

Towards Sustained Product Formation in the Liquid Phase Hydrogenation of Mandelonitrile Over a Pd/C Catalyst

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Figure S1.

Figure S2.

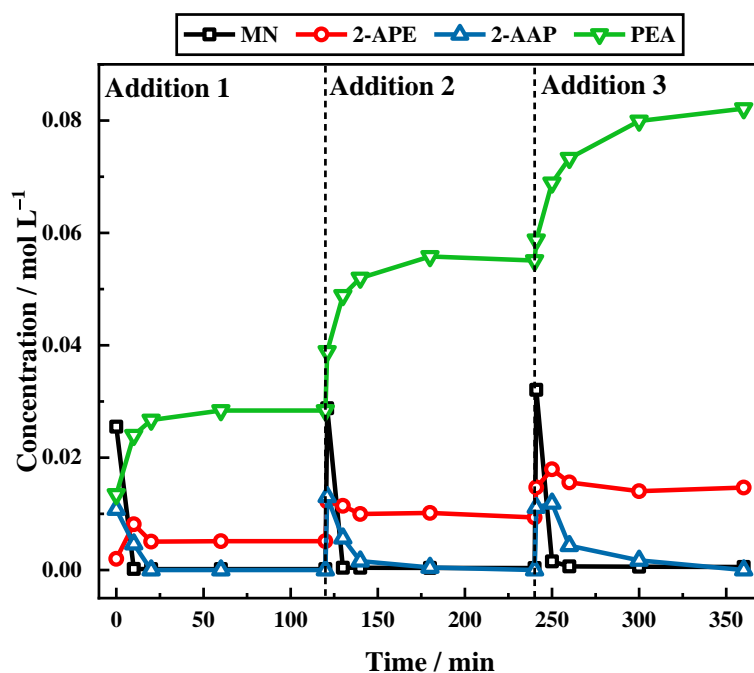


Figure S1. Reaction profile for the initial 3 additions of a 6-batch mandelonitrile hydrogenation reaction. Each reagent addition is comprised of mandelonitrile (1.46 g) and 2 molar equivalents of H_2SO_4 reacted over the same 5 wt% Pd/C catalyst (300 mg) in methanol. The reaction was conducted at 40 °C under 6 barg hydrogen pressure and an agitation speed of 1050 rpm. Each addition (1–3) represents a fixed 2 hour time period. [MN = mandelonitrile; 2-APE = 2-amino-1-phenylethanol; 2-AAP = 2-aminoacetophenone; PEA = phenethylamine].

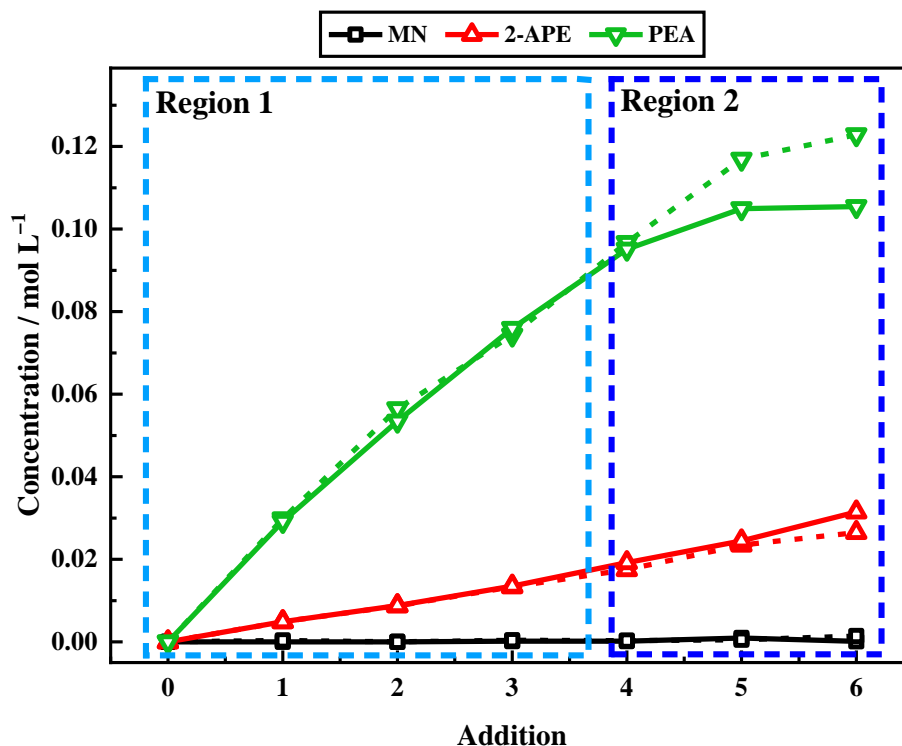


Figure S2. Reaction profile for a 6-batch run for the hydrogenation reaction of mandelonitrile. Each reagent addition is comprised of mandelonitrile (1.46 g, 11 mmol) and 2 equivalents of sulphuric acid, reacted over the same 5% Pd/C catalyst (300 mg) in methanol. The reaction was conducted under two different experimental regimes. The solid lines represent 'hydrogen-lean' conditions (40 °C under 4 barg hydrogen pressure with an agitation speed of 600 rpm), whilst the dashed lines represent 'hydrogen-rich' conditions (40 °C under 6 barg hydrogen pressure with an agitation speed of 1050 rpm). Both reactions were conducted at an external line pressure of 8 barg. Each addition (1–6) represents a fixed 120 minute time period. [MN = mandelonitrile; 2-APE = 2-amino-1-phenylethanol; PEA = phenethylamine].