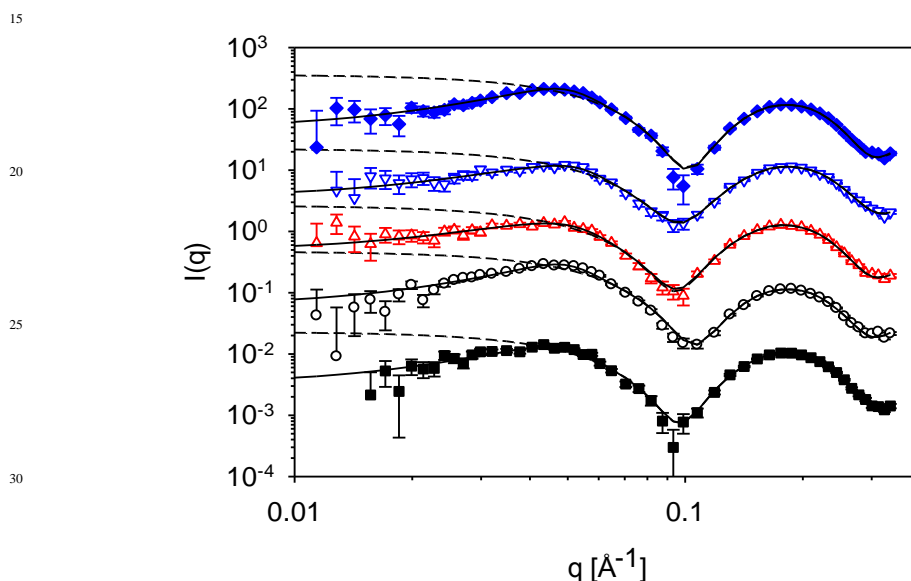


Supplementary information for manuscript:

Investigation of nanoscale structures by small-angle x-ray scattering in a radiochromic dosimeter

Results

5 Structural information on a radiochromic dosimeter obtained from small-angle x-ray scattering (SAXS) measurements are presented in the main article. The structural dependence on the various components of the dosimeter is investigated. The components are referred to by the letter codes G, S, I, L, and C (see the main paper for the list of abbreviations). A set of measurements were also performed on aqueous solutions of the dosimeter components without the gelatin matrix (letter code G) (Figure 2A in the paper). The data and model fits to these data are shown in Figure S1 below. The model is a
10 combination of a form factor, giving the scattering from ellipsoidal core-shell particles, and a structure factor, describing the effect of an effective hard-sphere repulsion between the particles, as described in detail in the main article. The broken lines represent the scattering from the form factor without structure factor. To obtain a good fit at low q , it was necessary to include the structure factor to obtain the final model fit, indicated by the full lines.



35 **Figure S1.** Plot of the SAXS data for the samples with SDS and without gelatine. From bottom to top: S, SC, SI, SILC, SLC. The data for the samples are multiplied by powers of 10 to avoid overlap in the plot. Fit of the full models with both form factor and structure factors are shown as full lines. The form factors without structure factor are shown as broken lines.

Table S1 below shows the resulting fitting parameters obtained from the fits to all data, as shown in Figure 2 of the main

article.

Table S1 The table shows the fitting parameters corresponding to figure 3 and figure 4 of the main article.

Sample	Core Radius, R_{core} (Å)	Shell thickness, D (Å)	Micelle length, L (Å)	$\Delta\rho_{rel,shell}$	S_{HS}	η
S	14.9±0.1	6.8±2.5		-1.0±0.6	2.5±0.1	0.26±0.02
SI	15.0±0.8	7.0±1.8		-1.0±0.4	2.2±0.1	0.23±0.01
SC	16.1±1.1	5.4±2.4		-1.8±1.0	2.4±0.1	0.27±0.01
SLC	15.8±0.9	5.4±1.9		-1.6±0.7	2.4±0.1	0.27±0.01
SILC	15.1±1.2	5.8±2.6		-1.2±0.8	2.3±0.1	0.27±0.02
GS	7.2±6.8	19.6±9.3	49±15	-0.3±0.5	1.1±0.1	0.135±0.006
GSI	4.7±4.4	22.2±4.5	42±1	-0.1±0.3	0.6±0.02	0.07±0.02
GSLC	7.3±5.2	19.5±7.1	52±11	-0.3±0.4	1.1±0.1	0.153±0.006
GSILC	7.5±2.5	19.8±3.0	37±4	-0.4±0.3	1.0±0.1	0.066±0.007
GSILC_r	2.4±3.8	24.9±4.1	28±6	-0.04±0.13	0.6±0.03	0.073±0.008
GSILCN_b	8.9±0.3	18.8±0.5	29±1	-0.28±0.02	2.3±0.1	0.044±0.008
GSILCN_t	3.8±1.4	23.6±1.0	5000 (fixed)	-0.06±0.05	2.0±0.2	0.1±0.1

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