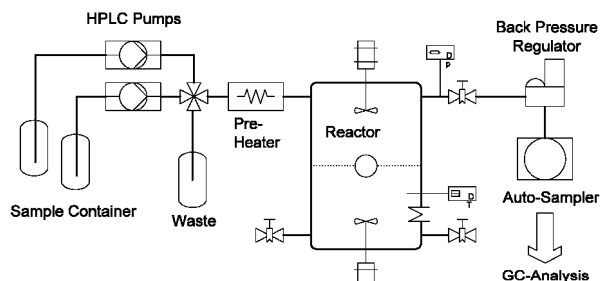


Fig. 1 Experimental set-up used for continuous hydroamination in a liquid-liquid two-phase system.

B) The reactor was filled with a solution of $\text{Zn}(\text{CF}_3\text{SO}_3)_2$ in 1-ethyl-3-methylimidazolium trifluoromethanesulfonate (0.28 mol dm^{-3} , 34.5 cm^3).¹ The remaining reaction space was filled with heptane (35.5 cm^3). The upper organic phase was exchanged continuously with a solution of 6-aminohex-1-yne in heptane ($22 \cdot 10^{-3}$ mol dm^{-3} , flow 2.5 to 10 $\text{cm}^3 \text{min}^{-1}$). The effluent was collected for analysis by GC chromatography.

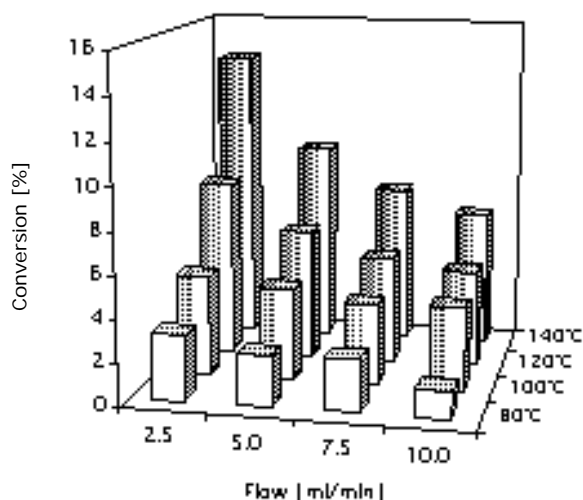


Fig. 2 Conversion of 6-aminohex-1-yne in the two-phase reactor at different residence times (flow) and temperatures. The selectivity to the product was in all cases 100%.

Notes and references

- 1 for details of the two-phase reactor see V. N. Nguyen, A. Wanner, H. Tiltscher, J. A. Lercher, *Catalysis Today*, 2001, **2356**, 1.