Supporting Information

Polymer Chemistry manuscript

'Hydrophobic polypyrrole synthesized by aqueous chemical oxidative polymerization and its use as a light-responsive liquid marble stabilizer'

by H. Kawashima *et al.*

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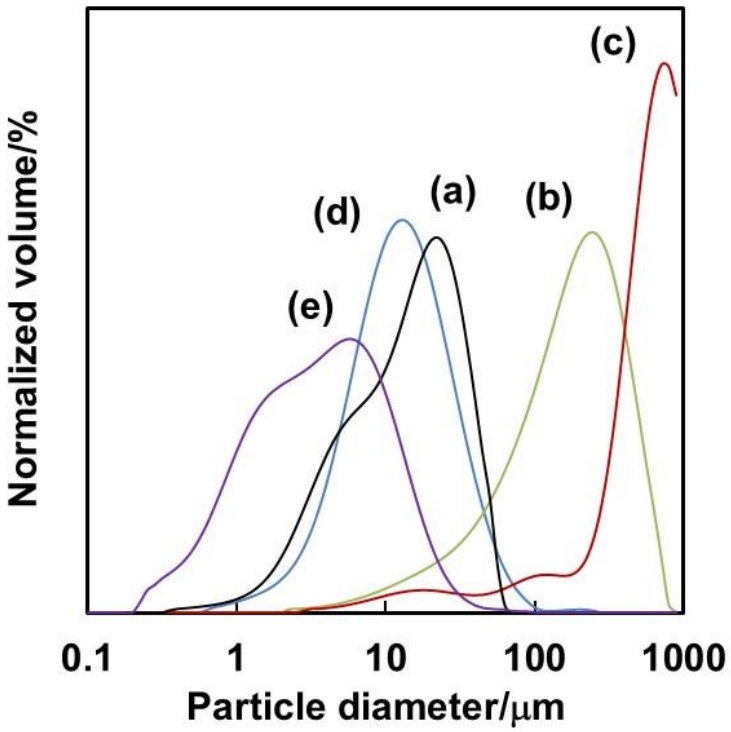

Figure S1 Laser diffraction particle size distribution curves obtained for (a) PPy-C8F, (b) PPy-C6F, (c) PPy-C4F, (d) PPy-Cl and (e) dedoped PPy-C8F dispersed in aqueous medium.

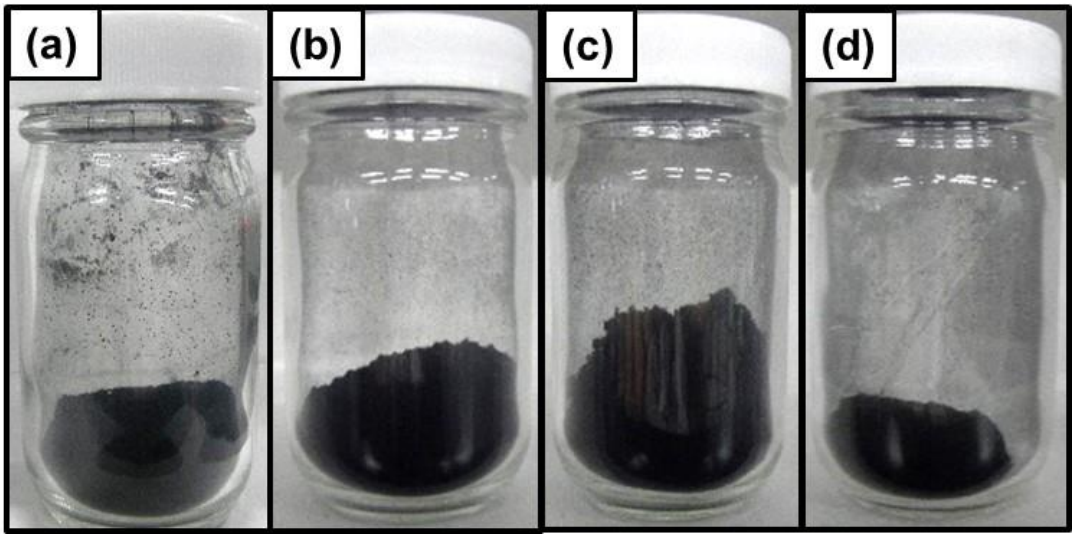

Figure S2. Digital images of (a) PPy-C8F, (b) PPy-C6F, (c) PPy-C4F and (d) PPy-Cl dried bulk powders.

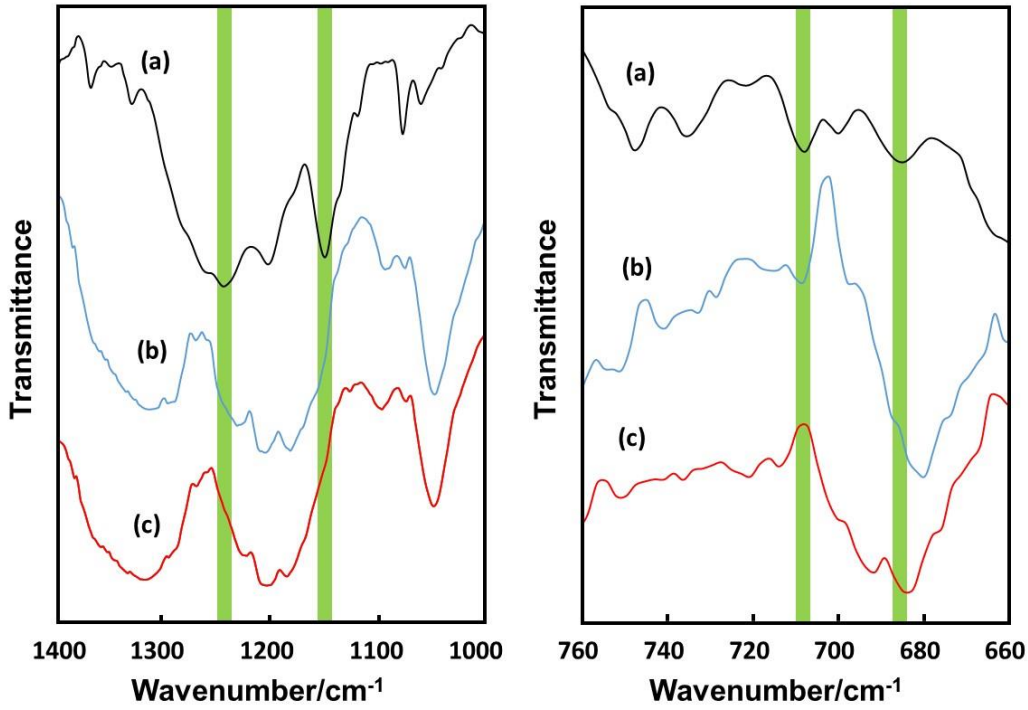

Figure S3. FT-IR spectra of (a) C8F dopant, (b) PPy-C8F and (c) PPy-Cl. The typical absorption bands for C8F due to the vibrations of the $–CF_3$ and $–CF_2–$ groups were observed in the spectrum of PPy-C8F as peaks and shoulders. (Lin-Vien, D. The Handbook of Infrared and Raman Characteristic Frequencies of Organic Molecules. Academic Press: San Diego, 1991.)

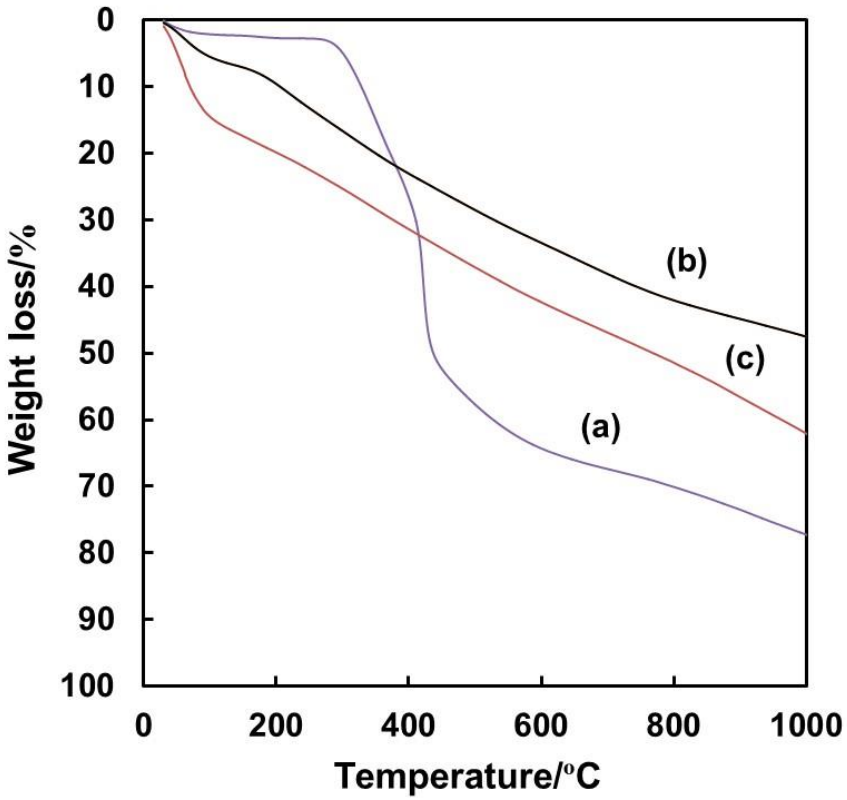

Figure S4. TG curves of (a) PPy-C8F, (b) PPy-Cl and (c) dedoped PPy-C8F bulk powders.

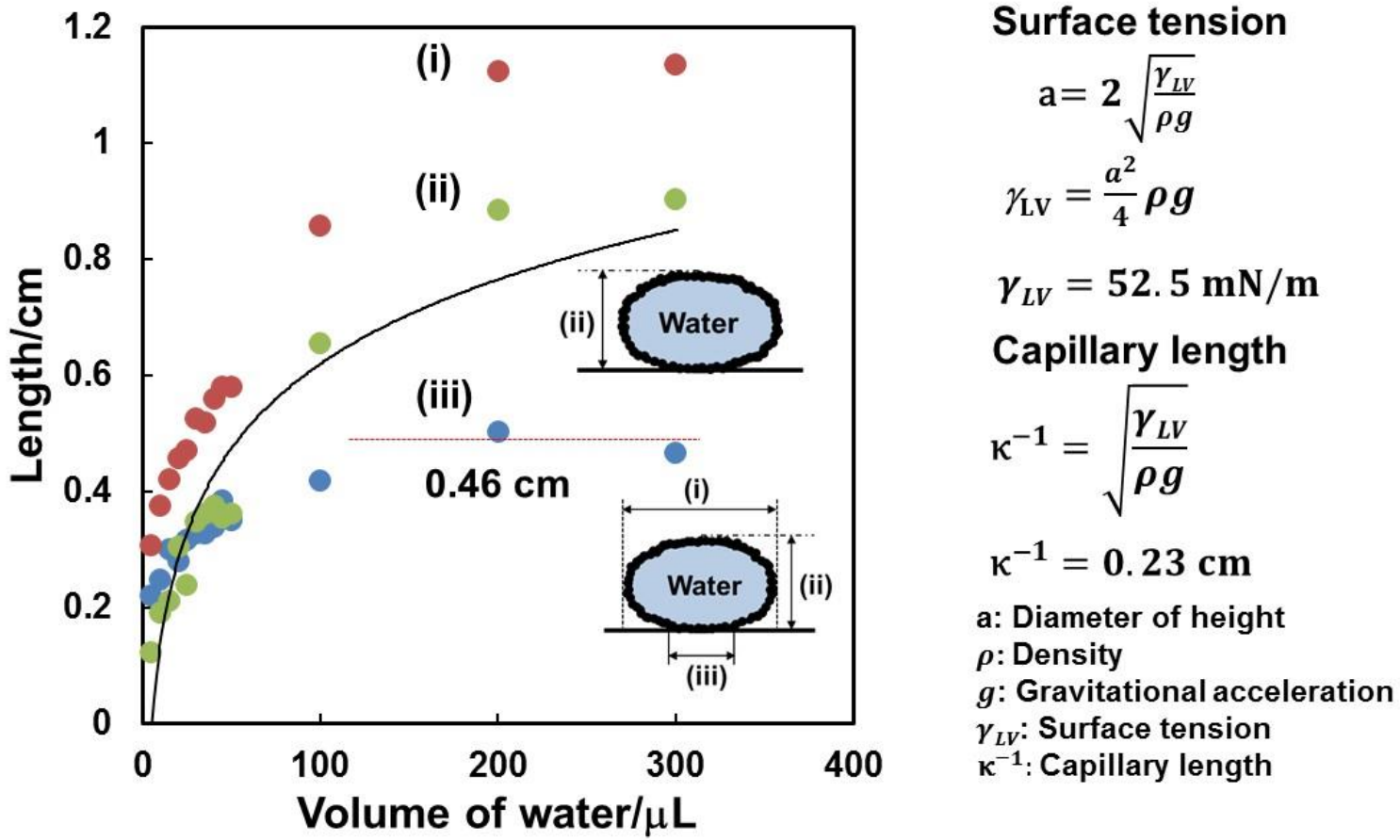

Figure S5. Diameter of the contact area, height and width of LMs placed on a glass substrate containing various volumes of water. The solid curve indicates the theoretical behavior under the assumption that water droplets have a perfectly spherical morphology independent of water volume.

Table S1 Synthesis of PPy materials by aqueous chemical oxidative polymerization[a)]

Ingredients					
Pyrrole [b, c)]	(g)	1	1	1	1
Heptadecafluorooctane sulfonic acid [b)]	(g)	2.5	-	-	-
Tridecafluorohexane-1-sulfonic acid [b)]	(g)	-	2.2	-	-
Nonafluoro-1-butane sulfonic acid [b)]	(g)	-	-	1.5	-
$FeCl_3 \cdot 6H_2O$ [c)]	(g)	9.4	9.4	9.4	9.4
Water	(g)	103.8	100	100	100

[a)] 25 ºC, 24 h, 500 rpm (magnetic stirring)

[b)] Pyrrole/dopant, 3/1 (molar ratio)

[c)] Pyrrole/$FeCl_3$, 3/7 (molar ratio)