Supporting Information

Glycerol Oxidation using MgO and Al₂O₃ supported gold and gold-palladium nanoparticles prepared in the absence of polymer stabilisers.

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Figure S1. XRD patterns of a) Au/MgO\textsubscript{nano} and AuPd/MgO\textsubscript{nano} materials and of pristine MgO\textsubscript{nano} as reference, b) Au/MgO\textsubscript{BDH} materials and of MgO\textsubscript{BDH} as reference, and of c) Au/\(\alpha\)-Al\textsubscript{2}O\textsubscript{3} and Au/\(\gamma\)-Al\textsubscript{2}O\textsubscript{3} materials. Materials were prepared with (w) or without (wo) PVA addition during sol-immobilisation.

Figure S2. TEM micrographs of Au/\(\alpha\)-Al\textsubscript{2}O\textsubscript{3} prepared with a) and without b) PVA by sol-immobilization. c) Histograms of particle size distributions for Au NPs (at least 300 counts for each sample).
**Figure S3.** TEM micrographs of AuPd/MgO\textsubscript{nano} prepared with a) and without b) PVA by sol-immobilization. c) Histograms of particle size distributions for Au NPs (at least 400 counts for each sample).

**Figure S4.** Conversion and selectivity profiles for glycerol oxidation over 1 wt% Au/MgO\textsubscript{nano} catalysts prepared with (w) and without (wo) PVA during sol-immobilisation. Reaction conditions: 0.3 M glycerol, 2:1 NaOH/glycerol, 500:1 glycerol/metal, 10 mL, 60 °C, 3 bar O\textsubscript{2}, stirring speed 1200 rpm. TA: tartronic acid; GA: glyceric acid. Hollow forms denote PVA-free catalysts; solid lines indicate TA selectivity and dashed lines indicate GA selectivity.
Figure S5. Conversion and selectivity profiles for glycerol oxidation over Au/\(\alpha\)-Al\(_2\)O\(_3\) catalysts prepared with (w) and without (wo) PVA during sol-immobilisation. Note that the catalyst prepared with PVA was only loaded with 0.1 wt% Au and the one without PVA was loaded with 1 wt%. Reaction conditions: 0.3 M glycerol, 2:1 NaOH/glycerol, 500:1 glycerol/metal, 10 mL, 60 °C, 3 bar O\(_2\), stirring speed 1200 rpm. TA: tartronic acid; GA: glyceric acid. Hollow forms denote PVA-free catalysts; solid lines indicate TA selectivity and dashed lines indicate GA selectivity.

Figure S6. Conversion and selectivity profiles for glycerol oxidation over 1 wt% AuPd/\(\gamma\)-Al\(_2\)O\(_3\) catalysts prepared with (w) and without (wo) PVA during sol-immobilisation. Reaction conditions: 0.3 M glycerol, 2:1 NaOH/glycerol, 385:1 glycerol/metal (based on Au), 10 mL, 60 °C, 3 bar O\(_2\), stirring speed 1200 rpm. TA: tartronic acid; GA: glyceric acid. Hollow forms denote PVA-free catalysts; solid lines indicate TA selectivity and dashed lines indicate GA selectivity.