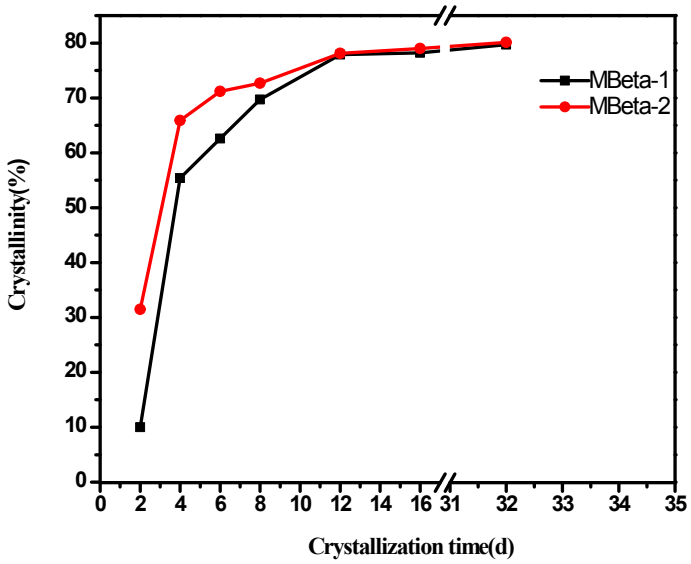
Supporting Materials

Table S1 The qualitative analysis of biodiesel*

No.	Retention time (min)	Compounds	Molecular weight	Boiling point (℃)	Carbon number	C=C number	Concentration (mg/mL)	Correction factor ($\times 10^{-4}$)
1	7.353±0.020	Methyl palmitate	270.45	332.1	17	0	0.23	1.468
2	7.753±0.016	Methyl stearate	298.50	355.5	19	0	0.11	1.421
3	8.451±0.017	Methyl oleate	296.49	351.4	19	1	0.21	1.434
4	8.505±0.017	Methyl linoleate	294.47	373.3	19	2	0.20	1.434
5	8.678±0.017	Methyl linolenate	292.46	364.4	19	3	0.07	1.444
6	9.512±0.016	Methyl icosanoate	326.56	375	21	0	0.08	1.295
7	10.395±0.018	Methyl docosanoate	354.61	398	23	0	0.10	1.491
8	13.374±0.031	Glycerol monooleate	356.54	483.3	21	1	1.0	1.662
9	21.969±0.027	1,3-Diolein	620.99	678.3	39	2	1.0	2.767
10	26.179±0.063	Glycerol trioleate	885.43	818.7	57	3	1.0	2.763

Figure S1 Crysatllization curves of the mesoporous beta zeolites



Figrue S2 Pore size distribution curve for Mbeta-2 by Thermo Scientific Pascal 240

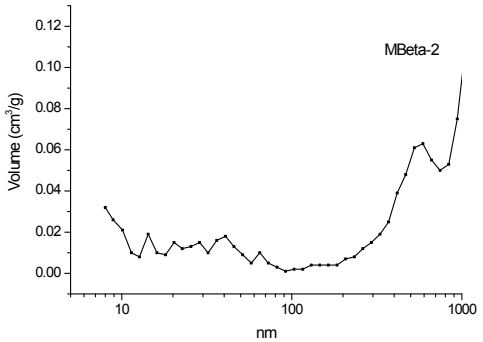


Figure S3 TEM images of the mesoporous beta zeolites

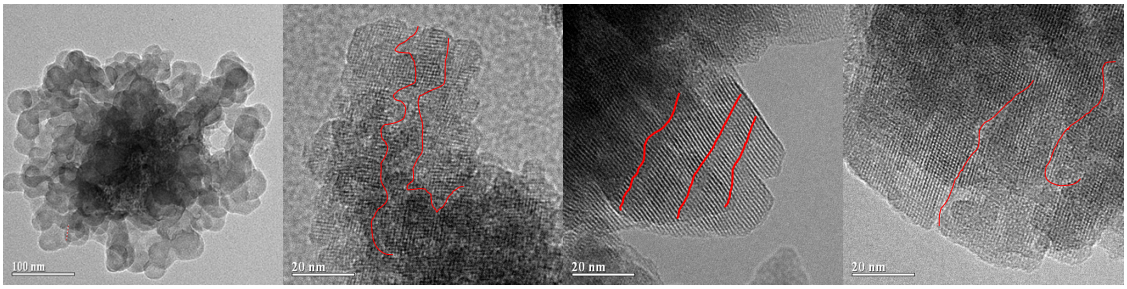
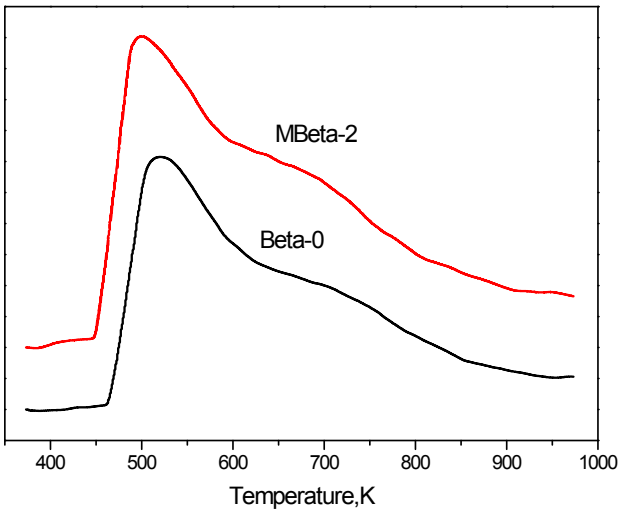


Figure S4 TPD of NH_3 on Mbeta-2 and Beta-0 samples



NH_3-TPD of the samples was carried out in a flow-type fixedbed reactor. Firstly, the sample was exposed to flowing 5% NH_3/He gas for a long time, and then purged by He at 423K to remove excessive physisorbed ammonia. The NH_3 desorption was conducted between 423 and 973K at a heating rate of 10K /min.

Figure S5 Trioline molecule optimized by the first principle method