Supplementary Information

Table S1: Physicochemical properties of calcined VSBA-15 catalysts, W-VSBA-15(5), and recyclable VSBA-15 catalysts

Catalysts	n_{H2O}/n_{HCl}	n_{Si}/n_V ratio		a_o (Å)	A_{BET} (m^2/g)	d_p (Å)	V_p (cm^3/g)	$t_w = a_o - d_p$ (Å)
		Gel	calcined[a]					
VSBA-15(5)	295	5	14.8	122.9	709	83.4	1.03	39.5
VSBA-15(10)	295	10	18.2	122.6	742	83.6	1.08	39.0
VSBA-15(15)	295	15	31.5	122.2	773	84.1	1.09	38.1
VSBA-15(20)	295	20	42.3	121.3	820	84.7	1.10	36.6
VSBA-15(25)	295	25	53.4	119.7	863	85.1	1.11	34.6
VSBA-15(50)	295	50	87.5	118.8	890	86.3	1.17	31.9
SiSBA-15	40	-	-	118.2	908	87.4	1.07	30.8
VMCM-41(40)	-	40	42.2	45.4	869	27.7	0.72	17.7
W-VSBA-15(5) [b]	-	-	19.5	122.4	710	83.8	1.07	38.6
VSBA-15(5) [c]	-	-	19.4	122.3	713	83.8	1.07	38.5
VSBA-15(50) [c]	-	-	87.7	114.5	740	84.1	0.95	30.4

$a_{0,}$ unit cell parameter; A_{BET}, specific surface area; d_p, pore diameter; Vp, pore volume; pore wall thickness (t_w) = unit cell parameter (a_0) – pore diameter (d_p).

[a] The results of n_{Si}/n_V ratios in the products are determined by ICP-AES.

[b] Washed catalyst.

[c] The recyclable catalysts were used for 4th run.

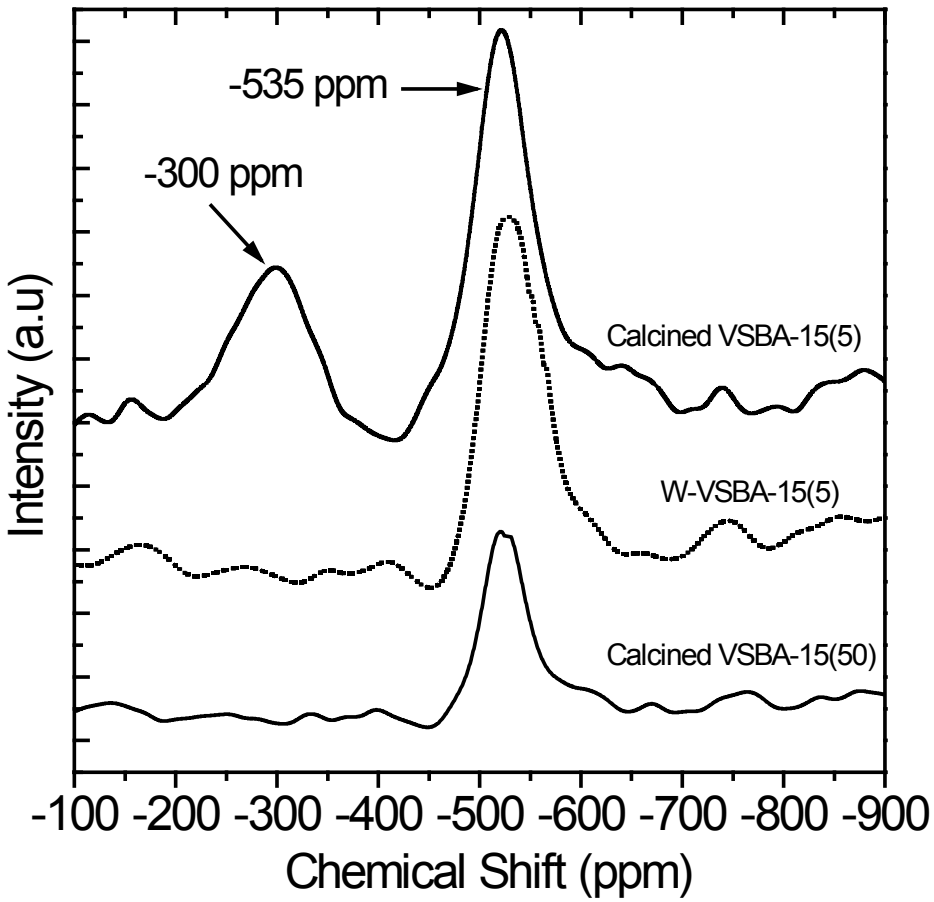

Figure S1: ^{51}V MAS NMR spectra of VSBA-15 catalysts

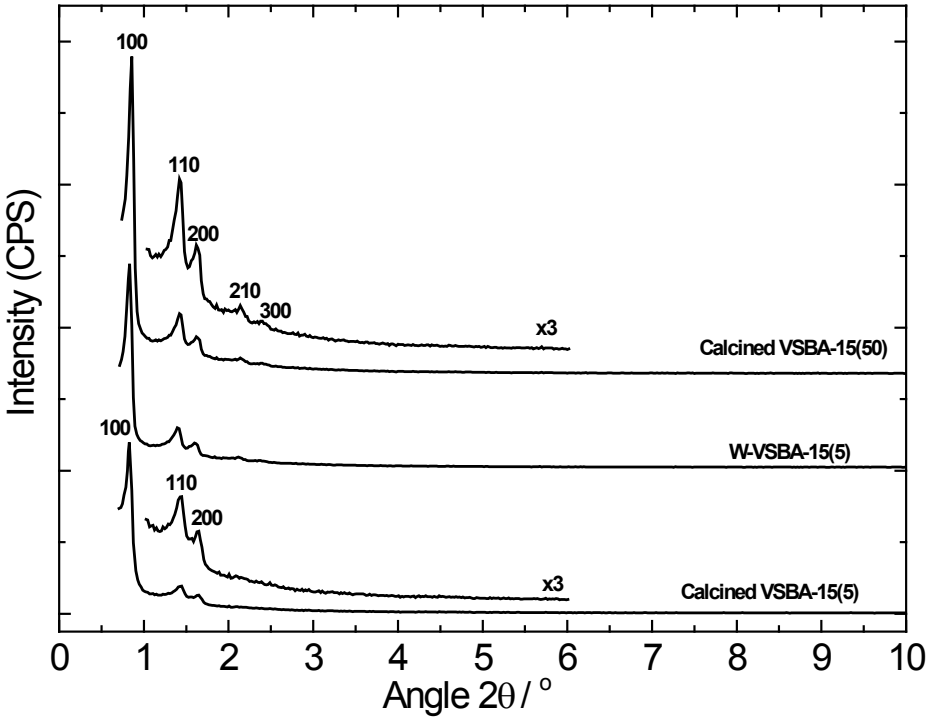

Figure S2: XRD powder patterns of calcined VSBA-15 catalysts

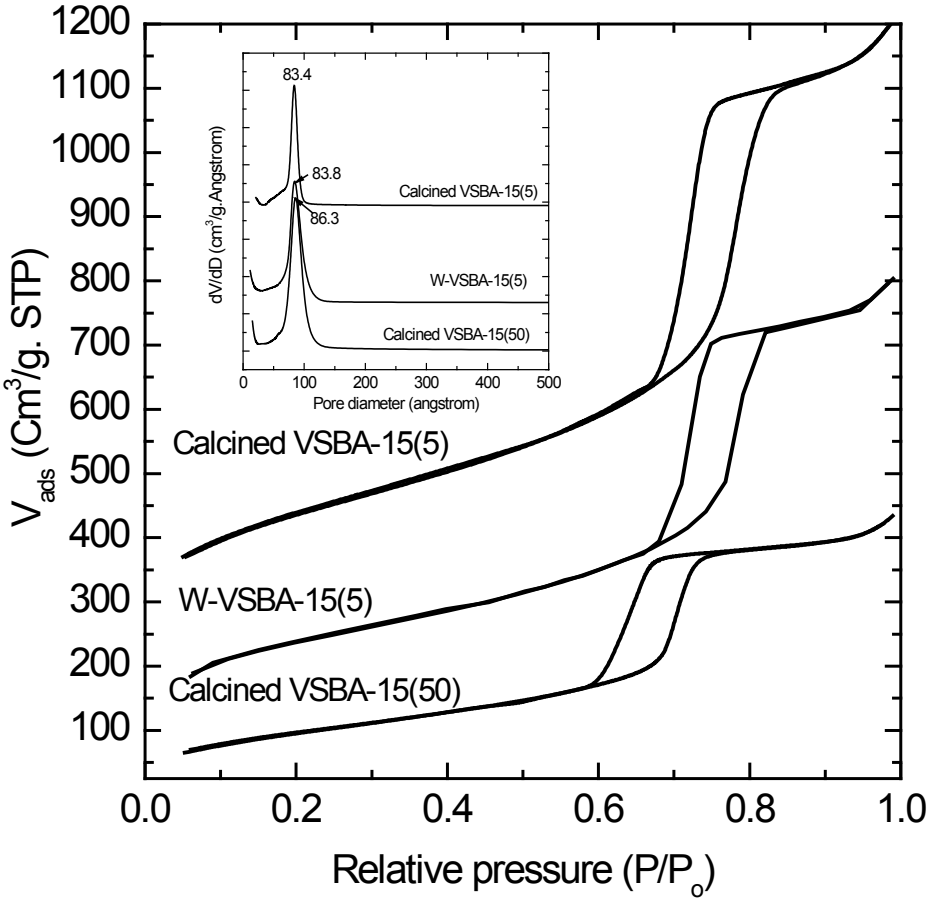

Figure S3: N_2 adsorption isotherms of VSBA-15 catalysts