energies

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Supplementary Materials

Boosting Hydrogen Production from Formic Acid over Pd Catalysts by Deposition of N-containing Precursors on the Carbon Support

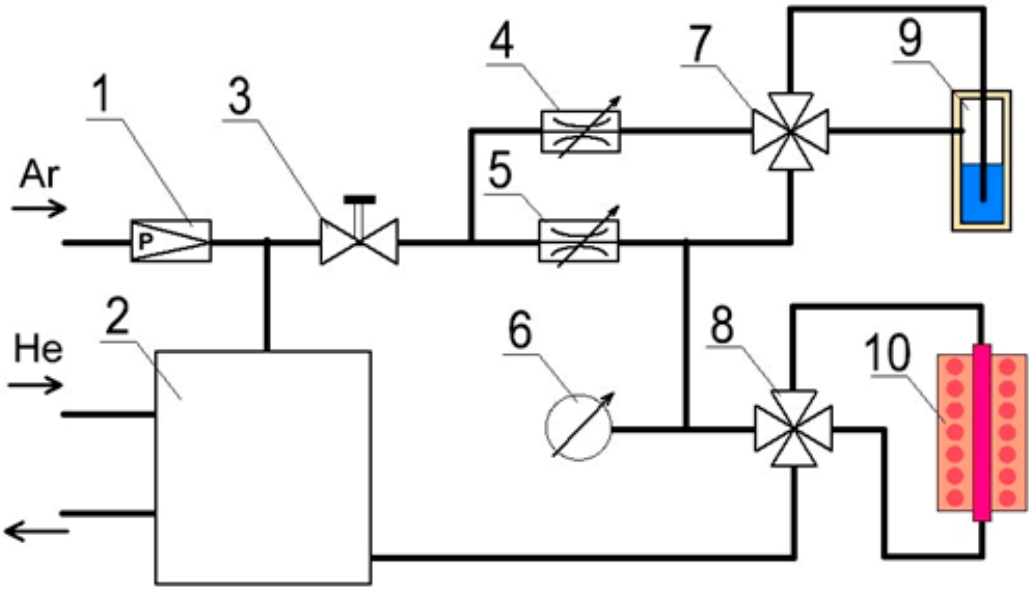

Figure S1. Scheme of a catalytic set-up: inlet valve (1), gas chromatograph (2), valve (3), mass-flow controller (4,5), pressure gauge (6), four-way valve for the supply of formic acid (7,8), gas bubbler for saturation of argon flow by formic acid vapors (9), vertical reactor inside the furnace (10).

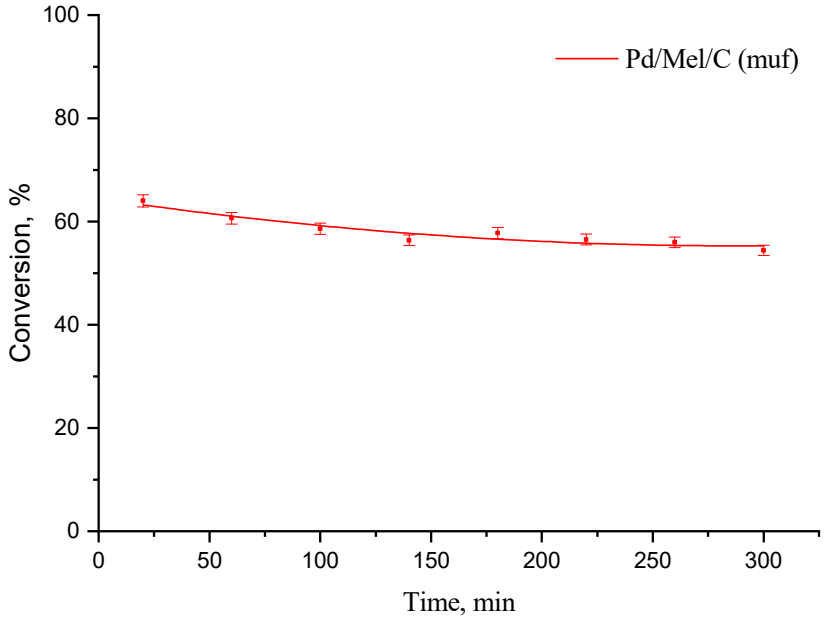

Figure S2. Stability test for the most active catalyst at 573 K.

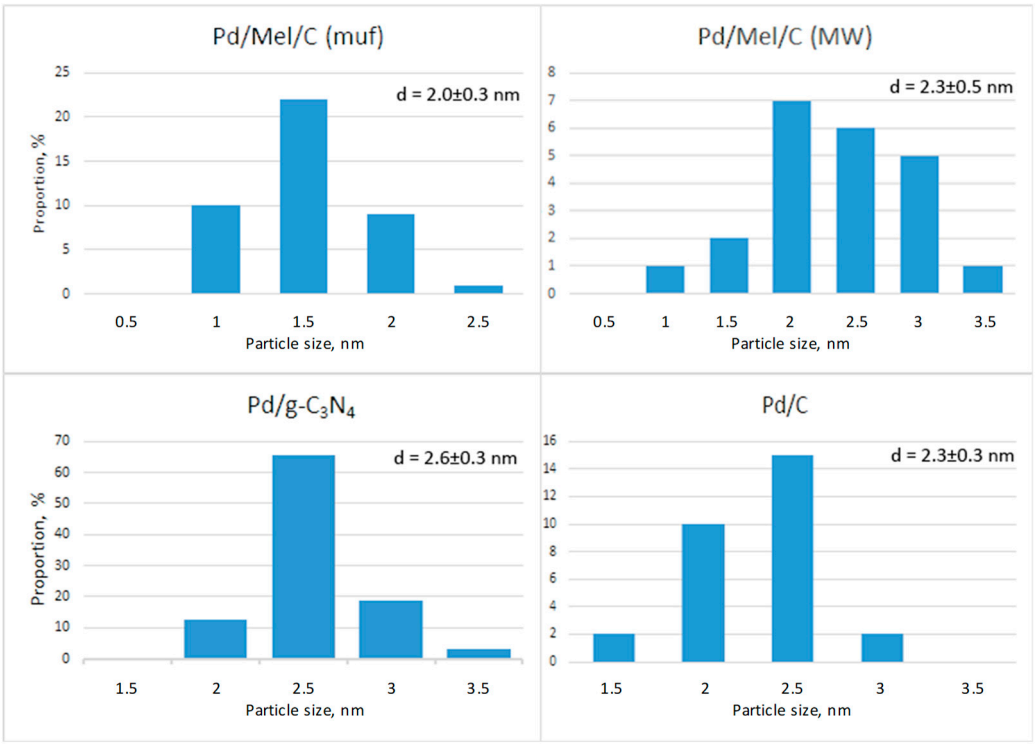

Figure S3. Particle size distributions for some catalysts after the reaction.

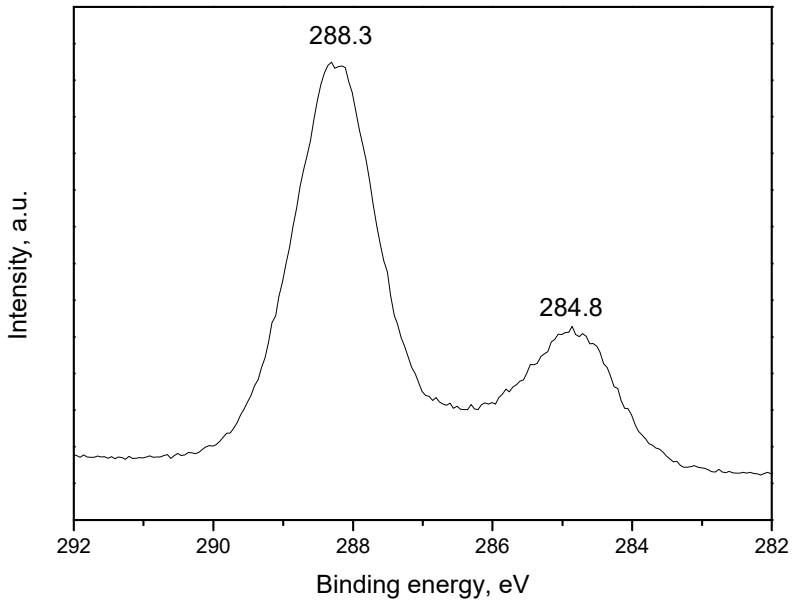

Figure S4. C1s XP spectrum of the Pd/g-C_3N_4 catalyst after the reaction.

Table S1. Comparison of the kinetic data for the gas-phase formic acid decomposition over different metallic catalysts supported on carbon supports at 393 K.

Catalyst	Metal Content, %	Mean Particle Size (TEM), nm	Specific Rate, Molecule $x10^{20}/s/g_{Metal}$	Apparent Activation Energy, kJ/mol	Reference
N –doped samples					
Pd/Mel/C (muf)	1	2.0	4.5	32	This work
Pt/N-C	1	1.0	7.4	43	[1,2]
Ru/N-C	1	1.5	2.8	58	[1,3]
Au/N-C	0.7	2.2	0.22	53	[4]
N-free samples					
Pd/C	1	2.3	1.2	46	This work
Pt/C	1	1.2	0.86	51	[1,2]
Ru/C	1.3	1.4	1.5	55	[1,3]

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