Supprting Information

The instrument and condition used for the detection of menthol released from mesoporous silica vessels.

(1) Static style head space instrument: Agilent G1888 Network Headspace Sampler
Head space bottle: Agilent 5182-0837 Headspace vial, 20 mL, Flat Bottom
Sampling loop: 3.0 mL
The temperature for balancing sample
Sample loop temperature: 373 K
Transmission line temperature: 393 K
Sample balancing time: 30-60 min
Forcing pressure for sample bottle：138 KPa
Clamping time: 0.2 min
Air inflation time: 0.2 min
Sampling loop equilibration time: optional
Sample injection time: 0.2 min

(2) Gas chromatography
a. VOCOL capillary column, 60 m×0.32 mm×1.8 μm (film thickness)
b. carrier gas: Henium
c. injection port: split ratio 10:1, 423 K
d. column flow: constant flow, 0.2 mL/min
e. temperature programmed: 313 K, kept for 2 min, then heated with the rate of 4 K/min to 453 K and kept for 10 min.

(3) PerkinElmer Clarus 600T Mass Spectrometer
a. Scan modle : 30-350
b. Assist port temperature: 493 K
c. Ion source temperature: 503 K
d. Quadrupole temperature: 423 K
e. Solvent delay: 4.0 min
f. Ionization Mode: EI+
g. Scan Time: 0.3
h. Inter-Scan Delay: 0.05

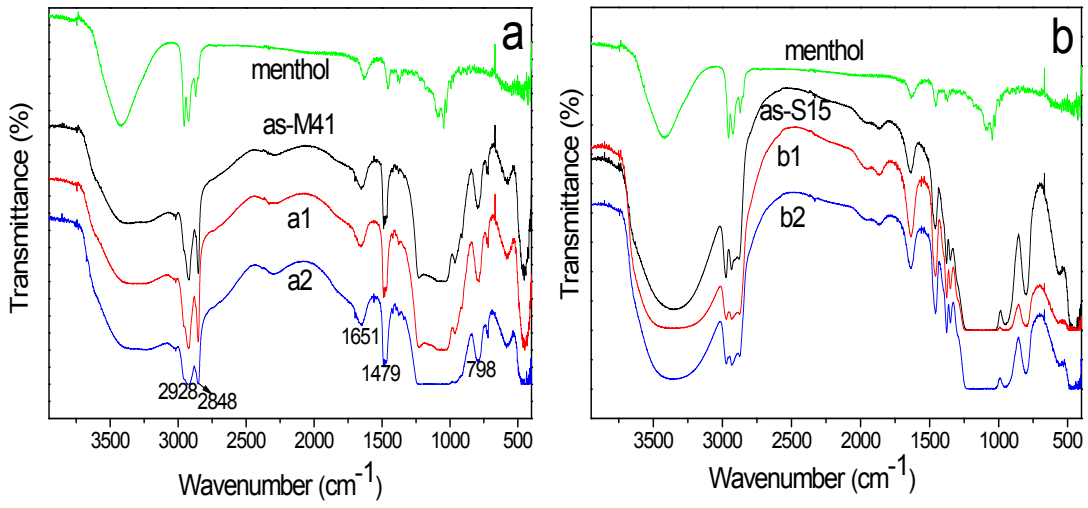

Fig S1.FT-IR spectra of (a) as-M41, (b) as-S15 and their analogues, a1 and b1 (adsorbed menthol at 373 K and opened stored at embinet for 2 days), and a2 and b2 samples (adsorbed at 373 K and purged with nitrogen for 1h).

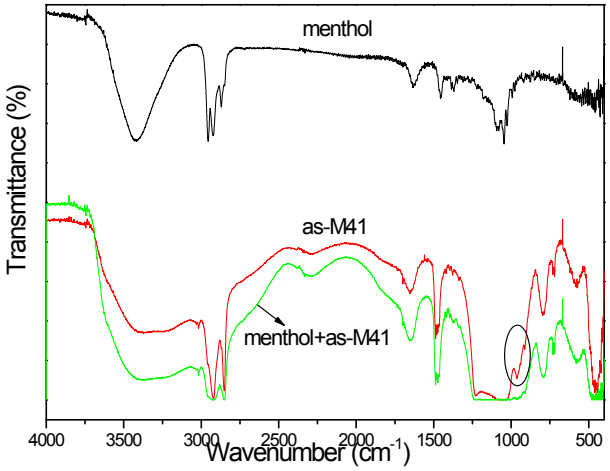

Fig S2. The FT-IR spectrum of menthol, as-M41, and the mixture of as-M41 and menthol (30 wt.-%).

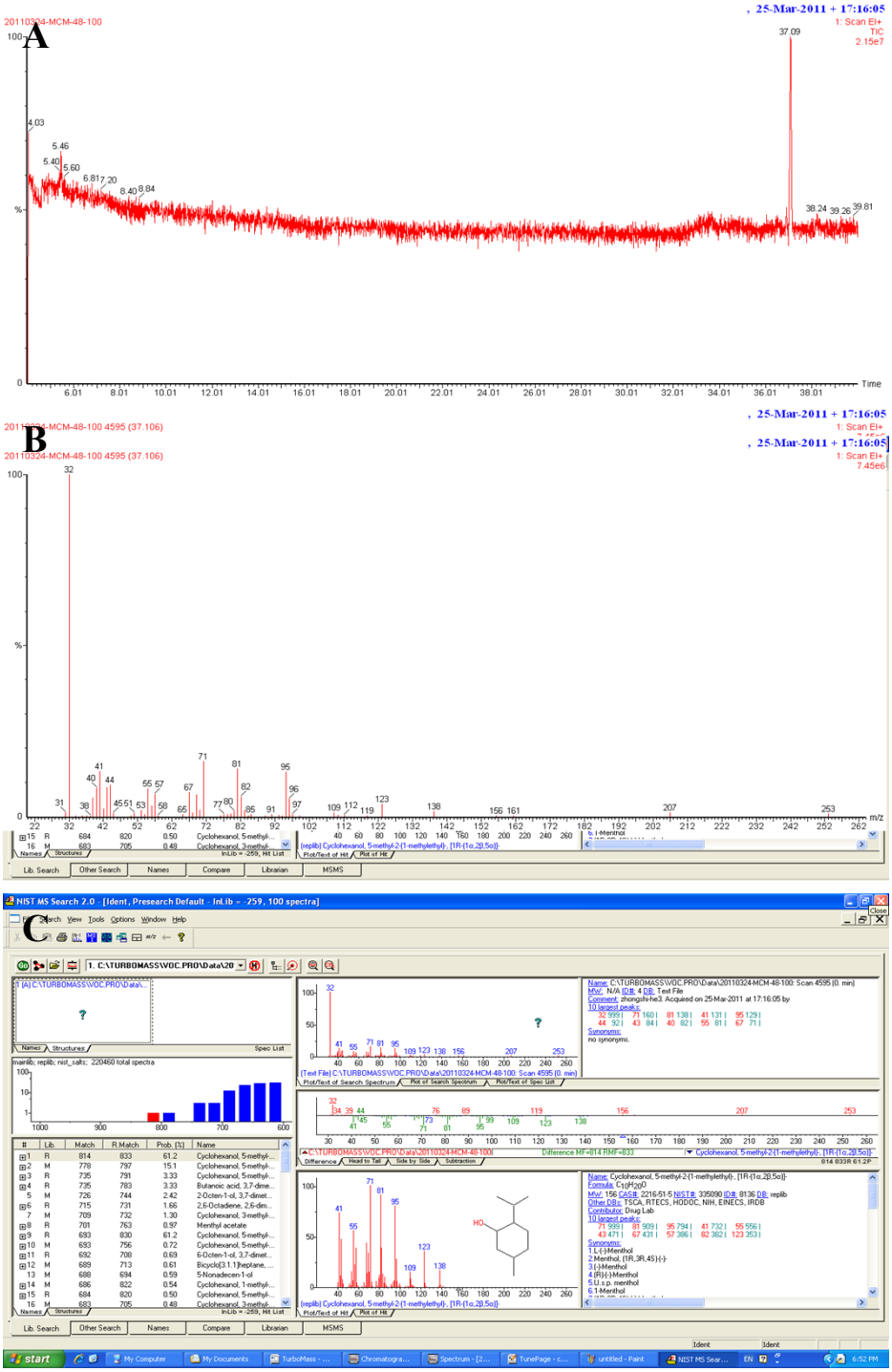

Fig. S3. A) GC spectrum, B) MS spectrum of the released menthol from as-M48 loaded with menthol in 373 K and C) fitting with the standard spectrum of menthol.