Supporting information

The hydrolysis of phenyl trifluoroacetate in AOT/*n*-heptane RMs as a sensor of the encapsulated water structure

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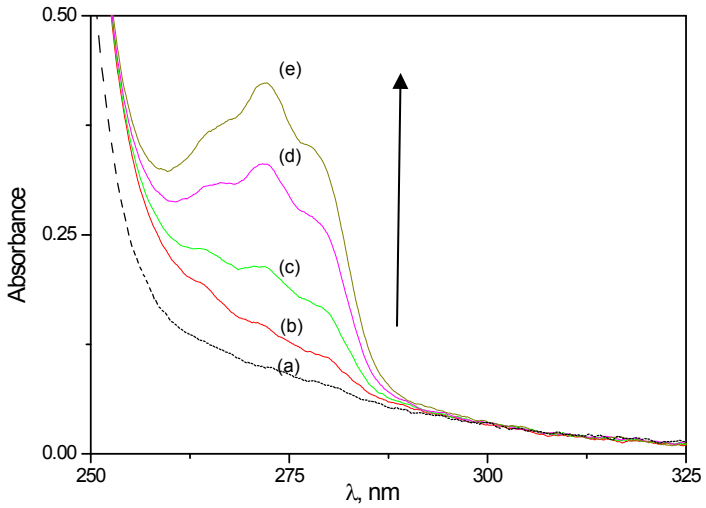

Figure S1. Absorption spectra of PFTA in AOT (0.3 M)/*n*-heptane at (a) *W*=0 and *W*=10 at (b) 0.5, (c) 23, (d) 93 minutes and (e) 48 hours. The arrow indicates the direction of spectral change over time

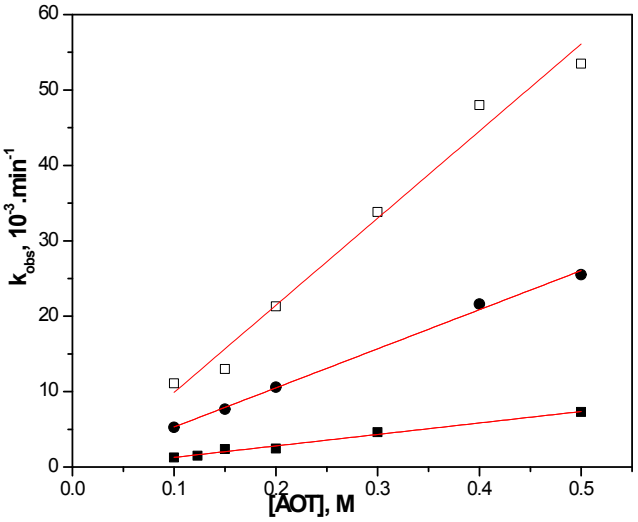

Figure S2. Influence of the concentration of AOT on k_{obs} in the hydrolysis of PTFA at *W* = 5 (fill squares), 15 (fill circles) and 30 (open squares) at 25.0 °C. The data were fitted using Eq. 7.

Deduction of Eq. 4

$$[PTFA]i = [PTFA]o.[AOT].K_o$$

$$[PTFA]w = [PTFA]i.W.Kw. = [PTFA]o.W.Kw.Ko.[AOT]$$

$$[PTFA]t = [PTFA]o + [PTFA]i + [PTFA]w$$

$$[PTFA]t = [PTFA]o + [PTFA]o.K_o.[AOT] + [PTFA]o.W.Kw..Ko.[AOT] =$$

$$= [PTFA]o\{1 + [AOT].K_{o.} + W.Kw.Ko.[AOT]\}$$

$$[PTFA]o = \frac{[PTFA]t}{1 + K_o.[AOT] + W.Kw.Ko.[AOT]}$$

$$-\frac{\partial PTFA}{\partial t} = ki.[PTFA]i + kw.[PTFA]w$$

$$= ki.\{[AOT].[PTFA]o.K_o\} + kw.\{[PTFA]o.W.Kw.Ko.[AOT]\}$$

$$= [PTFA]o\,[AOT].(ki.Ko + kw.W.Kw.Ko)$$

$$-\frac{\partial PTFA}{\partial t} = \frac{[PTFA]t\,.[AOT].(ki.Ko + kw.W.Kw.Ko)}{1 + K_o.[AOT] + W.Kw.Ko.[AOT]}$$

$$kobs = \frac{[AOT].(ki.Ko + kw.W.Kw.Ko)}{1 + K_o.[AOT] + W.Kw.Ko.[AOT]}$$

Table S1. Values of slope from plots of k_{obs} vs. W (Figure 3) at different [AOT] for hydrolysis of PTFA in AOT/*n*-heptane RMs at 25 °C.

[AOT], M	$slope_{k\text{-}W}$, 10^{-4} min^{-1}	Ordinate, 10^{-3} min^{-1}
0.1	3.87	-(0.3±0.2)
0.2	7.6	-(0.7±0.4)
0.3	13	-(0.9±0.9)
0.4	17.4	-(3±2)
0.5	21.4	-(3±1)

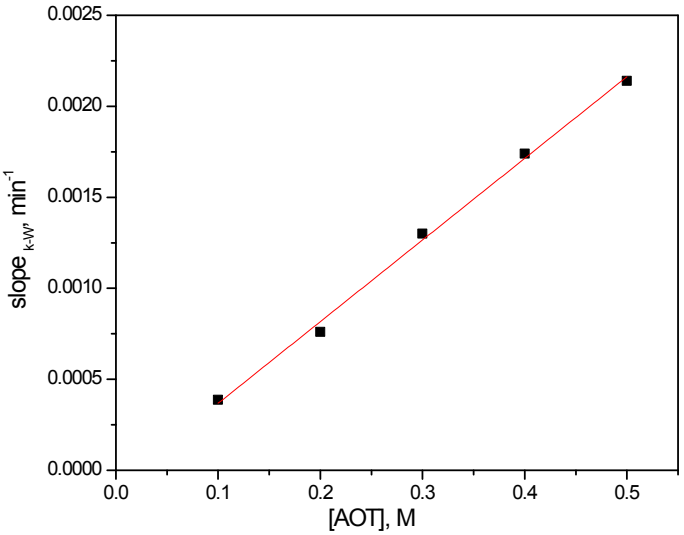

Figure S3. Plot of *slope* $_{k\text{-}W}$ vs. [AOT] for hydrolysis PTFA in AOT/*n*-heptane RMs at 25 °C (r^2=0.996); The parameter of the straight line are slope= (4.5 ± 0.1) x10^{-3} min^{-1} and intercept=-(8±5)x10^{-5} min^{-1}).