

Single-Atom Alloy Pd₁Ag₁₀/CeO₂–ZrO₂ as a Promising Catalyst for Selective Alkyne Hydrogenation

Pavel V. Markov ¹, Galina O. Bragina ¹, Nadezhda S. Smirnova ¹, Galina N. Baeva ¹, Igor S. Mashkovsky ^{1,*}, Evgeny Y. Gerasimov ², Andrey V. Bukhtiyarov ², Yan. V. Zubavichus ² and Alexander Y. Stakheev ^{1,*}

¹ N. D. Zelinsky Institute of Organic Chemistry RAS, Leninsky Prospect 47, 119991 Moscow, Russia

² G. K. Boreskov Institute of Catalysis, Siberian Branch of the Russian Academy of Sciences, Academician Lavrentiev Prospect 5, 630090 Novosibirsk, Russia

* Correspondence: im@ioc.ac.ru (I.S.M.); st@ioc.ac.ru (A.Y.S.)

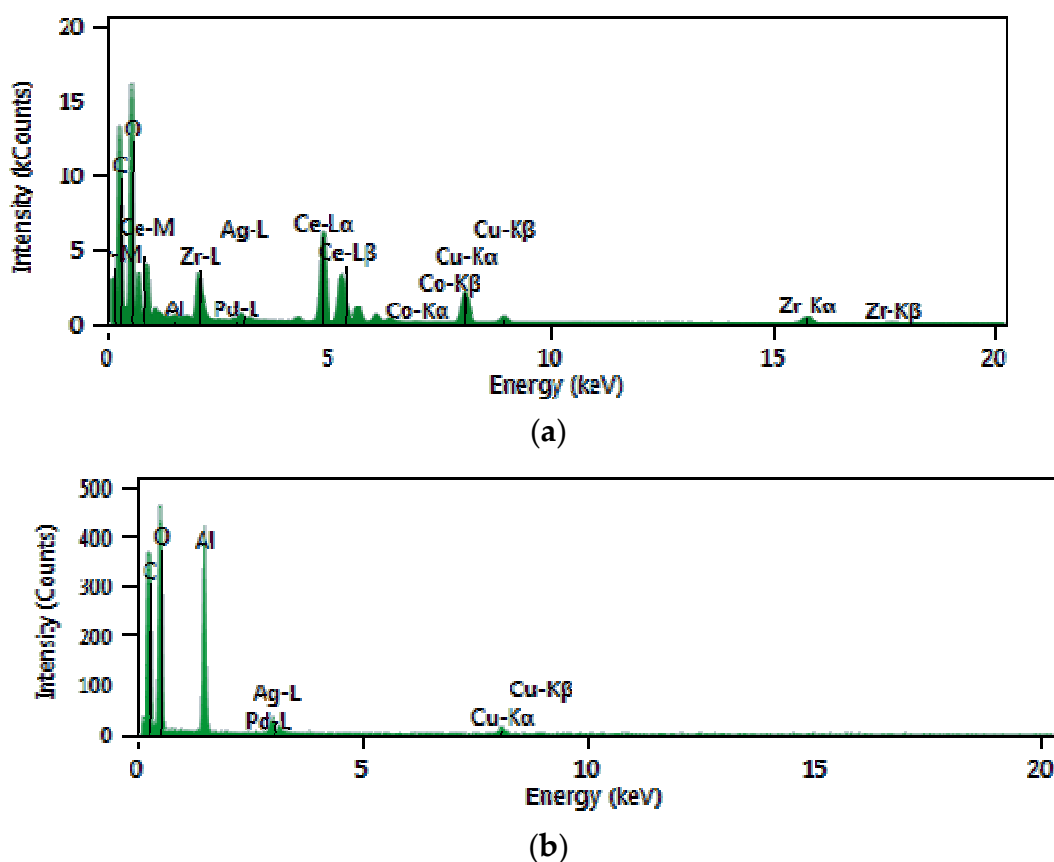


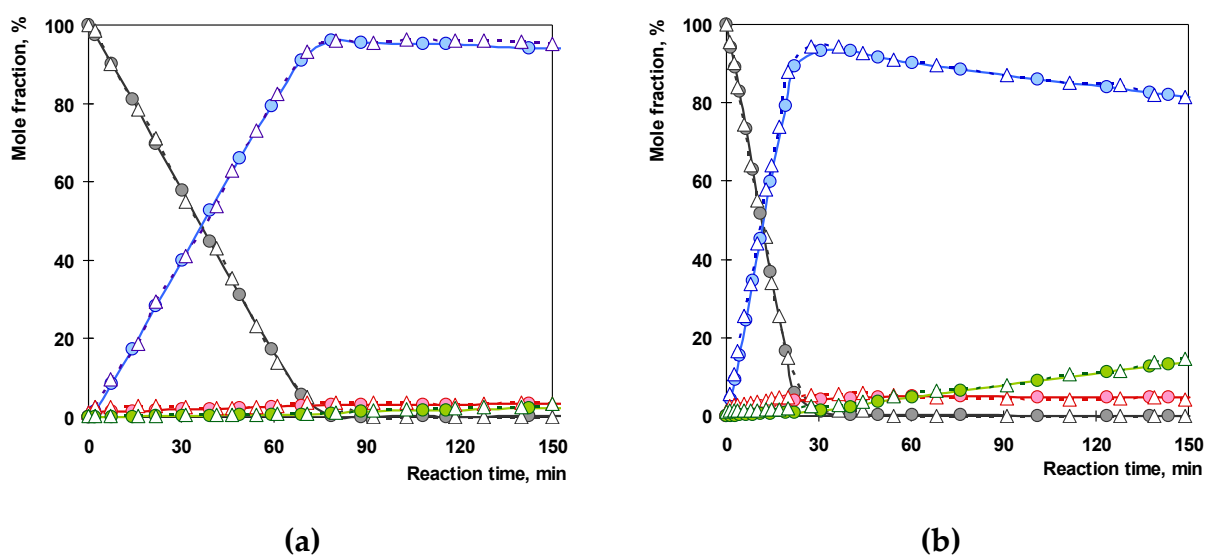
Figure S1. EDX spectrum of PdAg₁₀/CZ (a) and PdAg₁₀/A (b) catalysts.

Table S1. Quantitative analysis of EDX-spectrum of PdAg₁₀/CZ catalyst.

Element	Family	at. %	wt. %	Mass Error (%)
O	K	72.57	24.78	2.08
Zr	K	7.09	13.80	2.03
Pd	L	0.21	0.48	0.05
Ag	L	2.08	4.79	0.31
Ce	L	18.78	56.15	7.29

Table S2. Quantitative analysis of EDX-spectrum of PdAg₁₀/A catalyst.

Element	Family	at. %	wt. %	Mass Error (%)
O	K	60.35	45.15	4.42
Al	K	38.06	48.05	10.40
Pd	L	0.11	0.55	0.10
Ag	L	1.24	6.26	1.11

**Figure S2.** Products distribution of DPA hydrogenation over PdAg₁₀/A (a) and PdAg₁₀/CZ (b) after 1st and 5th reaction runs.

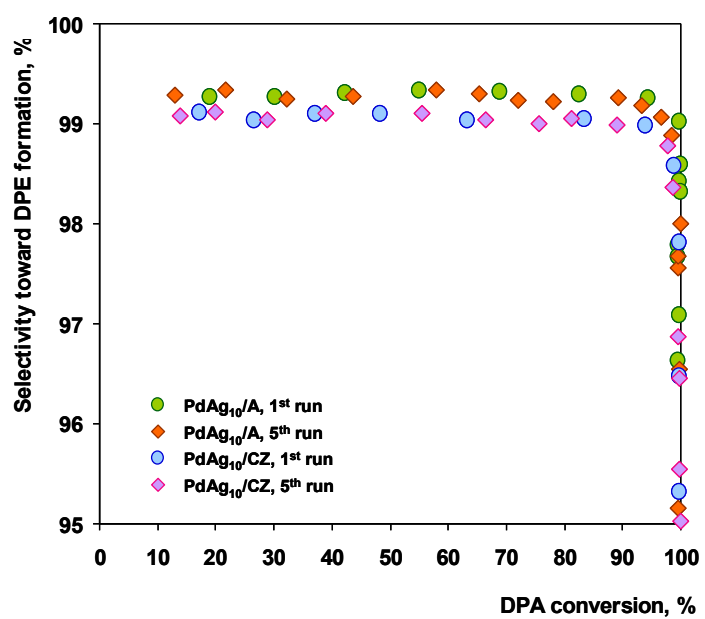


Figure S3. Comparison of selectivity toward stilbene formation for PdAg₁₀/A and PdAg₁₀/CZ catalysts after 1st and 5th reaction runs.