

Supporting information

Trapping AsPh₃ via reaction with NiS/Al₂O₃ in H₂ atmosphere: reaction mechanism and kinetics

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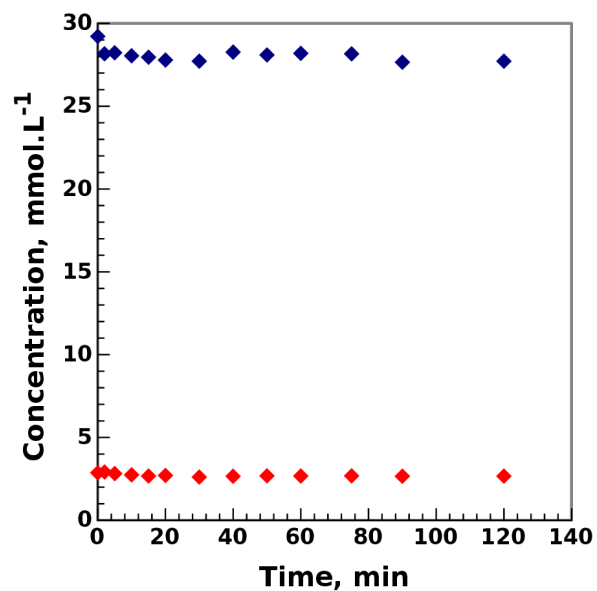


Figure S1 Evolution of concentration of AsPh₃ as a function of time during blanc tests in the presence of γ -Al₂O₃ (230°C, 23 bar H₂) for two different initial concentrations: 29.2 mmol.L⁻¹ (red) and 2.9 mmol.L⁻¹ (blue).

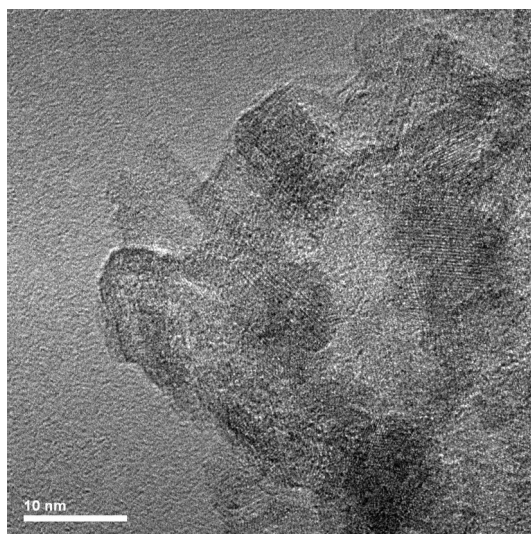


Figure S2 TEM image of NiS/-Al₂O₃ sample used in the work.

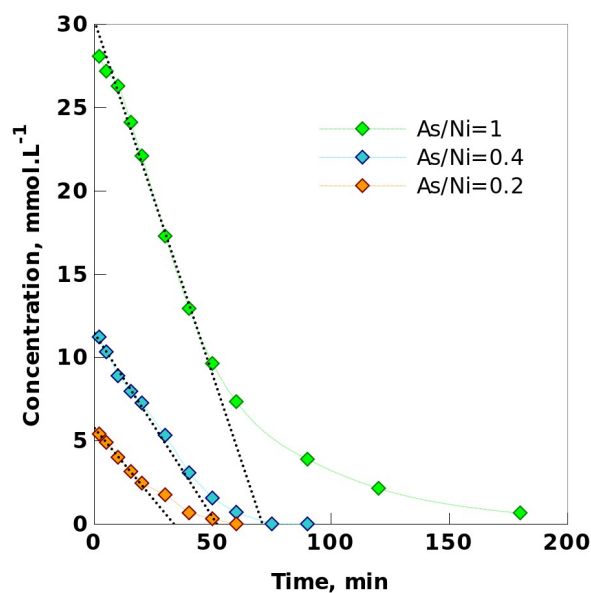


Figure S3 Concentration of AsPh_3 as a function of time during reaction with $\text{NiS}/\gamma\text{-Al}_2\text{O}_3$ for different As/Ni initial ratios (230°C , 23 bar H_2). Dotted black lines are the linear fits of the initial parts of the curves. Color full lines are guides for the eyes.

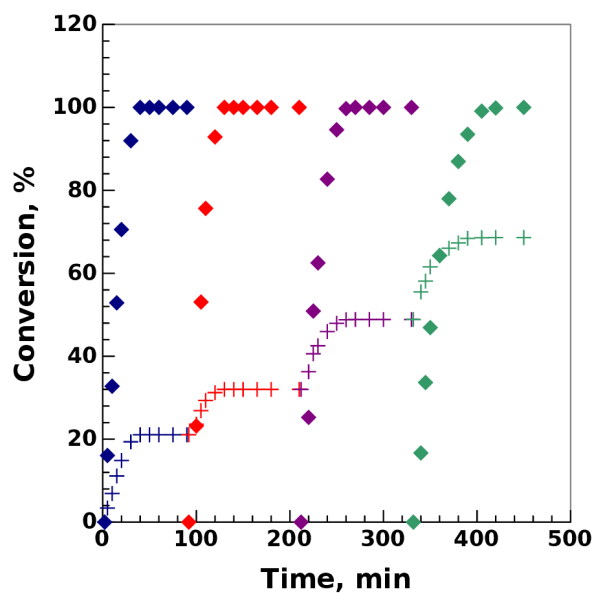


Figure S4 Conversion of AsPh_3 (diamonds) and Ni (crosses) as a function of time for four successive injections of AsPh_3 during reaction with the same sample of $\text{NiS}/\gamma\text{-Al}_2\text{O}_3$ (total As/Ni ratio = 1, 230°C , 23 bar H_2).

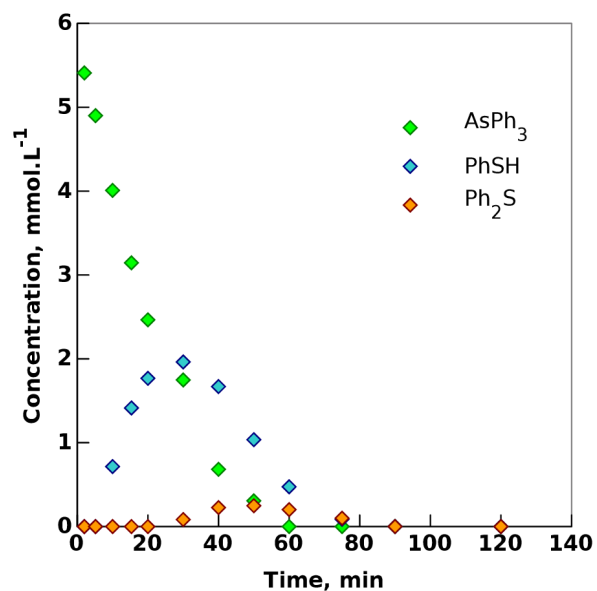


Figure S5 Evolution of the concentration of the reaction products in the liquid phase during reaction of AsPh₃ with NiS/ γ -Al₂O₃ ($C_0(\text{AsPh}_3) = 5.7 \text{ mmol.L}^{-1}$, initial As/Ni ratio – 0.2, 230°C, 23 bar H₂).

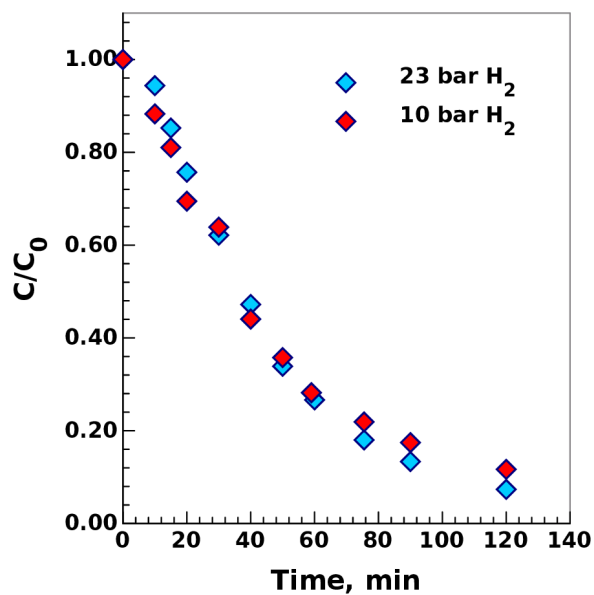


Figure S6 Conversion profiles of AsPh₃ under different H₂ pressures ($C_0(\text{AsPh}_3) = 28.6 \text{ mmol.L}^{-1}$, As/Ni = 1, 230°C).