

## The Supporting Information

### Direct synthesis of cucurbit[5]uril-anchored polyacrylic acid microspheres and potential applications in selective sorption

#### Experimental details on the sorption/desorption

##### Activation

Q[5]-PAA samples were activated by heating up to 80°C (0.08Mpa, 4h) before sorption measurements. Meanwhile, Q[5] powder was activated in the same conditions.

##### Sorption

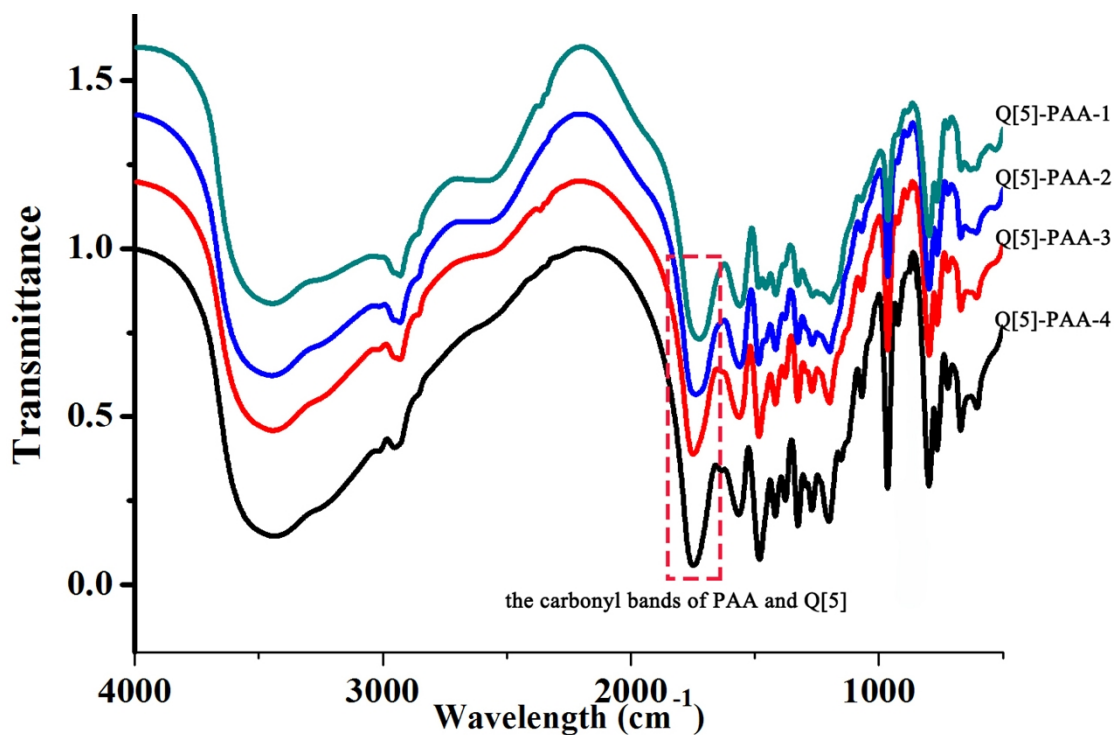
The activated samples and volatile material were placed in a sealed bottle (as shown below). And then weighed two samples each certain time interval quickly, until the weight didn't change.



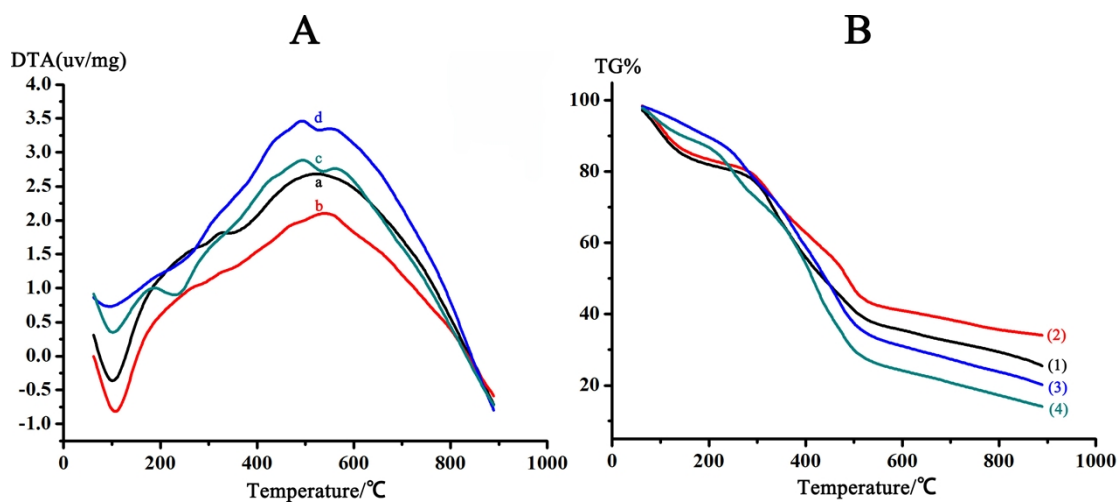
##### Desorption

We deal the samples by heating up to 80°C (0.08Mpa, 4h).





**Figure S3** FTIR spectrum of the Q[5]-PAA Samples



**Figure S4** DTA (A) and TG (B) curves of Q[5]-PAA-1 a), DTA, 1), TG; Q[5]-PAA-2 b) DTA, 2) TG); Q[5]-PAA-3 c) DTA, 3) TG; Q[5]-PAA-4 d) DTA, 4) TG.

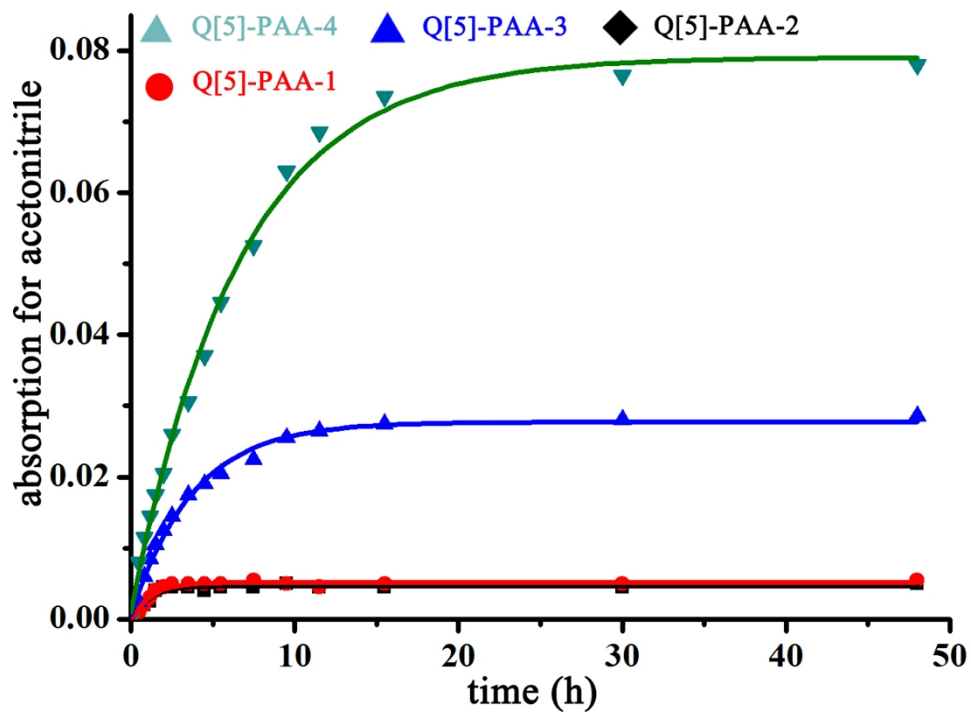


Figure S5 Acetonitrile sorption profiles for different Q[5]-PAA samples

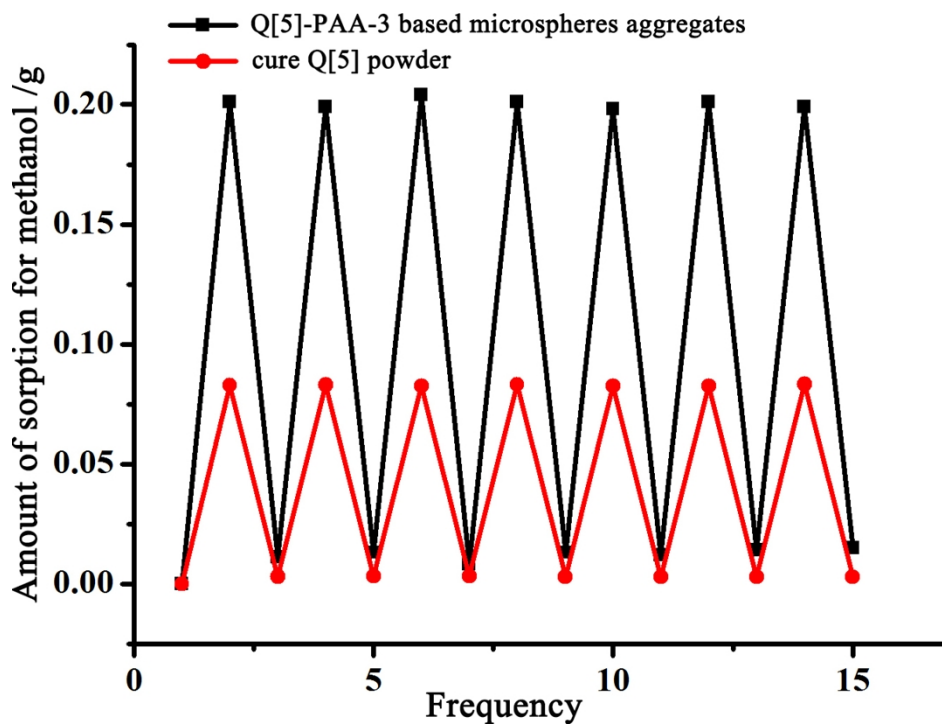


Figure S6 Life time tests of the Q[5]-PAA-3 based microspheres aggregates