Electronic Supplementary Information

Table S1. Comparison of the representative catalyst systems in LA dehydration

Research Work	**Catalyst System**	**LA Feedstock Concentration (wt %)**	**LA Conv. (%)**	**AA Yield (%)**	**Reaction Temp. (°C)**
Reference 9	$CuSO_4/Na_2SO_4$	10	80	54	400
Reference 10	NH_3-treated $AlPO_4$	22	100	43.3	340
Reference 11	Phosphates + $NaHCO_3$	20	89	58	350
Reference 12b,d	Phosphates	34	/	36	350
Reference 17a	Calcium hydroxyapatite	50	100	60	375
Reference 17b	Barium sulfate	20	99.8	74	400
Reference 22	$NaNO_3$/SBA-15	37	97	44.8	360
Reference 25d	KI/NaY_{com}	29	97.6	67.9	325
Reference 26	Na_2HPO_4/NaY_{com}	34	85	56.6	340
This work	Na_2HPO_4/NaY-*20.1*	34	93.5	74.3	340

Table S2. Quantified areas of the overall desorption peaks for the unloaded and loaded NaY_{com} and NaY-*n*

Samples	**NaY_{com}**	**NaY-*13.8***	**NaY-*16.9***	**NaY-*20.1***	**NaY-*26.3***
Unloaded	267	238	240	284	308
Loaded	213	220	210	214	249

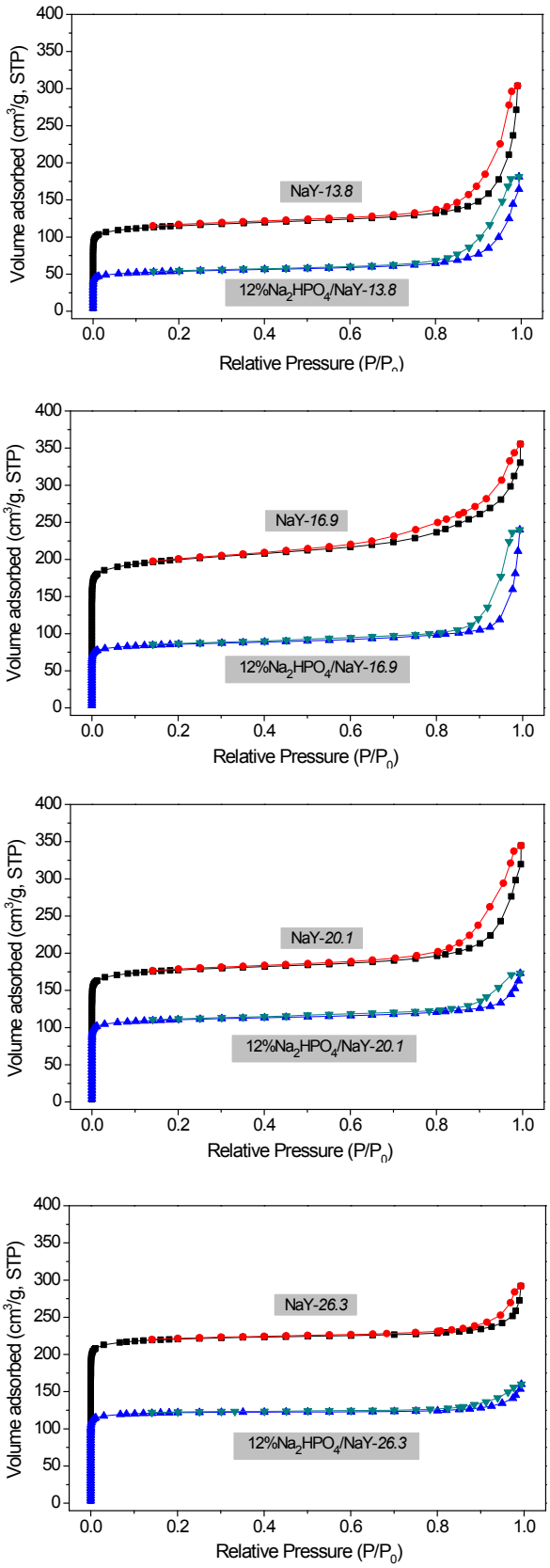
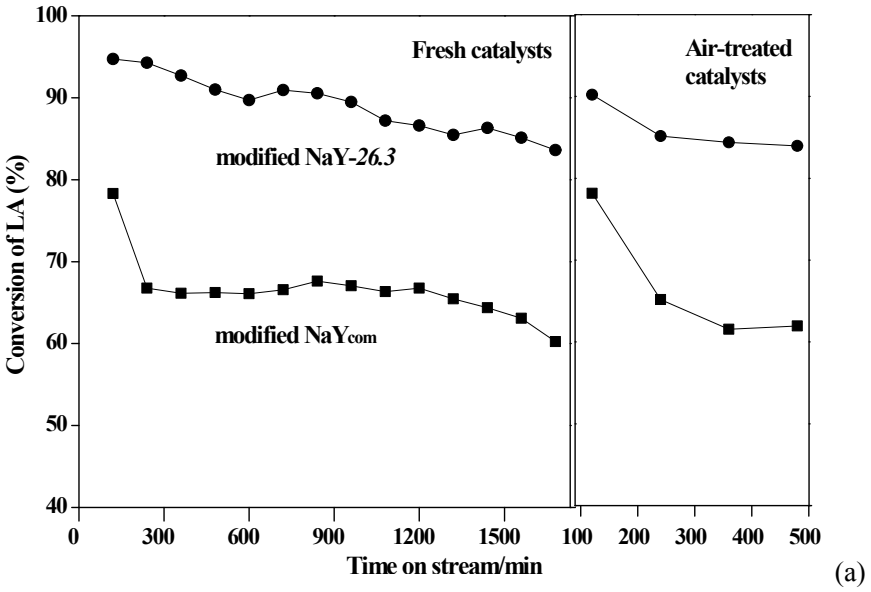
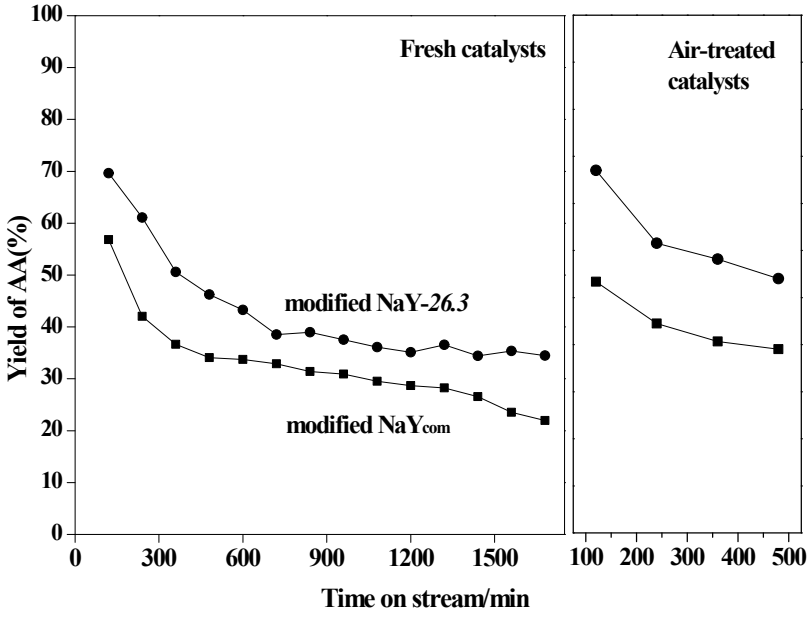


Fig. S1. The isotherms liner plots of NaY-*n* and 12%Na_2HPO_4/NaY-*n*.



(a)



(b)

Fig. S2. (a) Conversion of LA and (b) yield of AA as a function of time on stream over Na_2HPO_4 modified NaY_{com} and NaY-*26.3*: the fresh catalysts subject to a period of 1700 min reaction, and the air-treated catalysts subject to a period of 480 min reaction. Reaction temperature = 340 °C, LA concentration = 34 wt %, and N_2 carrier flow rate = 30 ml/min.

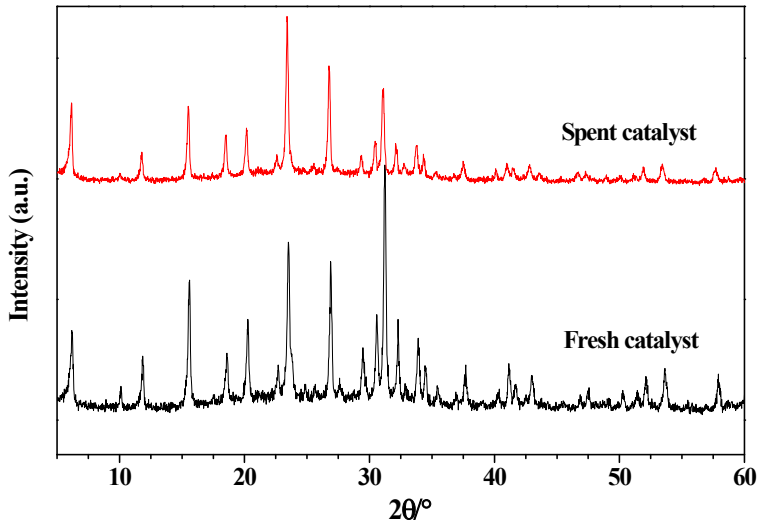


Fig. S3. XRD patterns of the fresh and used Na_2HPO_4/NaY-*26.3*.