# Supporting Information

# Metal-Support Cooperative Effects in Au/VPO for the Aerobic Oxidation of Benzyl Alcohol to Benzyl Benzoate

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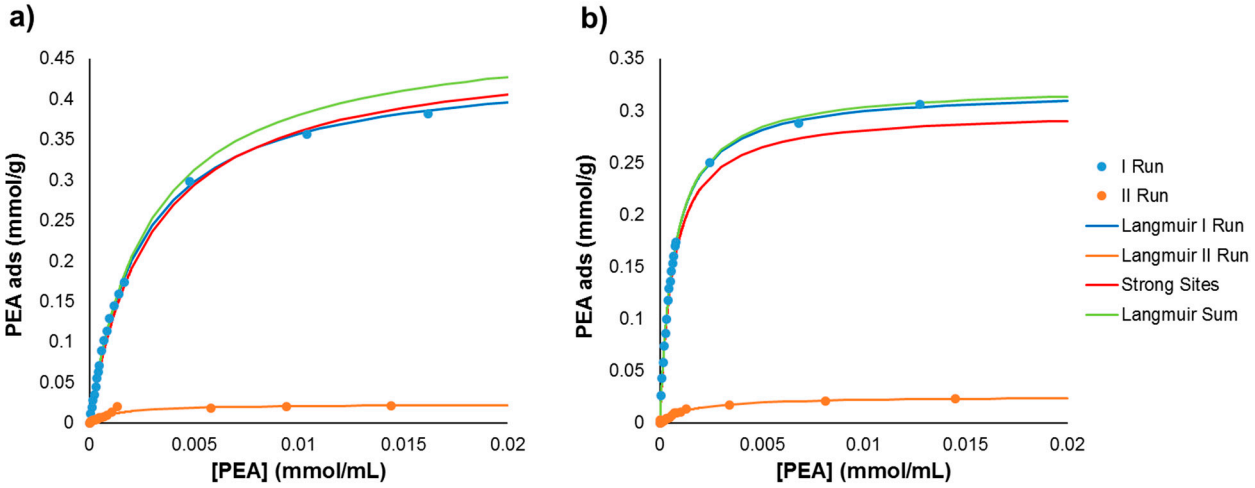


**Figure S1.** PEA adsorption isotherms, collected in cyclohexane at 30°C, for VPO (a) and Au-VPO (b). Experimental data were fitted using Langmuir model equation. Strong acid sites Langmuir isotherm was obtained by mathematical difference between first and second run of adsorption.

**Table S1** Optimization of reaction parameters using 1%AuIW/VPO: Alcohol/Au ratio

| Alcohol/Au ratio | Activity[1] | Selectivity (%) | | | |
|---|---|---|---|---|---|
| | | Benzal-dehyde | Benzyl ether | Benzyl Benzoate | Benzoic acid |
| 500 | 125 | 13 | 6 | 79 | - |
| 1000 | 120 | 8 | 6 | 76 | - |
| 2000 | 118 | 15 | 8 | 75 | - |

Reaction conditions. T = 120 °C, $pO_2$ = 2 atm, benzyl alcohol/xylene 25/75 per cent volume.

[1] Mol of alcohol converted per hour per total number of moles of Au calculated after 0.5 hour of reaction.

**Table S2** Optimization of reaction parameters using 1%AuIW/VPO: $pO_2$

| **$pO_2$ (atm)** | **Activity[1]** | **Selectivity (%)** | | | |
|---|---|---|---|---|---|
| | | Benzal-dehyde | Benzyl ether | Benzyl Benzoate | Benzoic acid |
| 1 | 114 | 12 | 8 | 74 | - |
| 2 | 120 | 8 | 6 | 76 | - |
| 3 | 116 | 9 | 7 | 76 | - |

Reaction conditions. Alcohol/Au ratio:1000 T = 120 °C, benzyl alcohol/xylene 25/75 per cent volume.

[1] Mol of alcohol converted per hour per mol of Au calculated after 0.5 hour of reaction.