Supporting Information for

Synthesis and characterisation of pyrene-labelled polydimethylsiloxane networks: towards the *in-situ* detection of strain in silicone elastomers

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Figure SI1. (a) ¹H NMR and (b) ¹³C NMR spectra of prop-3-enyloxymethylpyrene in CDCl₃.



Figure SI2.FT-IR Spectra of PHMS-Py₅₀ and PHMS-Py₁₀₀.



Figure SI3. (a) ¹H and (b) ¹³C NMR spectra of [3-(pyren-1-ylmethoxy)propyl]triethoxysilane (Py-TEOS) in CDCl₃.





6.00E-02 4.00E-02 2.00E-02 0.00E+00

-60

-50

-40

-30

Strain (%)

-20

-10

0

10

5









Figure SI4. Stress-strain plots from DMA of PHMS-Py_x and Py-TEOS containing elastomers measured at 40° C.

Table SI1:	Thermal	transitions	for el	lastomer	sample	es record	led or	n first l	heating	run	at 10	°C
min ⁻¹									C			

Sample	Pyrene component and wgt%	Т _g (°С)	Т _с (°С)	T _m (°C)
Sn1	PHMS-Py50 0.01 wt%	-116	-88	-48
Sn3	PHMS-Py ₅₀ 0.1 wt%	-117	-85	-48
Sn6	Py-TEOS 0.01 wt%	-116	-92	-47
Sn8	Py-TEOS 0.1 wt%	-117	-89	-48
Sn10	None	-113	no	-48
Pt12	PHMS-Py50 0.02 wt%	-130	-93	-43
Pt13	PHMS-Py50 0.2 wt%	-129	no	-44
Pt15	None	-130	no	-43
PHMS-Py ₅₀	NA	-121	no	no



Figure SI5. UV-vis spectra of PHMS-Py50 and 1-pyrenemethanol in THF.

Procedure for Soxhlet extraction

A 2 x 1 cm section of elastomer (Sn3, Pt13, Pt16) was placed into a 25 x 80 mm Soxhlet thimble inside the Soxhlet apparatus. The apparatus was connected to a 500 ml round-bottomed flask containing 300 ml of THF. A condenser was attached above the Soxhlet and the solvent was heated to reflux and left overnight.. The apparatus and gels were then left to cool and drained of remaining solvent. The gels were recovered and placed on petri dishes while the solvent continued to evaporate from the swollen gels.





Figure SI6. Comparison of photoluminescent spectra of Sn7 (Py-TEOS), Pt13 (PHMS-Py₅₀) and Sn16 (PHMS-Py₁₀₀) before and after soxhlet extraction with THF.