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Electronic Supplementary Information

One-Pot Synthesis of Magnetically Recyclable Mesoporous Silica Supported Acid-Base Catalysts for Tandem Reactions

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Synthesis of magnetically separable mesoporous silica acid-base site isolated catalyst

In typical synthesis, 0.1 g of iron(II) chloride tetrahydrate, 0.27 g of iron(III) chloride hexahydrate and 0.1 g of cethyltrimethylammonium bromide (CTAB) were dissolved in distilled water. This solution was stirred for 5 min at 70 ^{o}C, and 4 mL of 2 M sodium hydroxide aqueous solution was rapidly injected. 0.5 mL of tetraethylorthosilicate (TEOS) and mesitylene was slowly added, followed by addition of 0.5 mL of ethyl acetate to the solution. Subsequently, 2-(4-chlorosulfonylphenyl)ethyltrimethoxysilane (CESE, 100 μL) dissolved in dichloromethane and [3-(2-aminoethylamino)propyl]trimethoxysilane (AAPS, 100 μL) was added with vigorous stirring, and this solution was aged for 6 h. The resulting MMAB catalyst was obtained by introducing the mixture of hydrochloric acid (40 μL) and ethanol (20 mL) solution at 60 ^{o}C for 3 h to remove CTAB and to activate sulfonic acid functional groups.

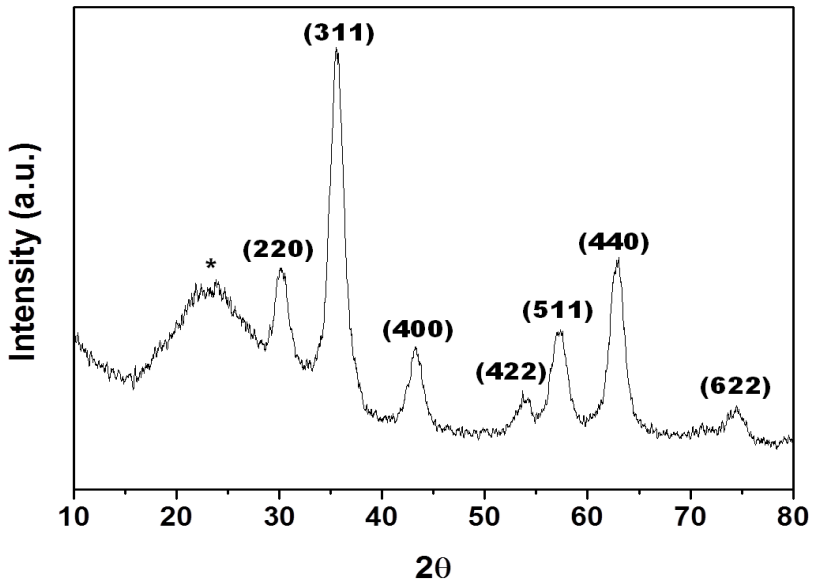

Figure S1. The powder X-ray diffraction (XRD) pattern of the synthesized catalyst (PDF#: 99-0073). Diffusive peak from 20^{o} to 30^{o} is due to amorphous silica part in the material.

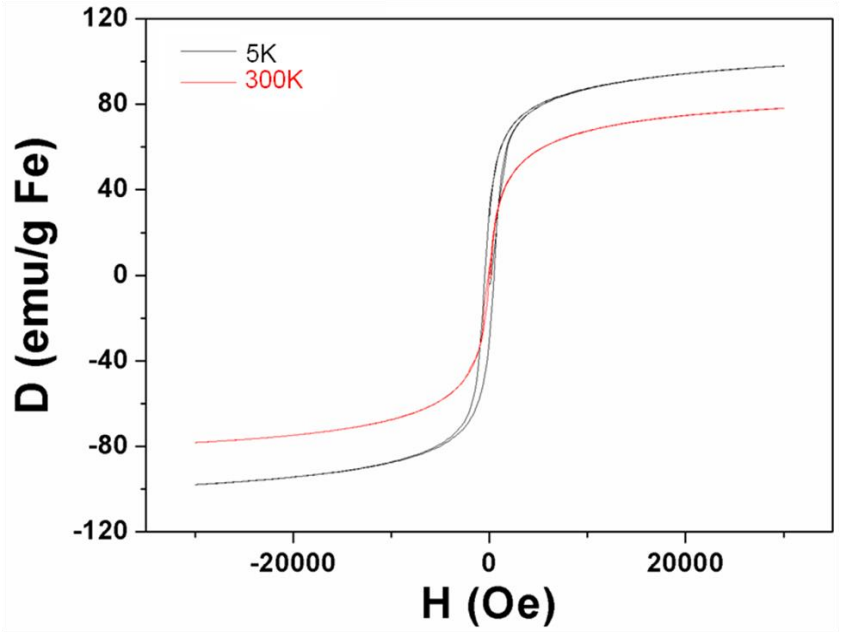

Figure S2. Magnetic behavior of MMAB measured at 5 K and 300 K.

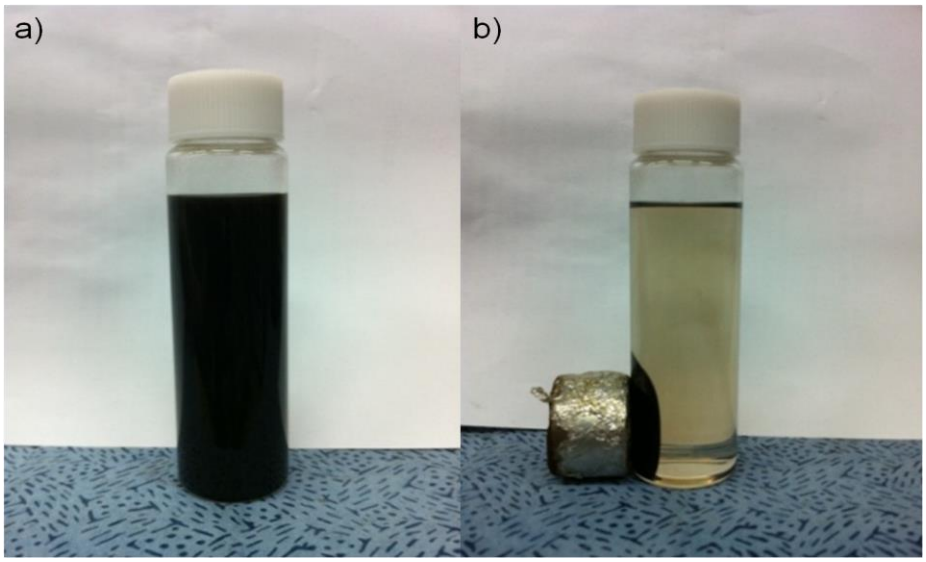

Figure S3. Magnetic separation of the synthesized MMAB catalyst; (a) dispersed in nitromethane and (b) in the presence of magnetic force.

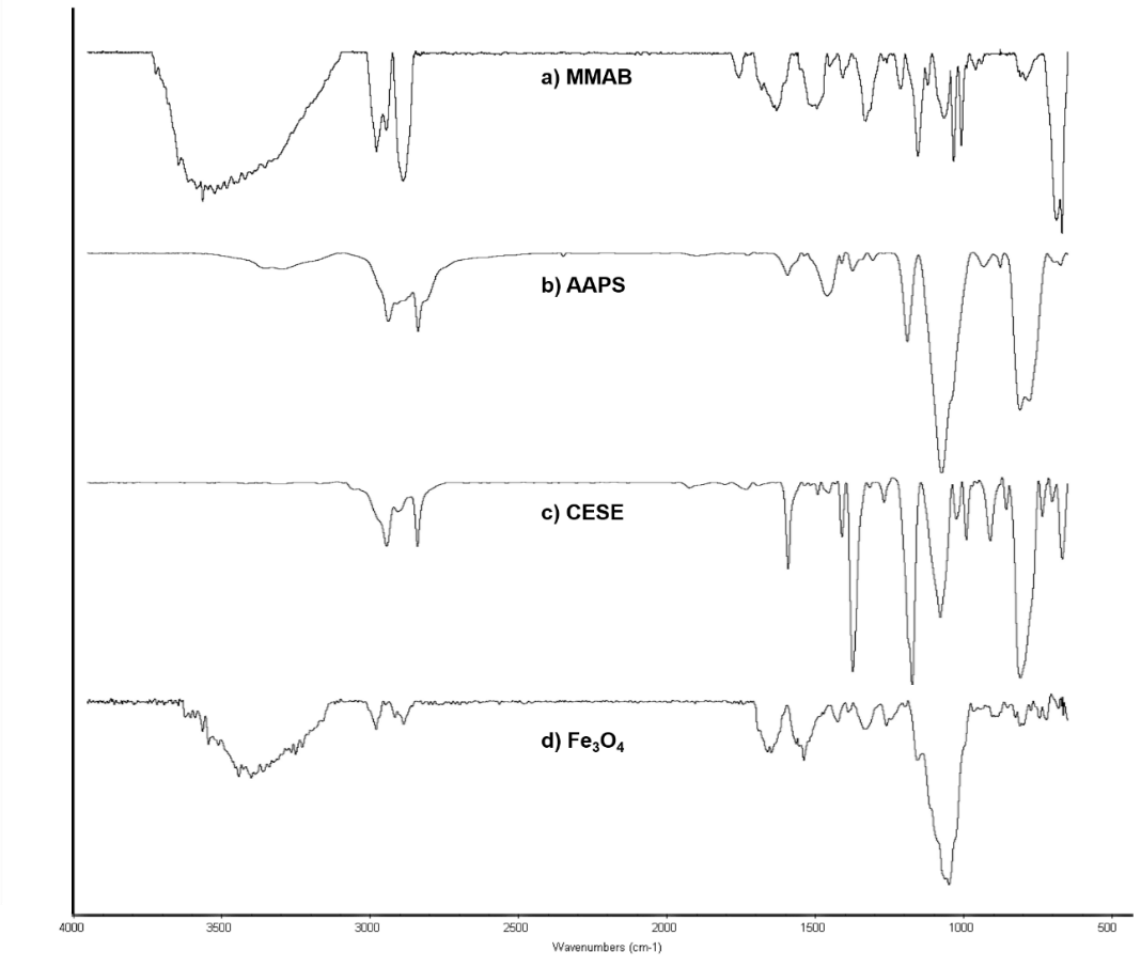

Figure S4. FT-IR spectra of (a) MMAB, (b) AAPS, (c) CESE, and (d) Fe_3O_4.

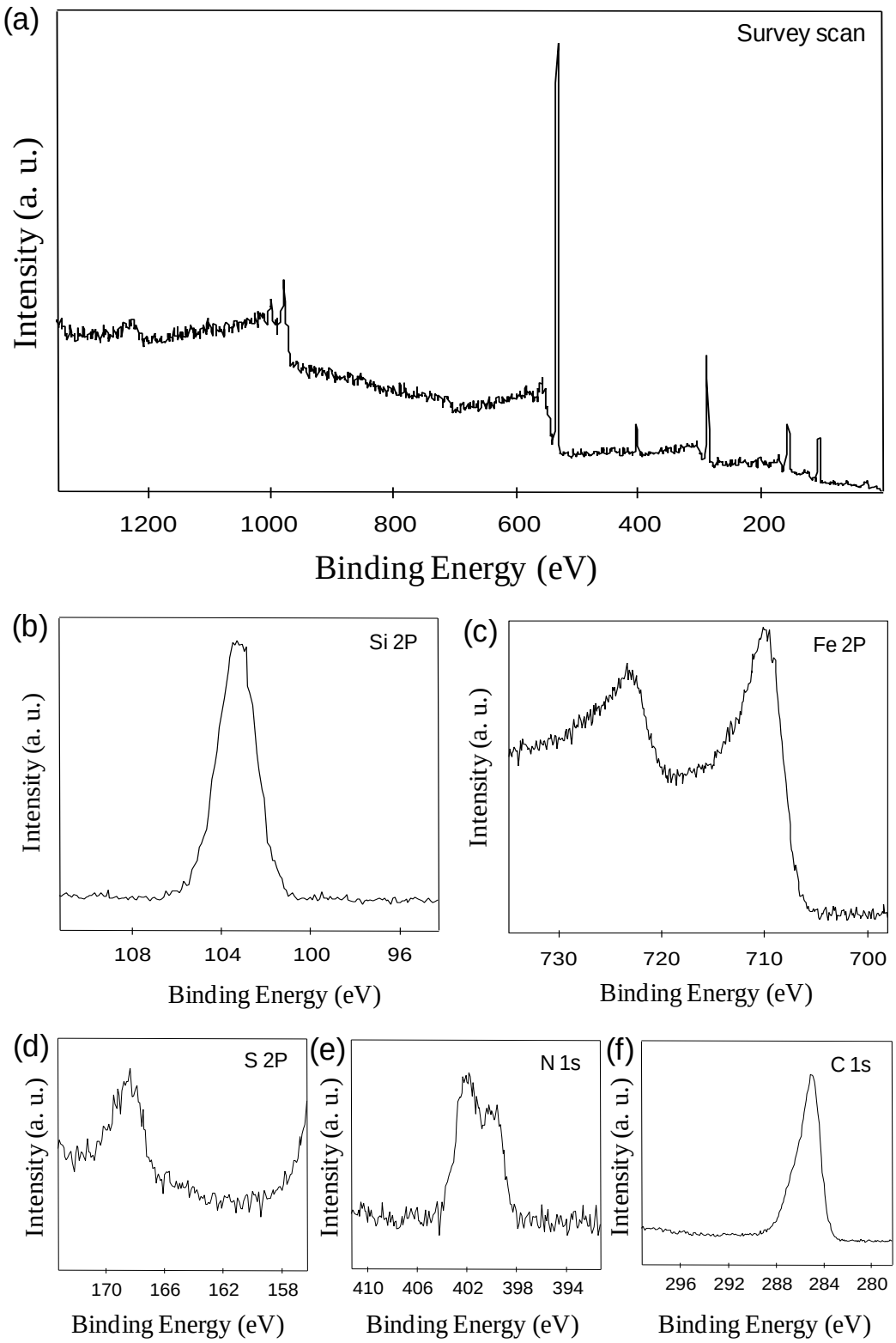

Figure. S5. XPS spectra of MMAB: (a) survey scan; high resolution scans of (b) Si 2p, (c) Fe 2p, (d) S 2p, (e) N 1s and (e) C 1s.

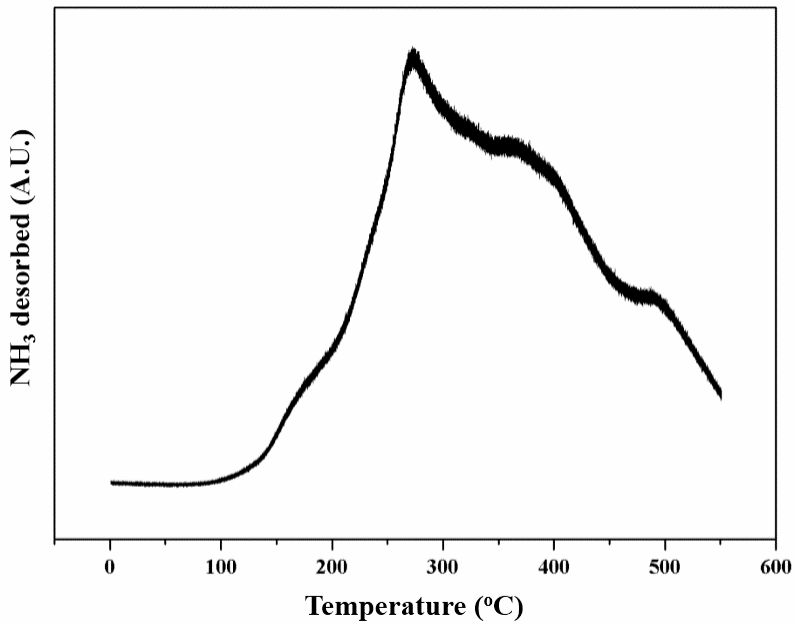

Figure S6. NH_3-TPD profile of MMAB

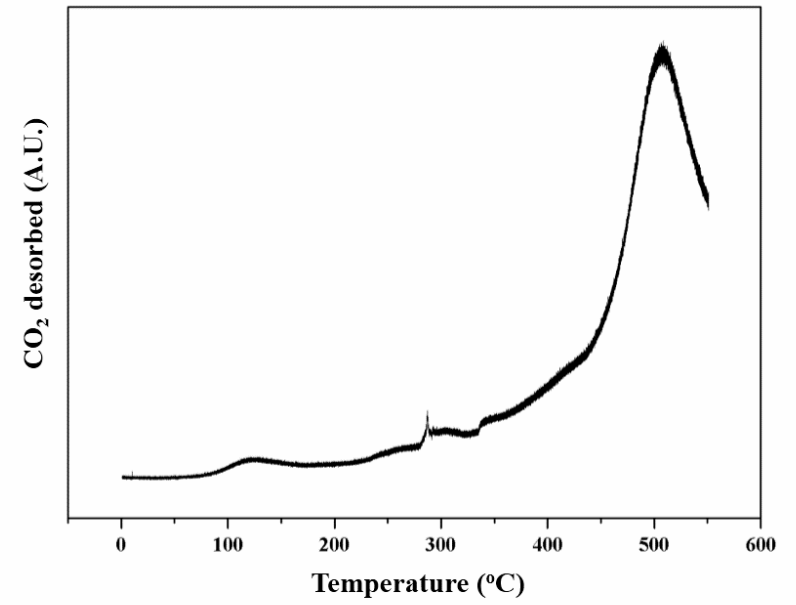

Figure S7. CO_2-TPD profile of MMAB

Table S1. The CHNS elemental analysis results of MMAB and MMAB-SP.

Sample	Elemental Contents (wt %)			
	C	H	N	S
MMAB	15.85	3.313	1.744	2.256
MMAB-SP	15.28	3.638	1.726	2.281