Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Modulating acid sites in Y zeolite for valorisation of furfural to get γ-valerolactone

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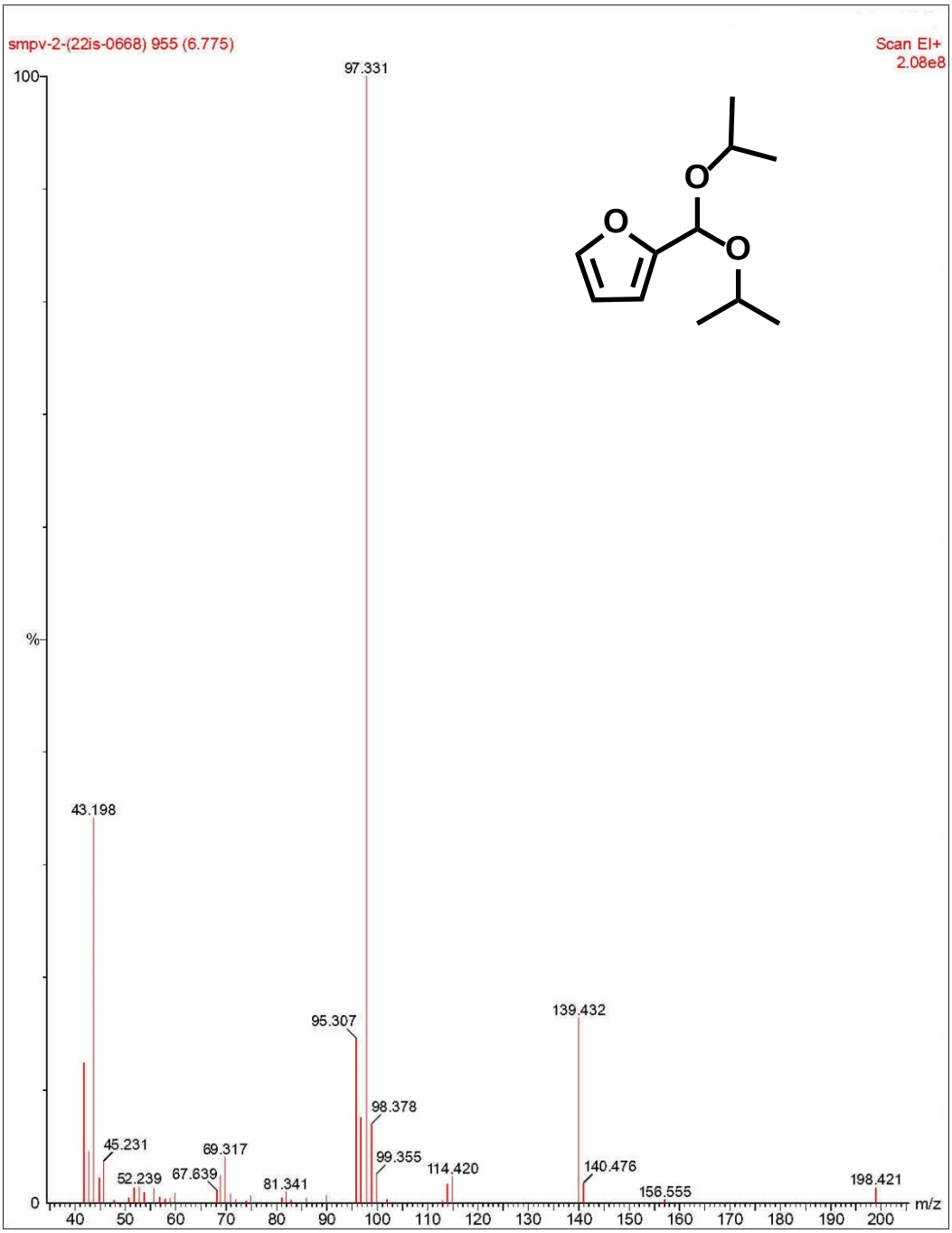

Figure S1. Mass spectrum of FDPA obtained using GC-MS

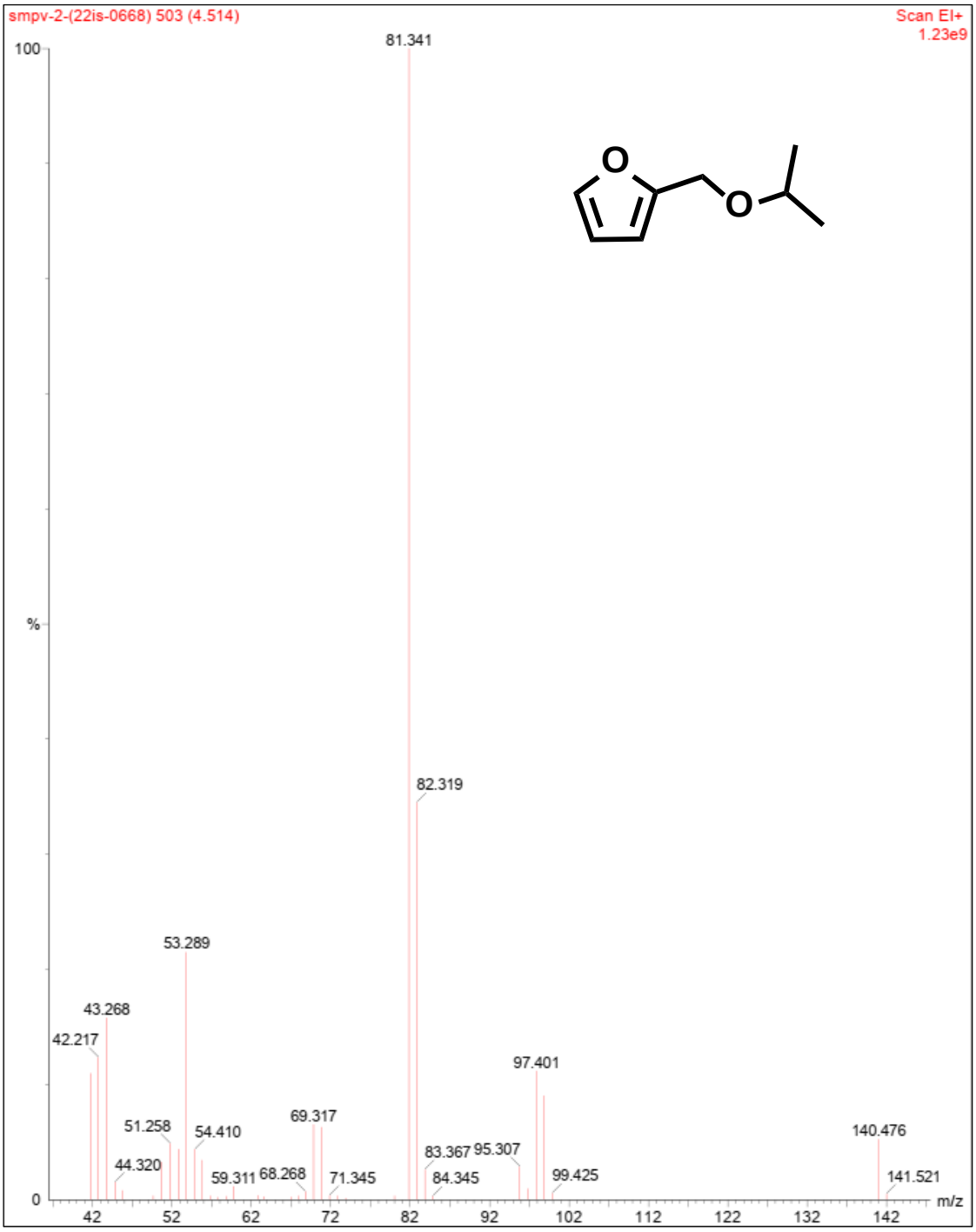

Figure S2. Mass spectrum of IPFE obtained using GC-MS

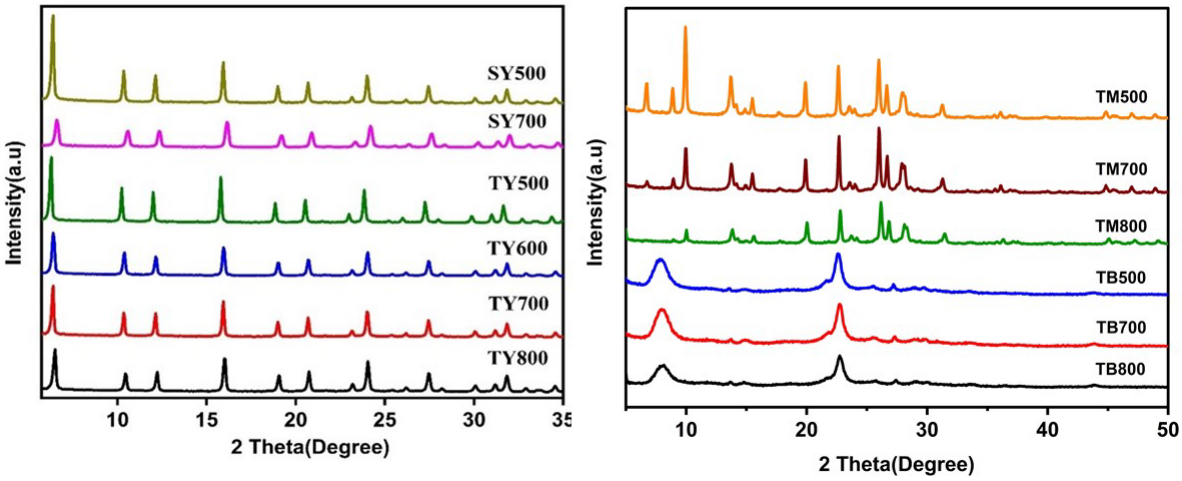

Figure S3: XRD Patterns of prepared catalysts.

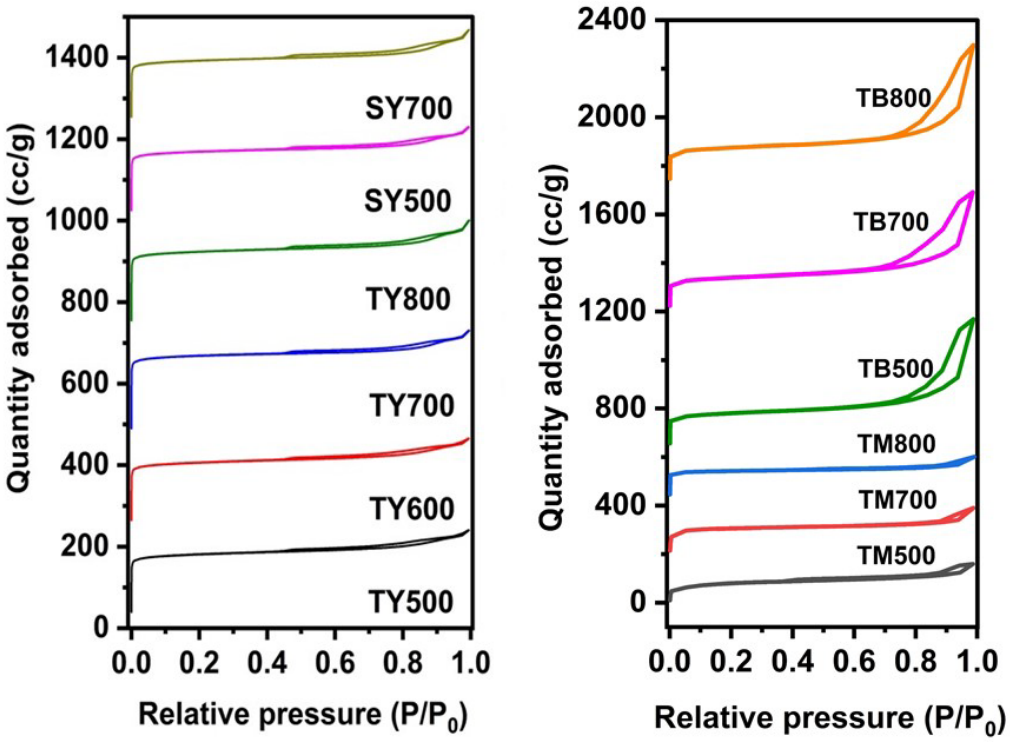

Figure S4: N_2 adsorption isotherms of prepared catalysts.

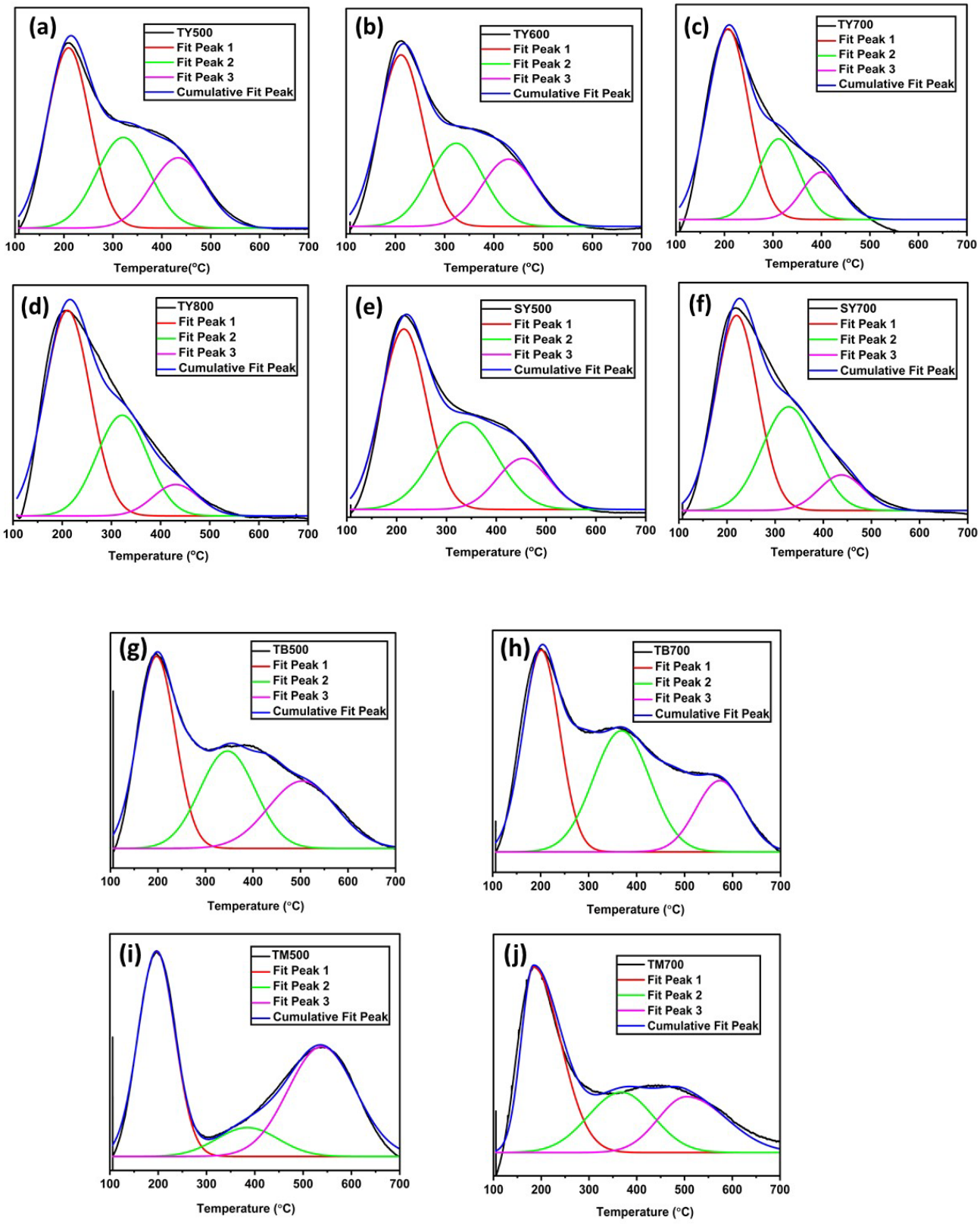

Figure S5: Deconvoluted NH_3-TPD profiles of (a) TY500 (b) TY600 (c) TY700 (d) TY800 (e) SY500 (f) SY700 (g) TB500 (h) TB700 (i) TM500 (j) TM700

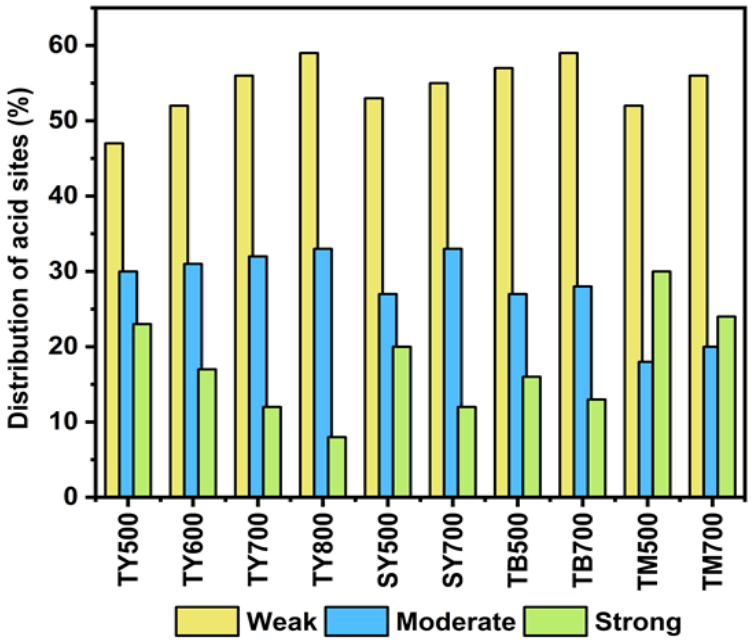

Figure S6. Distribution of weak, moderate & strong acid sites in the prepared catalyst

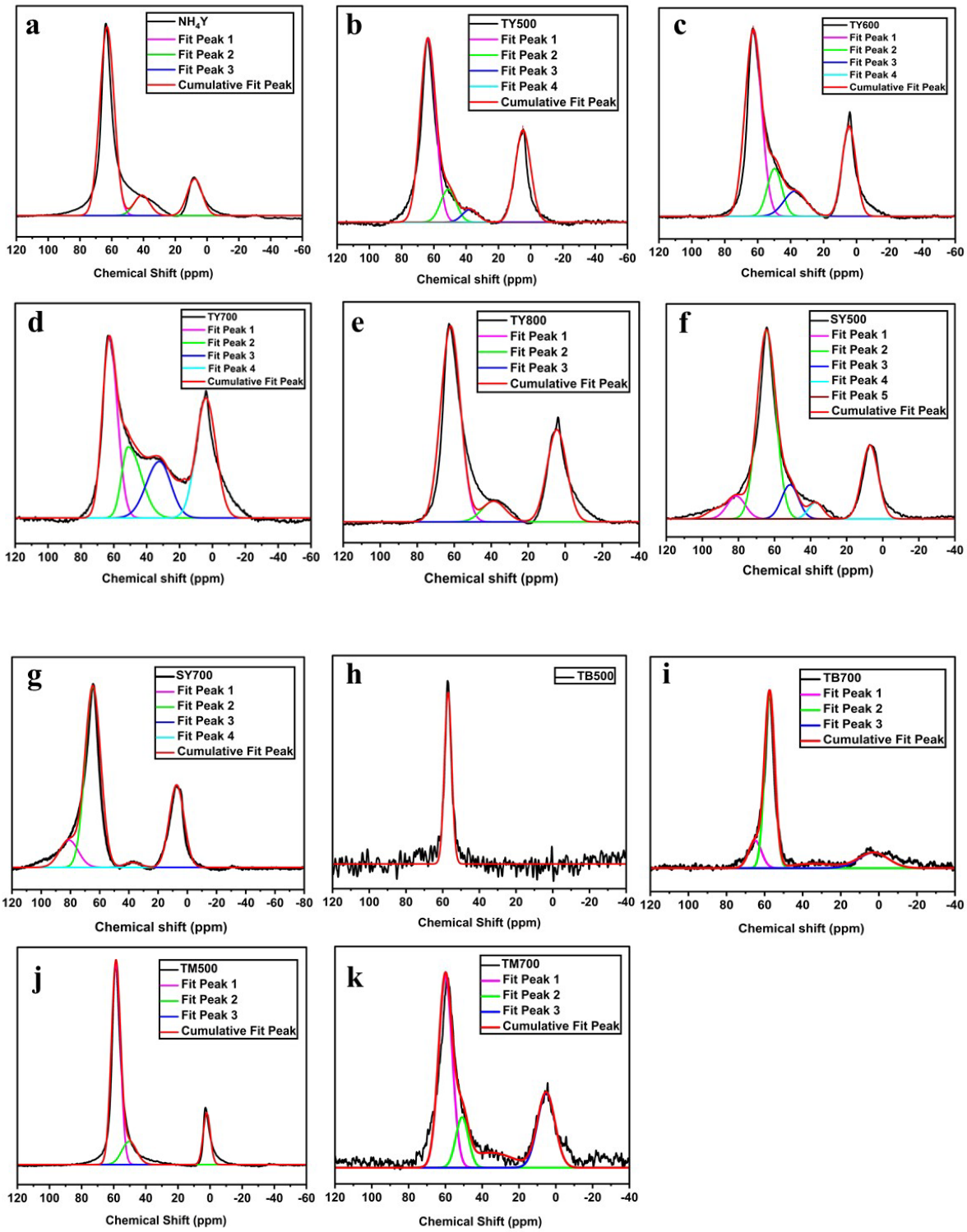

Figure S7: Deconvoluted ^{27}Al MAS NMR spectra of (a) NH_4Y, (b) TY500 (c) TY600, (d) TY700, (e)TY800, (f) SY500, (g) SY700, (h) TB500, (i) TB700, (j) TM500, (k) TM700

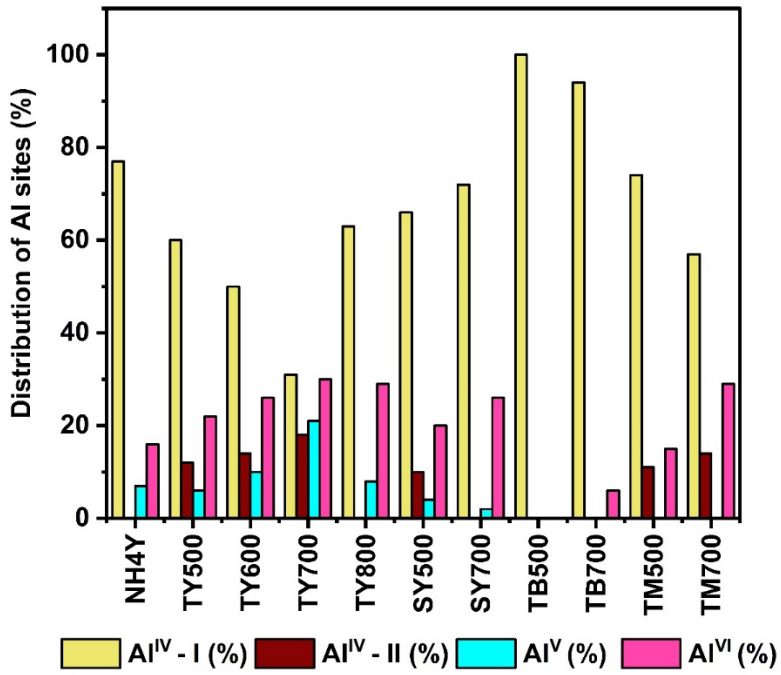

Figure S8: Percentage distribution of the different aluminium sites

Table S1. The ratio between tetrahedral aluminium and the sum of penta-coordinated and octahedral aluminium

Samples	**(Al^{IV}-I + Al^{IV}-II) / (Al^{V} + Al^{VI})**
NH_4Y	3.34
TY500	2.57
TY600	1.77
TY700	0.96
TY800	1.70
SY500	3.16
SY700	2.57
TB500	0
TB700	15.6
TM500	5.66
TM700	2.53

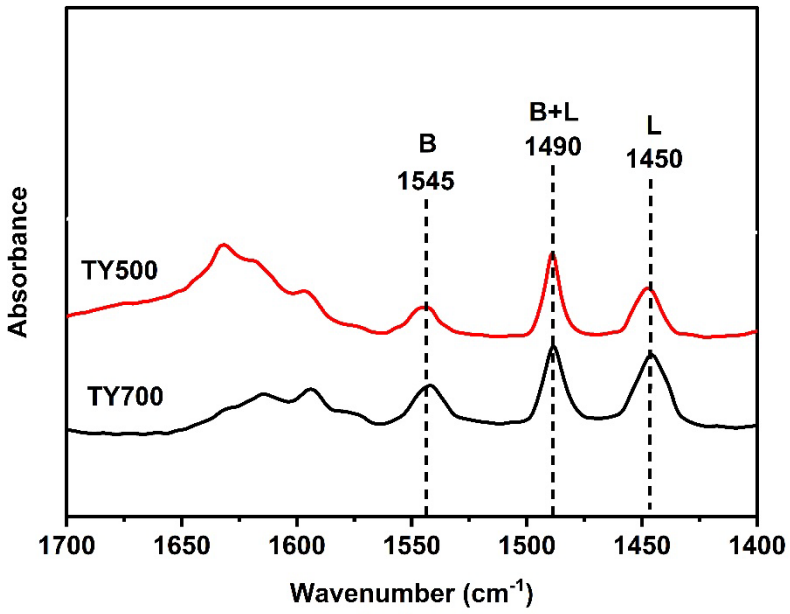

Figure S9: Pyridine adsorption-FTIR spectrum of TY500 and TY700

Sopporting data available in the following link:

https://drive.google.com/drive/folders/1p0N6GfYSTog8Qc40J9ng3uLMWYpfAc9b?usp=sharing