
Supporting Information

Sustainable production of propionic acid: catalytic deoxygenation of lactic acid over MoO_x/Fe

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Figures

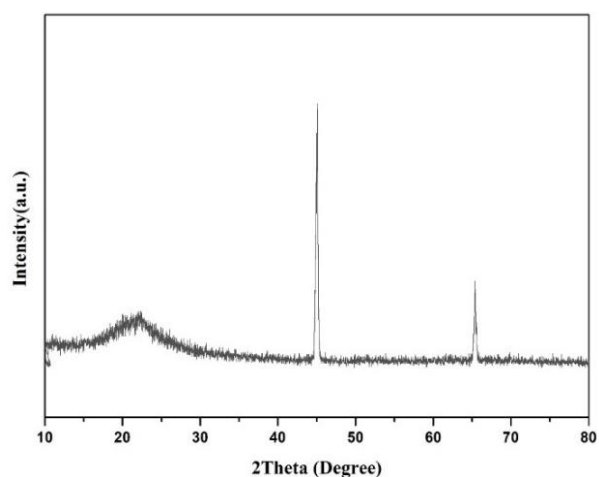


Fig. S1 XRD of Fe powder

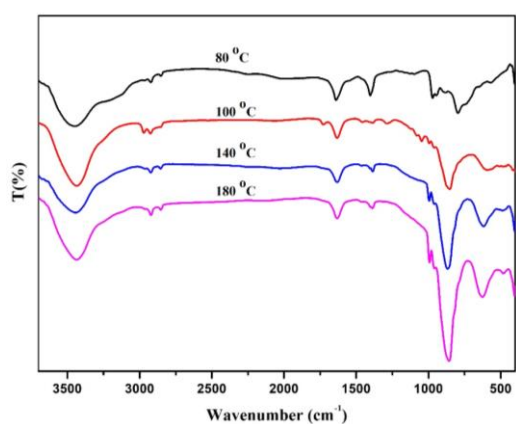


Fig. S2 FT-IR spectra of catalysts prepared at different hydrothermal temperatures

Fe/Mo molar ratio = 0.908, calcination temp., 450°C, calcined atmosphere, air.

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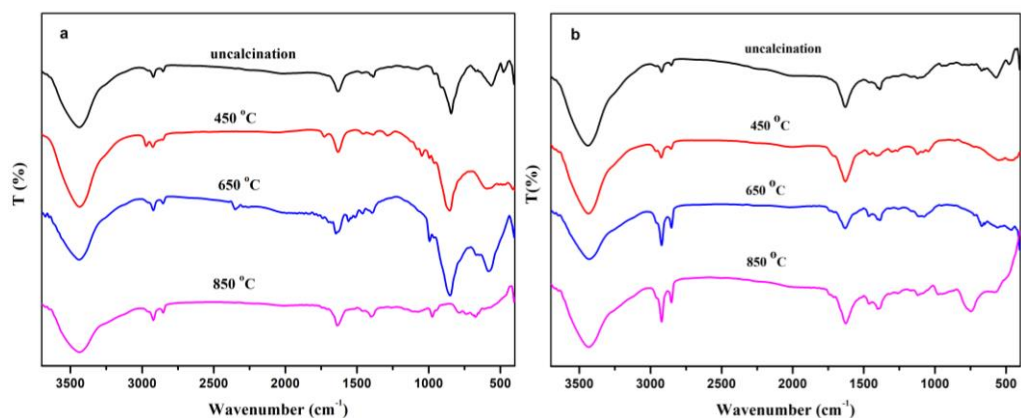


Fig. S3 FT-IR spectra of catalysts prepared at different calcined temperatures (a, before reaction and b, after reaction)

Fe/Mo molar ratio = 0.908, hydrothermal synthesis temp., 100°C, calcined atmosphere, air.

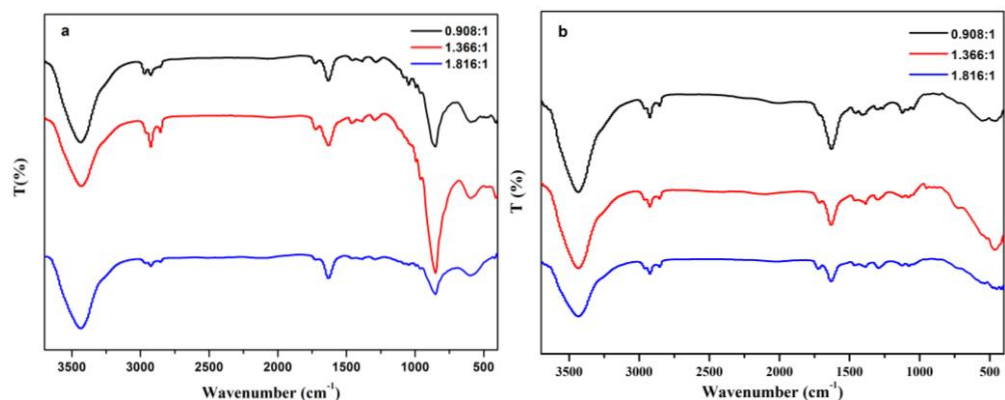


Fig. S4 FT-IR spectra of catalysts with different Fe/Mo ratios calcined at air atmosphere (a, before reaction and b, after reaction)

Hydrothermal synthesis temp., 100°C, calcination temp., 450°C, calcined atmosphere, air.

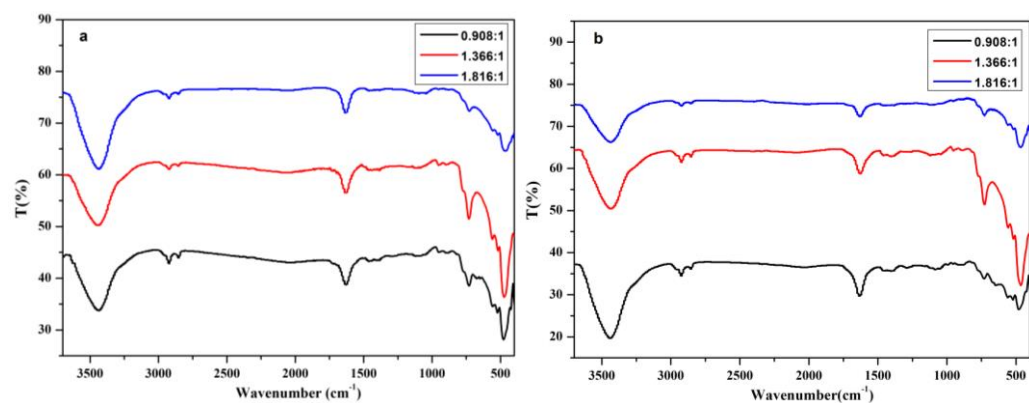


Fig. S5 FT-IR spectra of catalysts with different Fe/Mo ratios calcined at hydrogen atmosphere (a, before reaction and b, after reaction)

Hydrothermal synthesis temp., 100°C, calcination temp., 450°C, calcined atmosphere, hydrogen.

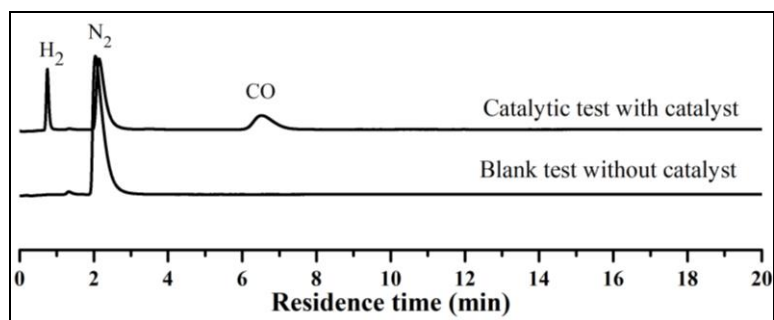


Fig. S6 GC profile of tail gas

Catalytic test: Catalyst: 0.38 mL, Fe/Mo molar ratio=0.908; carrier gas N₂, 1.2 mL/min; LA feedstock 20wt%, LA feed flow rate 1.6 mL/h, reaction temp. 390°C. Blank test: the reaction proceeds in the absence of catalyst at the same conditions as the catalytic test.

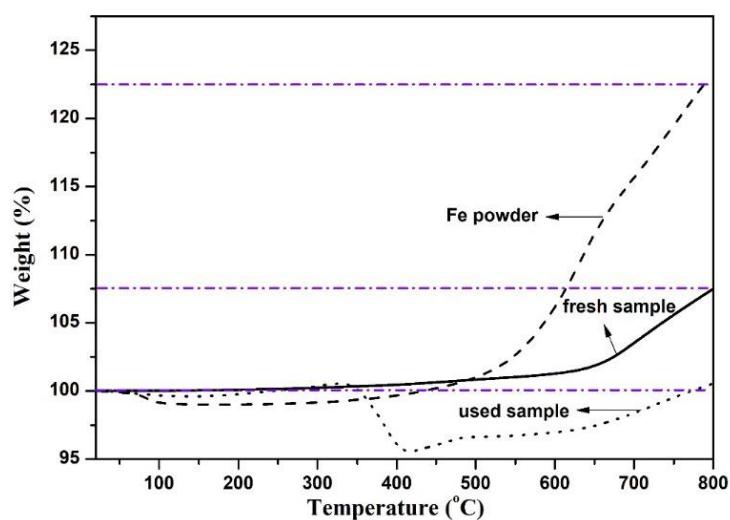


Fig. S7 TG of fresh sample, used sample and Fe powder (Testing atmosphere: air)