Electronic Supplementary Material (ESI) for RSC Advances.

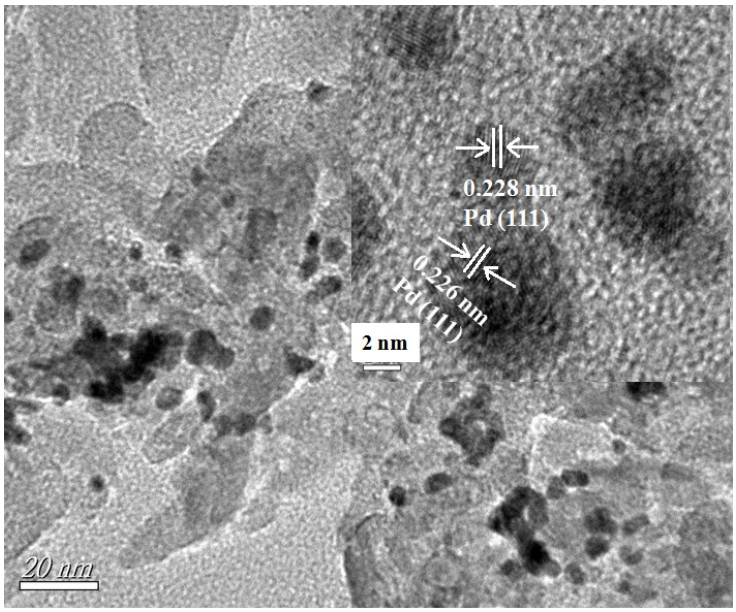


Figure S1. TEM image of Pd_2/HAP-6-S with Pd nanoshperes of *ca.* 6 nm. The inset is the corresponding HRTEM image.

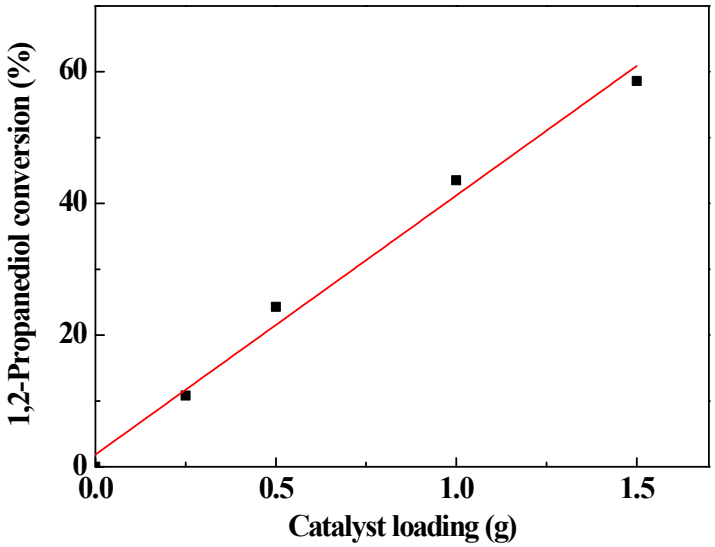
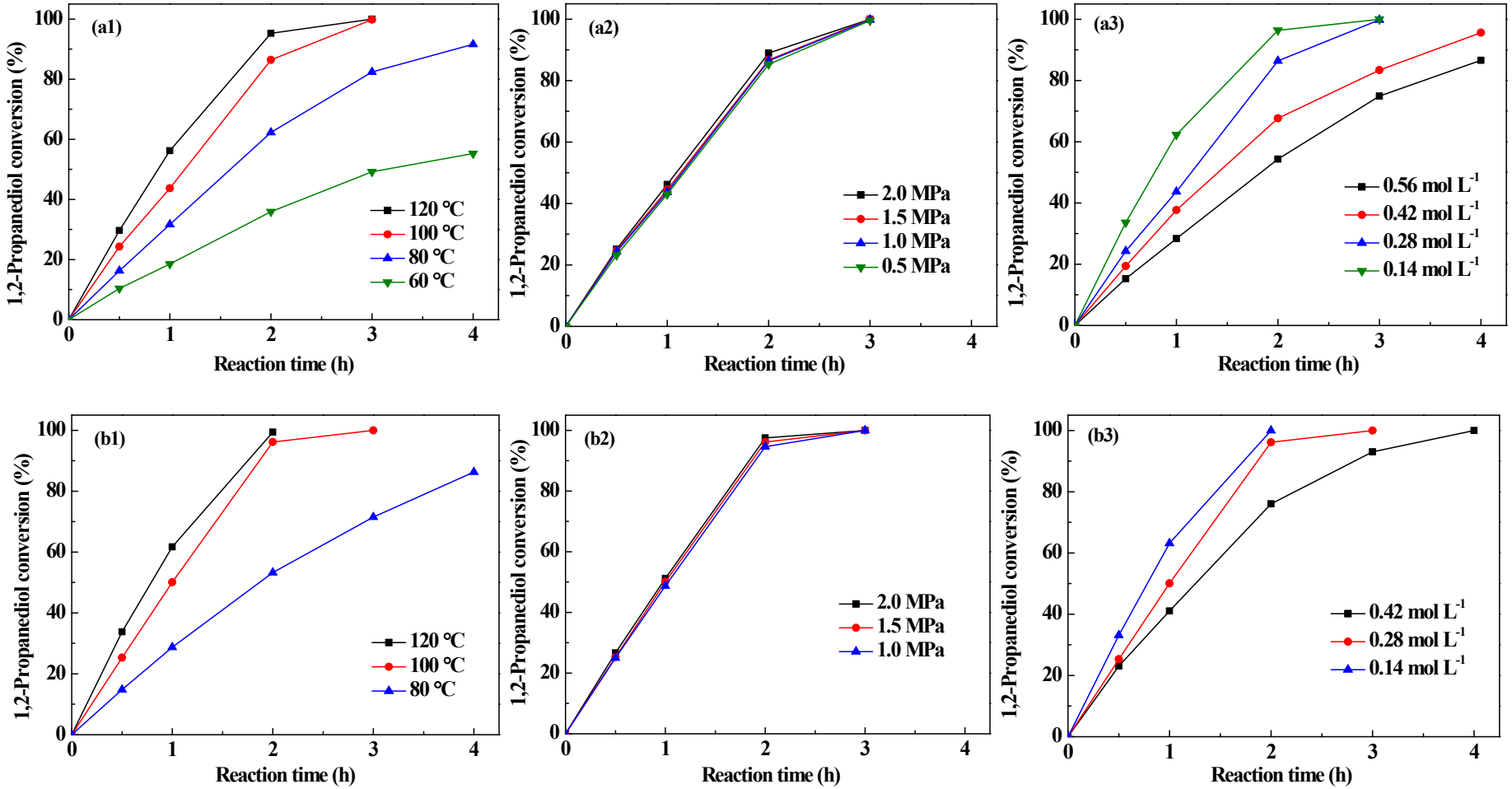


Figure S2. Catalyst loading *vs* 1,2-propanediol conversion. Reaction conditions: NaOH concentration, 0.56 mol L^{-1}; O_2 pressure, 1 MPa; 1,2-propanediol aqueous solution, 0.28 mol L^{-1}, 200 mL; reaction temperature, 100 ºC; reaction time, 0.5 h.


(a1)
1,2-Propanediol conversion (%)
Reaction time (h)
120 ℃
100 ℃
80 ℃
60 ℃
(a2)
2.0 MPa
1.5 MPa
1.0 MPa
0.5 MPa
(a3)
0.56 mol L-1
0.42 mol L-1
0.28 mol L-1
0.14 mol L-1
(b1)
120 ℃
100 ℃
80 ℃
(b2)
2.0 MPa
1.5 MPa
1.0 MPa
(b3)
0.42 mol L-1
0.28 mol L-1
0.14 mol L-1

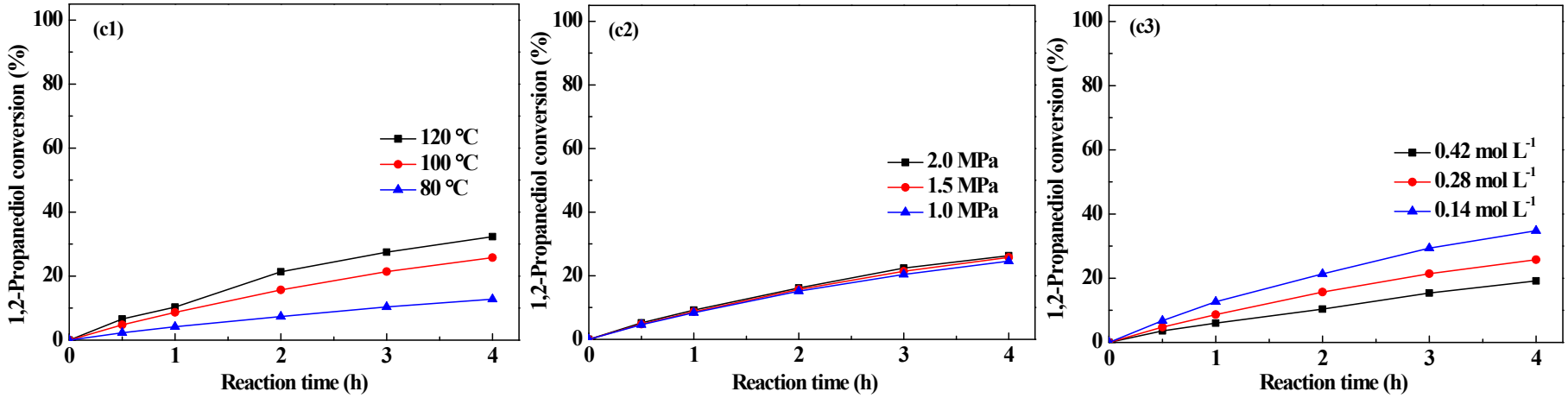


Figure S3. Effect of (a1-c1) reaction temperature, (a2-c2) O_2 pressure, and (a3-c3) 1,2-propanediol concentration on the conversion of 1,2-propanediol over (a) Pd_1Ag_1/HAP, (b) Pd_2/HAP-6, and (c) Ag_2/HAP catalysts. Reaction conditions: (a1-c1), 1,2-prapanediol aqueous solution, 0.28 mol L^{-1}, 200 mL; NaOH concentration, 0.56 mol L^{-1}; O_2 pressure, 1.0 MPa; catalyst, 0.5 g. (a2-c2), 1,2-prapanediol aqueous solution, 0.28 mol L^{-1}, 200 mL; NaOH concentration, 0.56 mol L^{-1}; reaction temperature, 100 ºC; catalyst, 0.5 g. (a3-c3) 1,2-prapanediol aqueous solution, 200 mL; NaOH concentration, 0.56 mol L^{-1}; reaction temperature, 100 ºC; O_2 pressure, 1.0 MPa; catalyst, 0.5 g.

Table S1. Recycling performances of Pd_1Ag_1/HAP and Pd_2/HAP-6 catalysts in the catalytic oxidation of 1,2-propanediol[a]

Catalysts	Runs	Amount of noble metals[b] (μmol g^{-1})		1,2-Propanediol Conversions (%)	Selectivities (%)			TON (h^{-1})
		Pd	Ag		Lactic acid	Formic acid	Acetic acid	
Pd_1Ag_1/HAP	1	93.3	93.2	86.3	88.8	3.1	8.1	259
	2	92.8	92.0	84.2	87.8	3.4	8.8	258
	3	90.5	89.8	83.1	87.3	4.1	8.6	258
	4	87.0	88.5	79.6	87.0	4.2	8.8	254
Pd_2/HAP-6	1	189.2		96.2	86.2	4.5	9.3	285
	2	173.2		85.9	86.0	4.4	9.6	278
	3	164.7		77.4	85.8	4.7	9.5	263
	4	152.6		70.6	85.4	5.2	9.5	259

[a]Reaction conditions: 1,2-prapanediol aqueous solution, 0.28 mol L^{-1}, 200 mL; NaOH concentration, 0.56 mol L^{-1}; catalyst, 0.5 g; O_2 pressure, 1.0 MPa; reaction temperature, 100 ℃; reaction time, 2 h.

[b]The amount of Pd and Ag were detected by ICP.