Supplementary Information for

Protective desilication of highly siliceous H-ZSM-5 by sole tetraethylammonium hydroxide for the methanol to propylene (MTP) reaction

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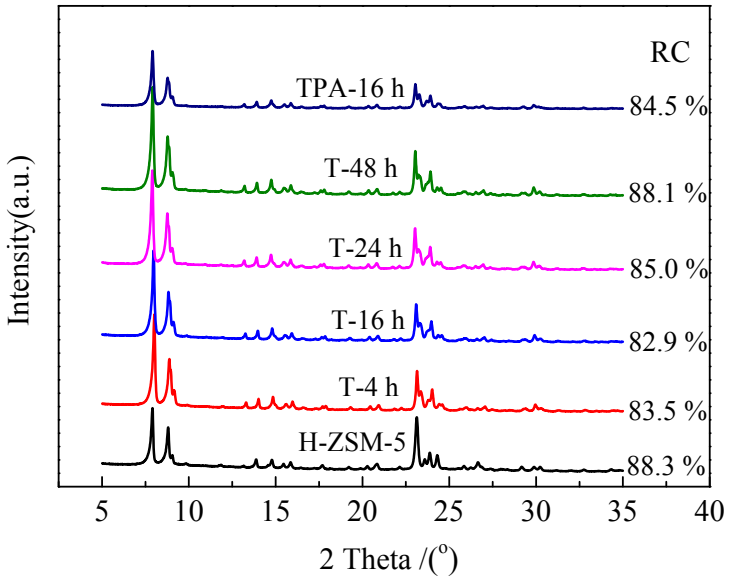


Fig. S1 XRD patterns of the parent, TEAOH-treated H-ZSM-5 and TPA-16 h samples

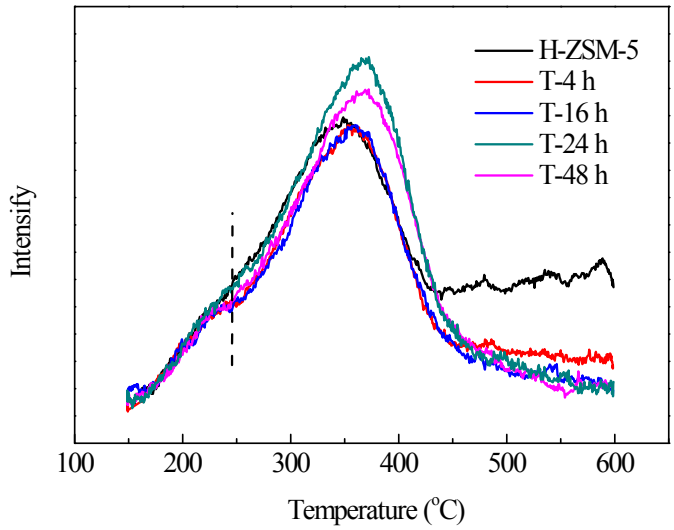


Fig. S2 NH_3-TPD profiles of the parent and TEAOH-treated H-ZSM-5 samples

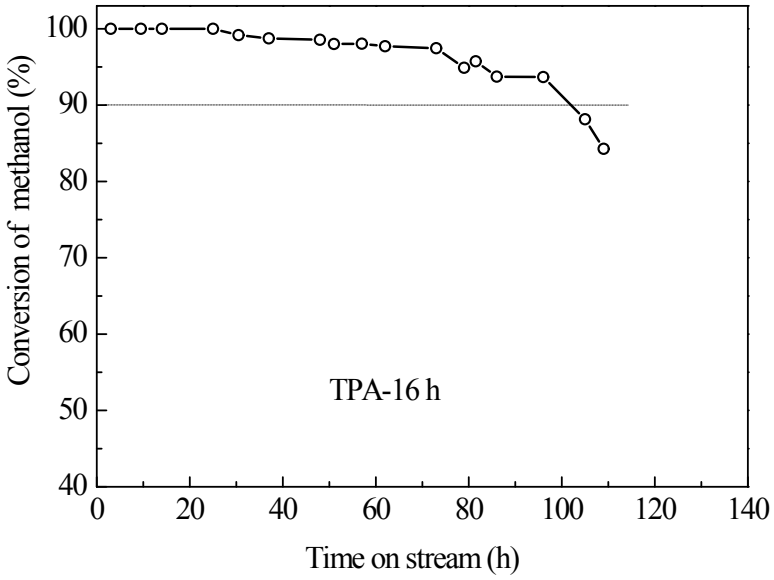
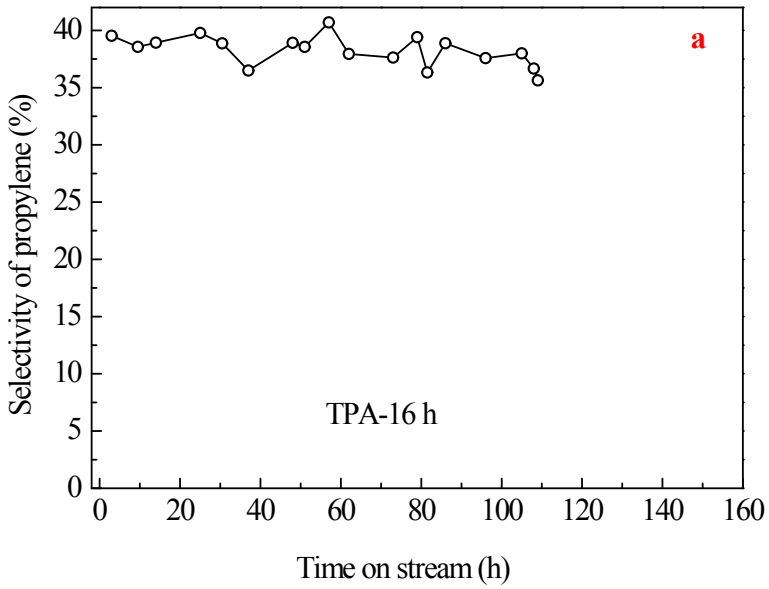
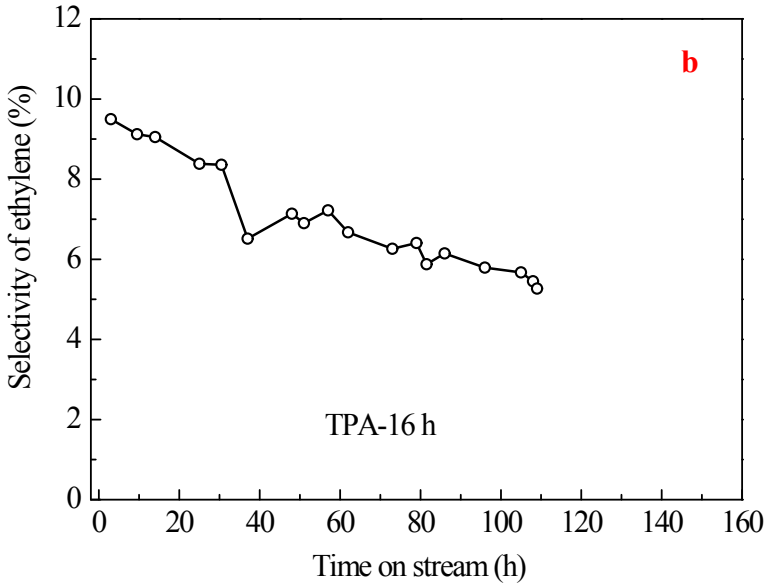
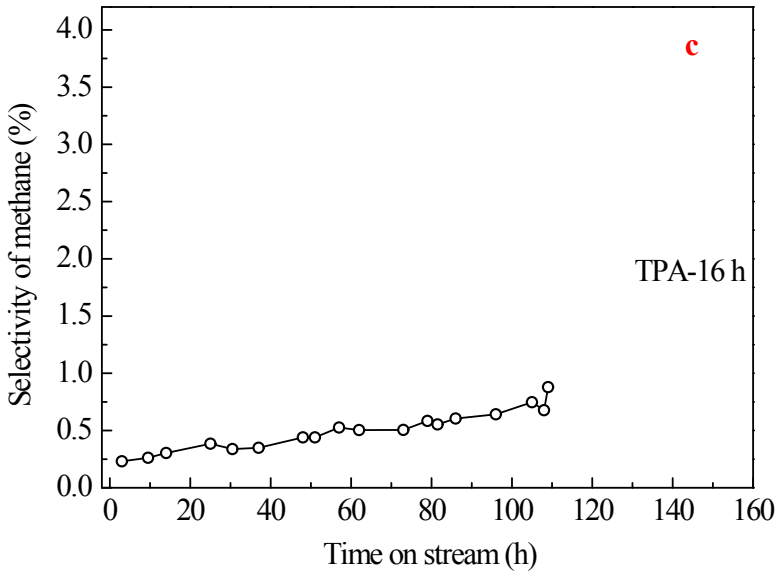
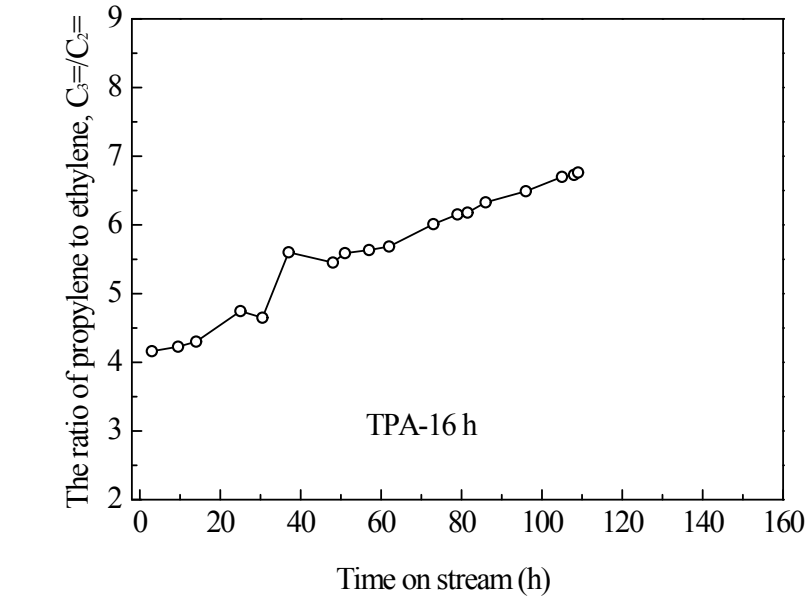


Figure S3 Variation of methanol conversion with the time-on-stream (TOS) over the TPA-16 h sample. (Reaction conditions: T = 480 °C, WHSV = 4.5 h^{-1}, P = 0.1 MP, $m(H_2O)$: $m(CH_3OH)$ = 1:1)




b
Selectivity of ethylene (%)
TPA-16 h
Time on stream (h)
0
2
4
6
8
10
12
0
20
40
60
80
100
120
140
160


c
Selectivity of methane (%)
TPA-16 h
Time on stream (h)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
0
20
40
60
80
100
120
140
160



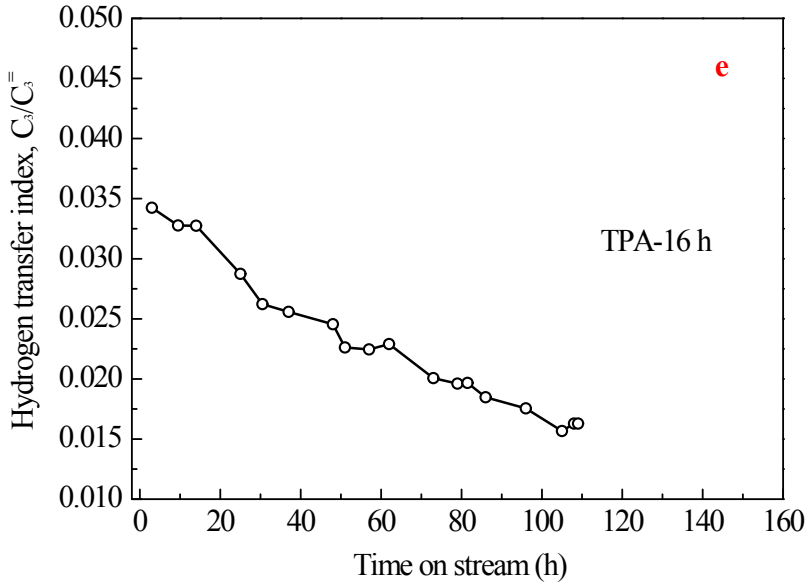


Figure S4 Product selectivity (a: propylene, b: ethylene, c: methane), $C_3^=/C_2^=$ (d) and C_3 hydrogen transfer index (e) of TPA-16 h sample for MTP reaction as a function of time. Reaction conditions: T = 480 °C, WHSV = 4.5 h^{-1}, P = 0.1 MP, m(H_2O) : m(CH_3OH)= 1:1.