

Supporting Information to
Hydrogenation of γ -valerolactone in ethanol over Pd nanoparticles supported on sulfonic acid
functionalized MIL-101

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Figure S2. Selected area EDX of Pd/MIL-101-SO₃H(100) catalyst: (Area 1) aggregated Pd particle and (Area 2) MIL-101-SO₃H(100) support with well-dispersed Pd particles.

Figure S3 HRTEM images of supported Pd catalysts: (a) Pd/MIL-101-SO₃H(25), (b) Pd/MIL-101-SO₃H(50), (c) Pd/MIL-101-SO₃H(80), and (d) Pd/MIL-101-SO₃H(100).

Table S1. Effect of Pd loading on the hydrogenation activity of GVL upgrading in ethanol over Pd/ MIL-101-SO₃H(100).

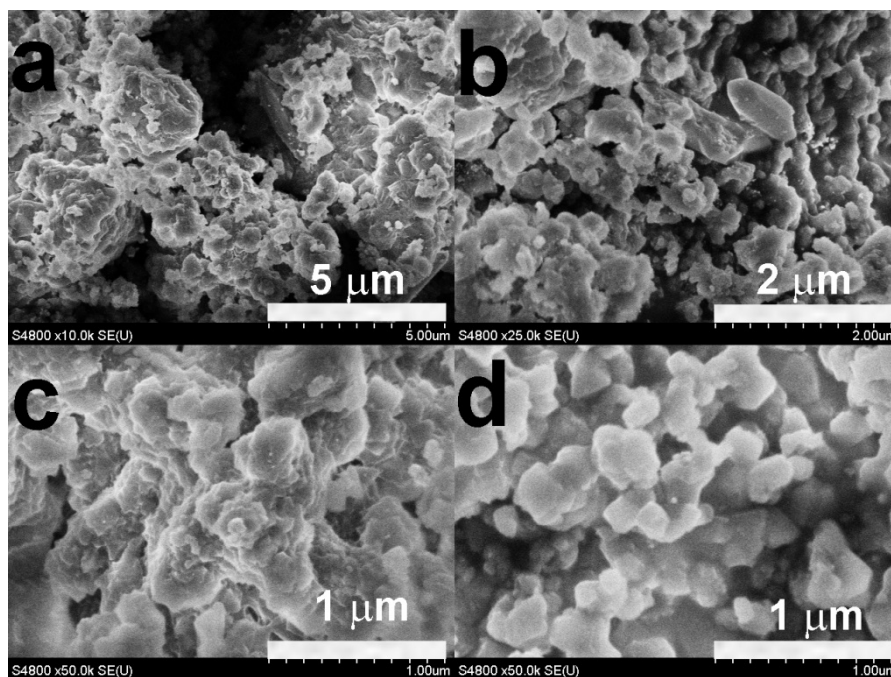


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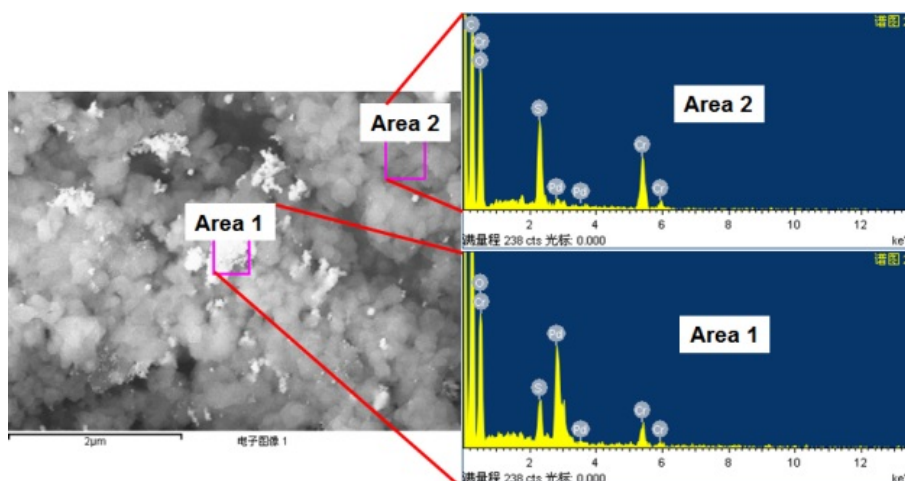


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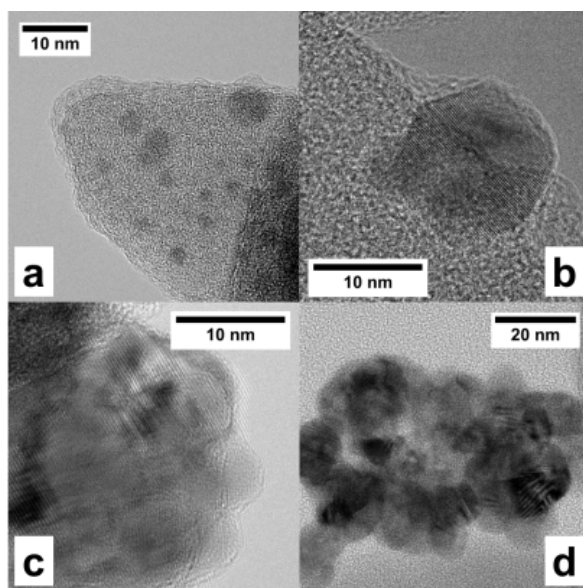


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Table S1. Effect of Pd loading on the hydrogenation activity of GVL upgrading in ethanol over Pd/MIL-101-SO₃H(100). Reaction conditions: 100 mg catalyst, 10 mmol GVL, 5820 μ L ethanol, 200 $^{\circ}$ C, 10 h. **(1)** 4-hydroxy-ethylvalerate, **(2)** ethyl 4-ethoxy pentanoate, **(3)** ethyl pentenoate, **(4)** ethyl valerate.

Pd Loading (wt.%)	GVL Conv.(%)	Sel. (%)			
		1	2	3	4
1.0	52	12	65	8.0	15
2.5	50	8.0	66	6.0	20
5.0	48	9.0	64	2.0	25