

Supporting information

Table 1S Structural and textural parameters of calcined CrSBA-15 catalysts

| Catalysts | $n_{\text{H}_2\text{O}}/n_{\text{HCl}}$ (molar ratio) | $n_{\text{Si}}/n_{\text{Cr}}$ | | a_0 (Å) | A_{BET} (m ² /g) | V_p (cm ³ /g) | d_p (Å) | $T_w = a_0 - d_p$ (Å) |
|---------------------------|--|-------------------------------|----------------------|--------------|---|-------------------------------|--------------|--------------------------|
| | | Gel | Product ^a | | | | | |
| SiSBA-15 | 40 | - | - | 118.2 | 908 | 1.07 | 87.4 | 30.3 |
| CrSBA-15(8) | 295 | 8 | 9.9 | 127.4 | 999 | 1.10 | 89.4 | 38.0 |
| CrSBA-15(16) | 295 | 16 | 17.3 | 122.7 | 1015 | 1.09 | 88.5 | 34.2 |
| CrSBA-15(20) | 295 | 20 | 45.0 | 121.3 | 1024 | 1.08 | 87.3 | 34.0 |
| CrSBA-15(50) | 295 | 50 | 99.8 | 114.5 | 1063 | 1.09 | 86.5 | 28.0 |
| CrSBA-15(8) ^b | - | - | 12.3 | 127.3 | 985 | 1.10 | 89.4 | 37.9 |
| CrSBA-15(8) ^c | - | - | 12.2 | 127.2 | 982 | 1.10 | 89.4 | 37.8 |
| CrMCM-41(40) ^d | - | 40 | 45 | 44.4 | 883 | 0.70 | 26.9 | 17.5 |

^a $n_{\text{Si}}/n_{\text{Cr}}$ ratios of products are determined by ICP-AES.

^b Washed catalyst.

^c The catalyst was used in 4th run.

^d The catalyst was synthesized under basic direct hydrothermal method.

a_0 , unit cell parameter; A_{BET} , Specific surface area; V_p , pore volume; d_p , pore diameter, T_w , wall thickness.

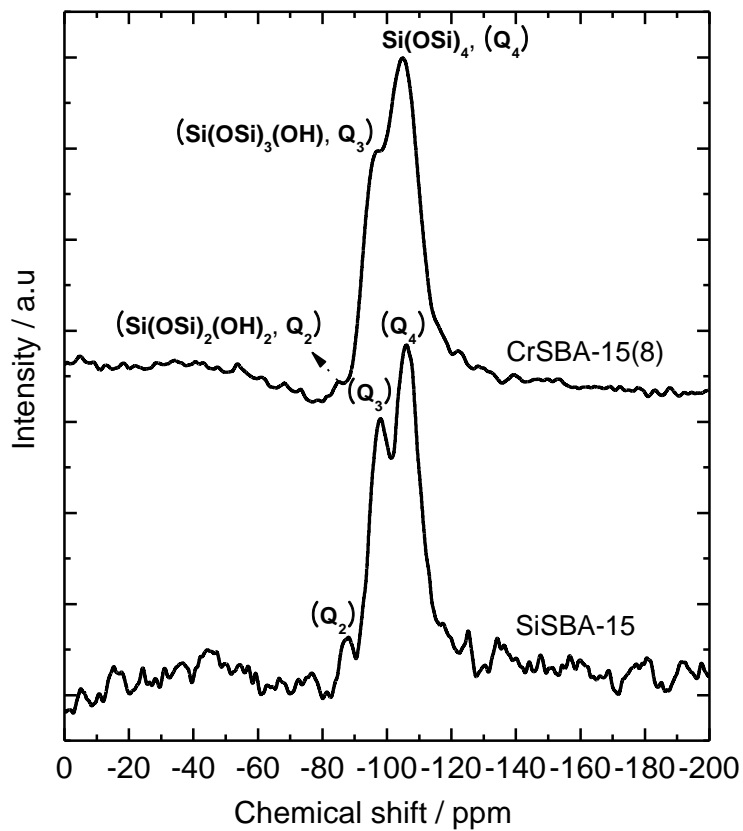


Figure 1S. ^{29}Si MAS NMR spectra of calcined CrSBA-15(8) and SiSBA-15

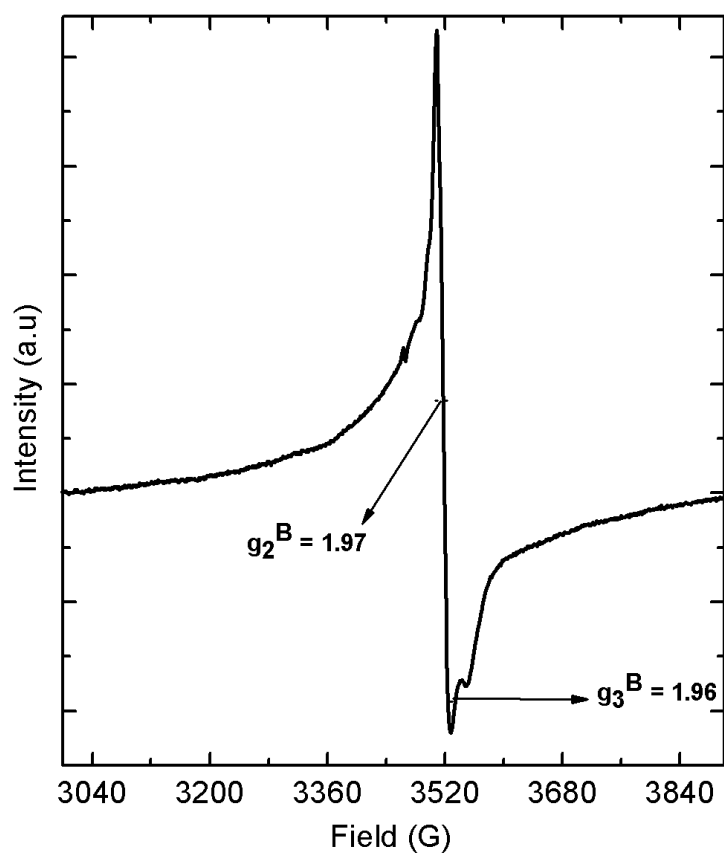


Figure 2S. ESR spectrum of calcined CrSBA-15(8)

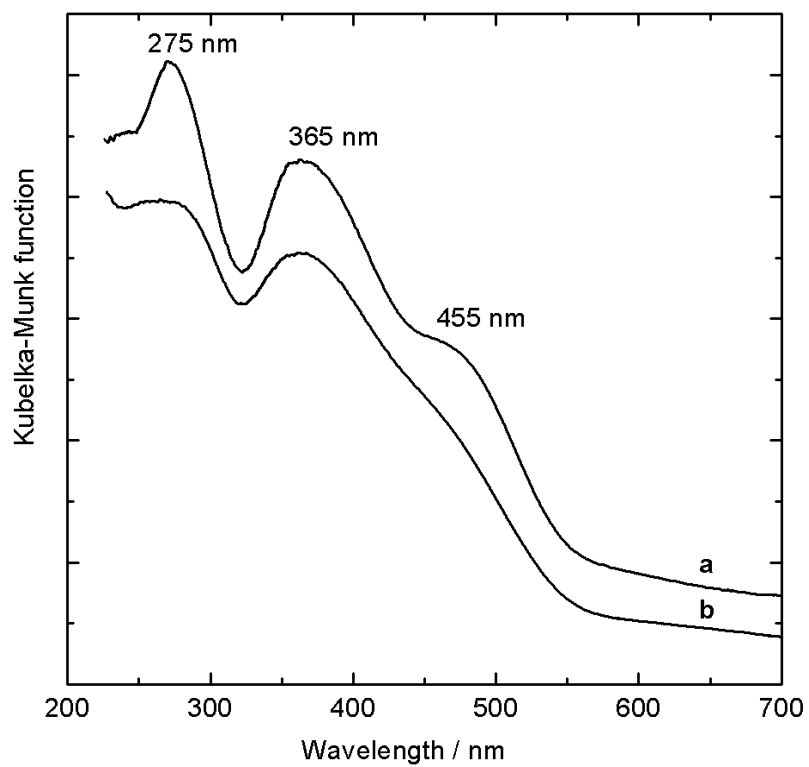


Figure 3S: UV-vis DR spectra of (a) calcined CrSBA-15(8) and (b) washed CrSBA-15(8)

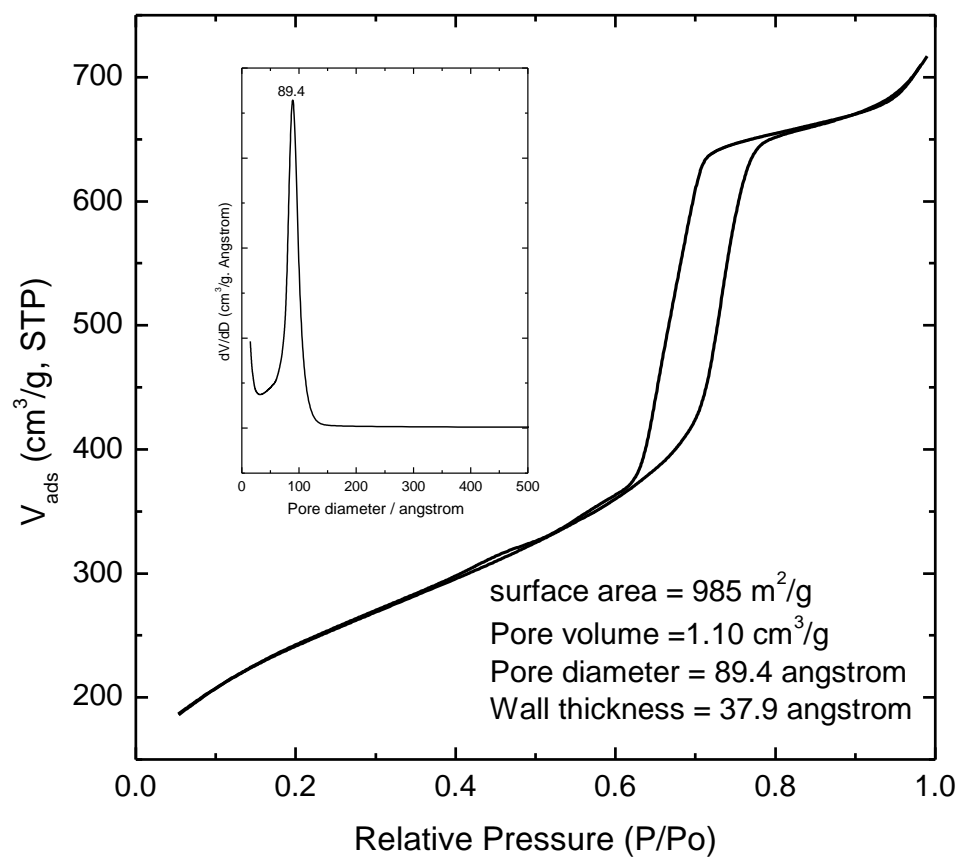


Figure 4S Nitrogen adsorption isotherms of Washed CrSBA-15(8)