Fe.MOF-Mo.POM composite: a novel and efficient catalyst for selective benzyl alcohol oxidation to benzaldehyde

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Materials and apparatus

All chemicals and solvents were purchased from Merck, Sigma-Aldrich, and Alfa Aesar chemical companies without further purification.

Fourier transform infrared (FT-IR) spectra of solid samples were recorded on a Perkin-Elmer-RXI FT-IR spectrometer using KBr disks. Powder X-ray diffraction (XRD) analyses were conducted by Rigaku D-max CIII X-ray diffractometer with Cu Kα radiation (λ = 1.54056 Å). Field emission scanning electron microscopy (FESEM) images and energy dispersive X-ray (EDX) analyses were recorded on a TESCAN-MIRA III-FEG scanning electron microscope. Inductively coupled plasma-optical emission spectrometry (ICP-OES) results were obtained on a SPECTRO ARCOS analyzer. Thermogravimetric analysis (TGA) was performed on a LINSEIS STA PT-1000 thermogravimetric in the temperature range from room temperature to 700 °C at a heating rate of 10°C min^{-1} in static air. Micro Active for TriStar II plus 2.03 device was used for nitrogen adsorption-desorption analysis and to determine the specific surface area. X-ray photoelectron spectroscopy (XPS) spectra were ascertained on a Thermo ESCALAB 250 XI with Mg X-ray sources. Gas chromatograph of the samples was recorded on Agilent 6890N equipped with a capillary column (HP-5) and a FID detector.

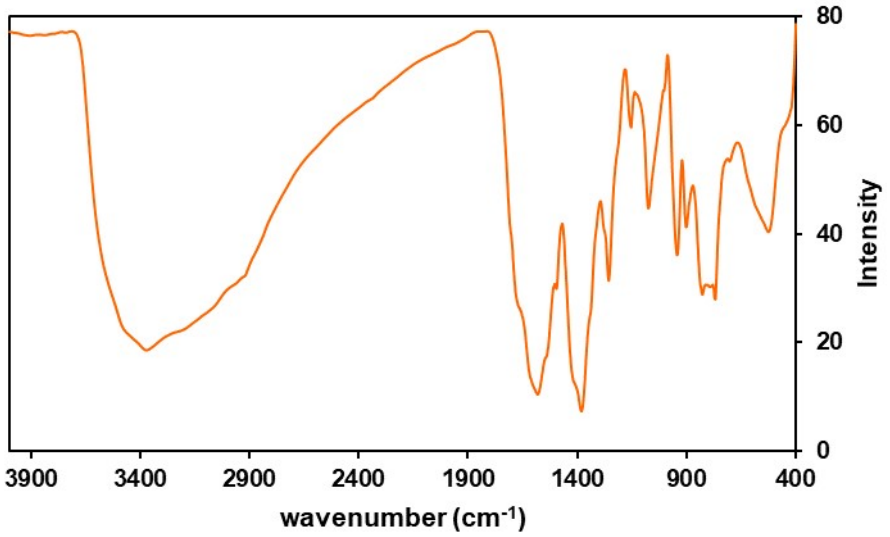

Figure S1. FT-IR spectrum of recovered Fe.MOF-Mo.POM after the catalytic reaction.

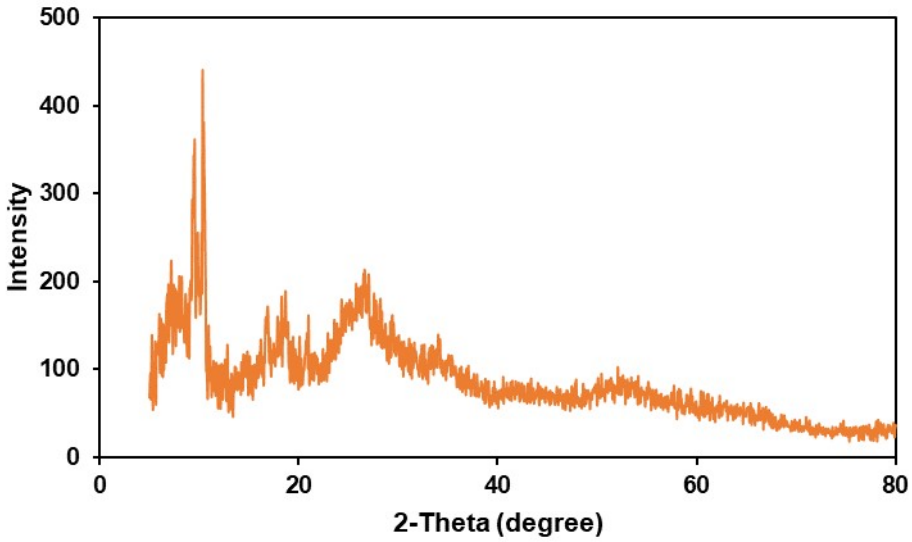

Figure S2. XRD pattern of recovered Fe.MOF-Mo.POM after the catalytic reaction.