# Fabrication of an efficient bifunctional acid catalyst based on MIL-88B(Fe) for solvent-free ring-opening of epoxides with alcohols

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## Experimental section

### Materials and methods

All chemicals including $FeCl_3.6H_2O$, terephthalic acid, sulfamic acid, styrene oxide, 1,2-epoxypropane, 1,2-epoxybutane, epichlorohydrine, cyclohexene oxide, dimethylformamide, methanol, ethanol, n-butanol, n-hexanol, and n-octanol were provided from Merck and Biochem chemical companies and used without further purification.

Fourier transform infrared (FT-IR) was conducted using Perkin–Elmer Spectrum RXI FT-IR spectrometer by using KBr pellets diluted with synthesized materials. The X-ray diffraction patterns (XRD) were recorded by DX-2700BH multi-function diffractometer using Cu kα radiation at λ = 1.54 Å in the 2θ range of 5-45°, with the step size of 0.05˚ and time per step of 1sec. Field emission scanning electron microscopy (FESEM) was carried out by TESCAN MIRA III instrument coupled to energy-dispersive X-ray spectroscopy (EDX) for micro-elemental analysis and mapping. The nitrogen adsorption-desorption isotherms with surface area measurement were performed by BELSORP MINI II instrument from BEL Company with a BEL PREP VAC II degassing device. The surface area was achieved by Brunauer-Emmett-Teller (BET) calculation. The thermogravimetric analysis (TGA) was performed by TGA Q600 instrument (TA

Company, USA). The progress of catalytic reactions was controlled by Agilent 6890N gas chromatography equipped with a capillary column (HP-5) and FID detector.

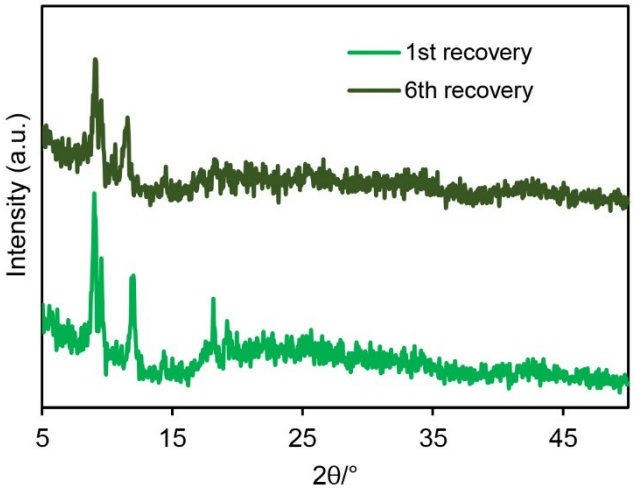
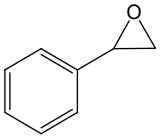
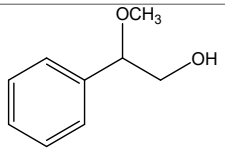
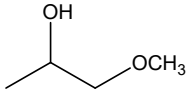
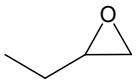
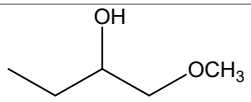
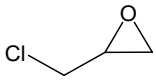
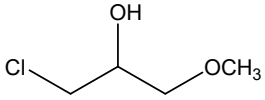
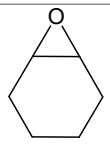
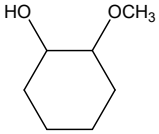



**Fig. S1.** The XRD pattern of reused MIL-88B(Fe)/SA.

**Table S1.** Approximate size of different epoxides and corresponding products.

| Epoxides | Approximate size (Å) | Products | Approximate size (Å) |
|---|---|---|---|
|  | 5.9 |  | 6 |
|  | 3.5 |  | 5.8 |
|  | 4.3 |  | 5.5 |
|  | 4.4 |  | 5.3 |
|  | 4.1 |  | 6.2 |