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Electronic Supplementary Information

Aqueous phase hydrogenation of furfural to tetrahydrofurfuryl alcohol on alkaline earth metals modified Ni/Al_2O_3

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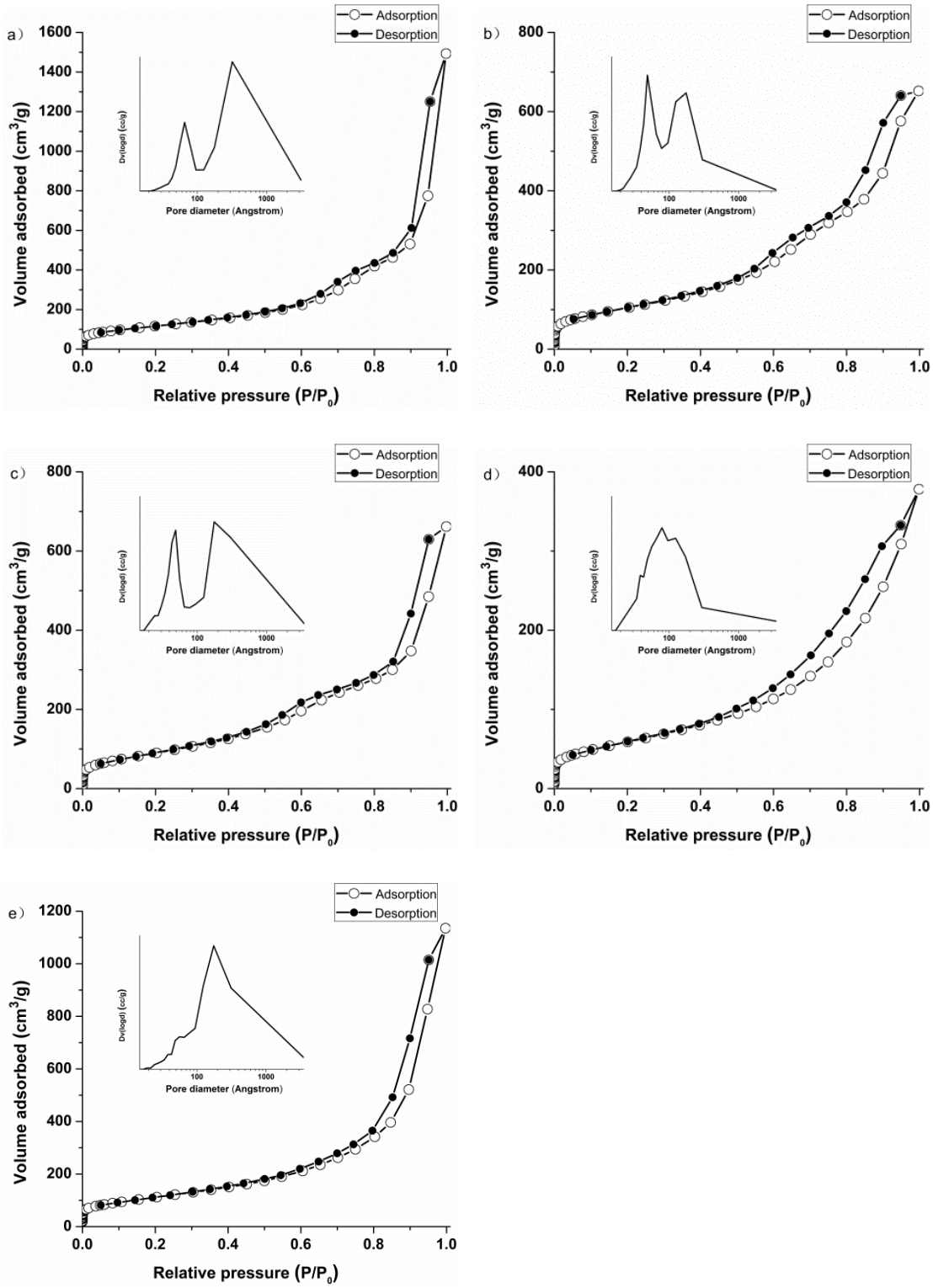

Fig. S1 N_2 adsorption/desorption isotherms of as-synthesized a) Al_2O_3; b) Mg-Al_2O_3; c) Ca-Al_2O_3; d) Sr-Al_2O_3; e) Ba-Al_2O_3.

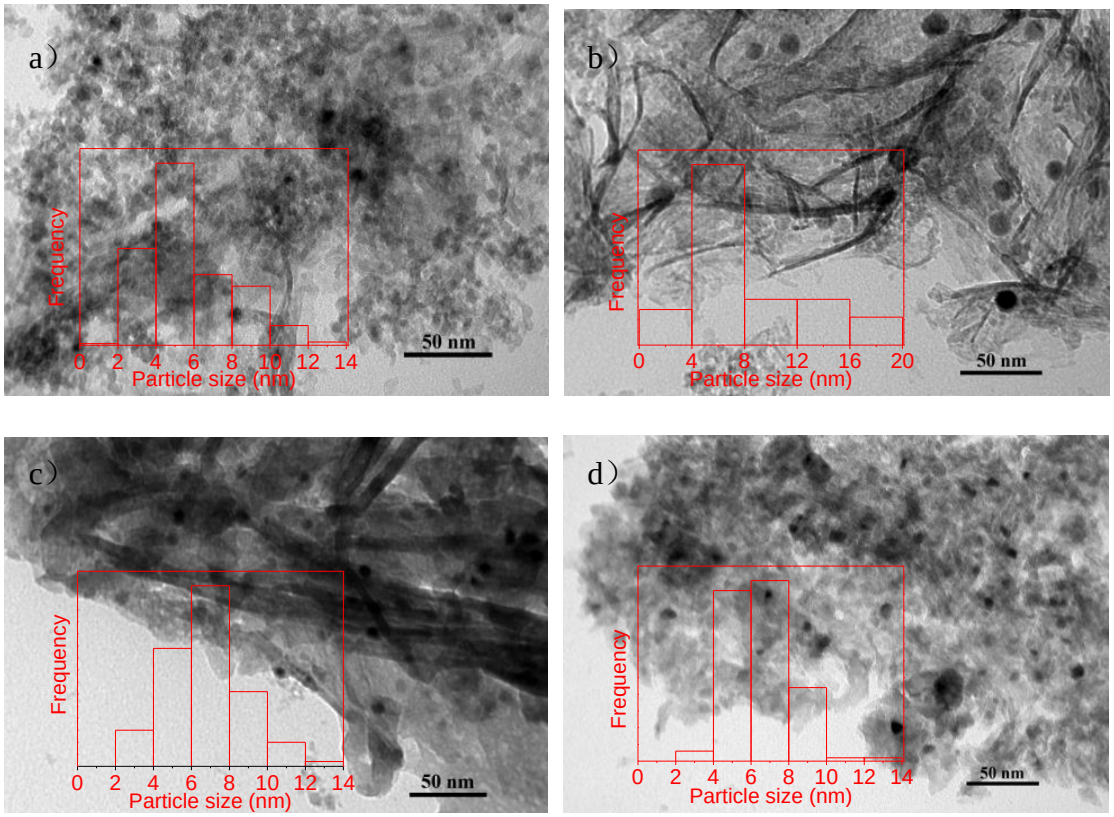

Fig. S2 TEM images of nickel-based catalysts a) Ni/Al_2O_3; b) $Ni/Mg\text{-}Al_2O_3$; c) $Ni/Ca\text{-}Al_2O_3$; d) $Ni/Sr\text{-}Al_2O_3$.

Table S1 Binding energy and relative area of nickel-based catalysts

Samples	Ni		NiO		$NiAl_2O_4$	
	B. E. (eV)	R. A. (%)	B. E. (eV)	R. A. (%)	B. E. (eV)	R. A. (%)
Ni/Al_2O_3	852.9	9.0	855.4	29.0	856.8	62.0
$Ni/Mg\text{-}Al_2O_3$	852.7	11.4	855.2	32.2	856.7	56.4
$Ni/Ca\text{-}Al_2O_3$	852.6	10.7	855.2	35.1	856.7	54.2
$Ni/Sr\text{-}Al_2O_3$	852.5	13.1	855.2	38.6	856.8	48.3
$Ni/Ba\text{-}Al_2O_3$	852.4	12.7	855.0	38.8	856.7	48.5

B. E.: Binding energy， R. A.: relative area

Table S2 The leaching of Ni and Ba after each cycle. [a]

Leaching of Ni or Ba (%)	1	2	3	4
Ni	n.d.	n.d.	n.d.	n.d.
Ba	13.20	0.39	0.40	0.37

[a] Caculated from the ICP-AES experiments based on the fresh catalyst. n.d. refers to not detected.