Supporting Information

Embedding Colloidal Nanoparticles inside Mesoporous Silica using Gas Expanded Liquids for High Loading Recyclable Catalysts

Figure S1. Size distribution histogram of as AgPd alloy NPs.

Figure S2: TEM image showing pore diameter of SBA-15

Figure S3. EDX and SEM image of AgPd alloy NPs on SBA-15.
**Figure S4.** TEM images of catalyst prepared by incipient wetness deposition methods.

**Fig. S5.** N2 adsorption-desorption isotherms for short channel SBA-15 (a) before and (b) after nanoparticle immobilization.

**Figure S6:** AgPd NPs immobilised on non-porous SiO$_2$.
Figure S7. Comparison of size distribution histogram of as-synthesized AgPd NPs and after catalytic recycling.

![Size distribution histogram](image)

**As-synthesized NPs**

- Diameter: $D_{avg} = 7.9 \text{ nm}$
- STDEV: 1.3

**Recycled catalyst**

- Diameter: $D_{avg} = 8.4 \text{ nm}$
- STDEV: 2.6

---

Figure S8: TEM image of reaction supernatant using non-porous SiO$_2$.

![TEM image](image)

20 nm