The merging of the density distribution profiles for *I* and *H* segments appears to be strongly related to the surfactant concentration. To quantify the difference between the two normalized density profiles, we have determined the first value of *r* at which each curve has a value of one. This difference is reported in Table S1 for systems that belong to the high surfactant concentration branch of the phase envelope, and where spherical aggregates were present. From these results, it can be seen that the difference between the curves becomes smaller as the surfactant concentration increases. The density profiles for systems 1 to 7 are shown in Figures S1 to S7.

Table S1 Difference in the position of the first maximum in the radial distribution function of the *H* and *I* segments. This difference is taken as a measure of the ability of *I* segments to penetrate close to the core of the aggregates.

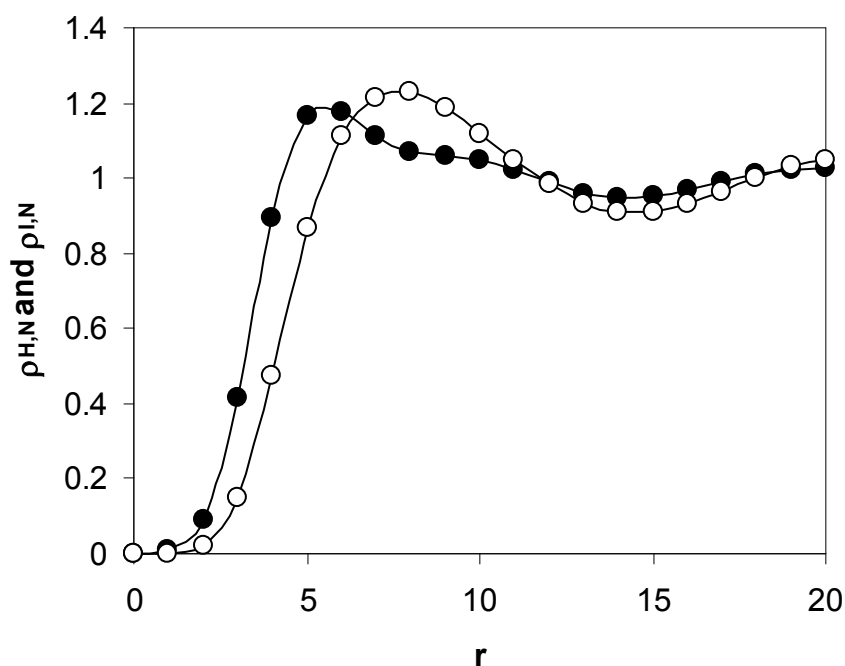| System	Precursor	Concentration (%)			
		Surfactant	Precursor	Inorganic	Δr
1	*IH*	20	50	25	1.1
2	*I'H*	25	70	35	0.8
3	I_2	31	46	46	0.8
4	*IH*	35	26	13	0.7
5	I_2	38	41	41	0.5
6	*I'H*	40	52	26	0.3
7	I_2	45	38	38	0.2

Figure S1. Normalized head (●) and inorganic (○) segment density profiles for spherical aggregates made up of 70 surfactant chains in System 1 from Table S1.
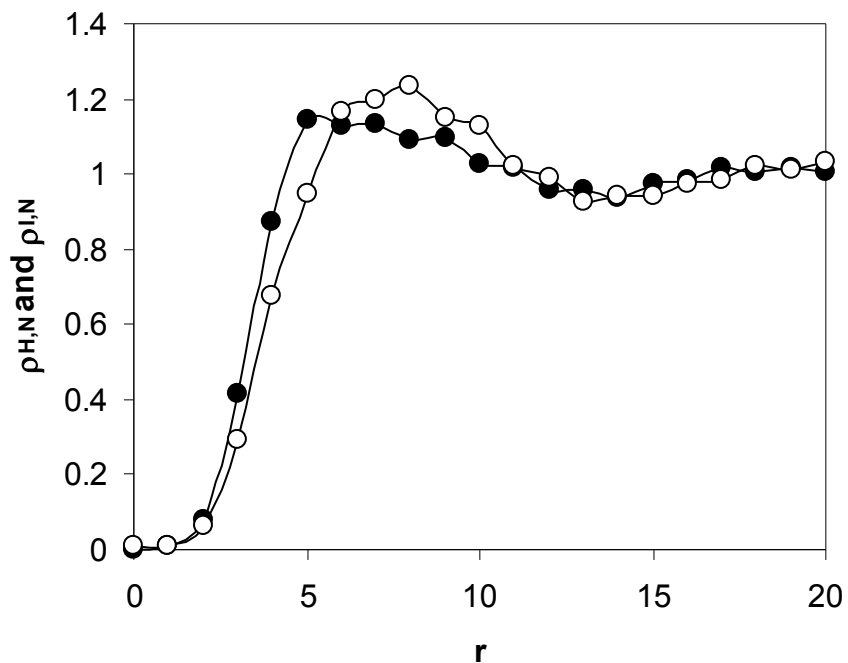
Figure S2. Normalized head (●) and inorganic (○) segment density profiles for spherical aggregates made up of 70 surfactant chains in System 2 from Table S1.
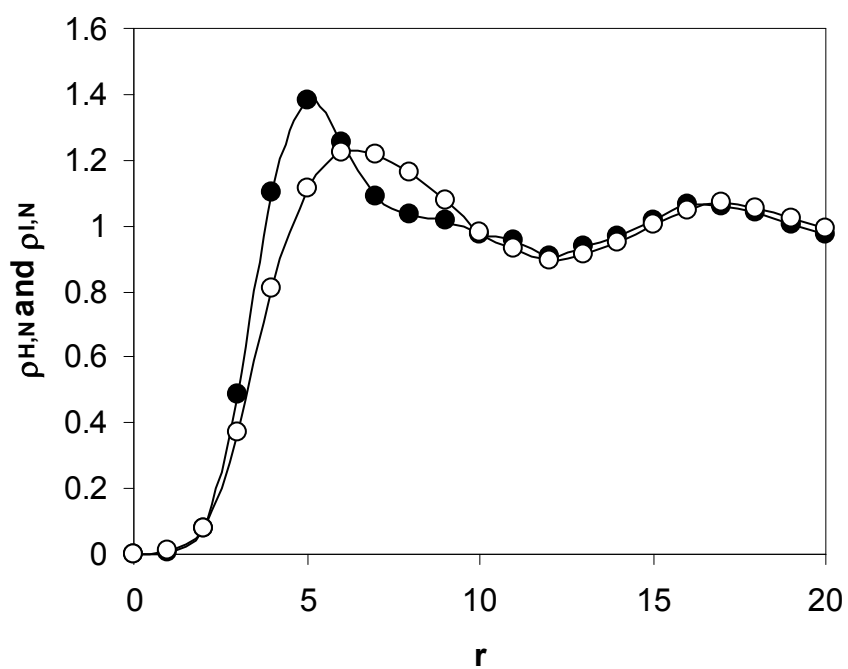

Figure S3. Normalized head (●) and inorganic (○) segment density profiles for spherical aggregates made up of 70 surfactant chains in System 3 from Table S1.
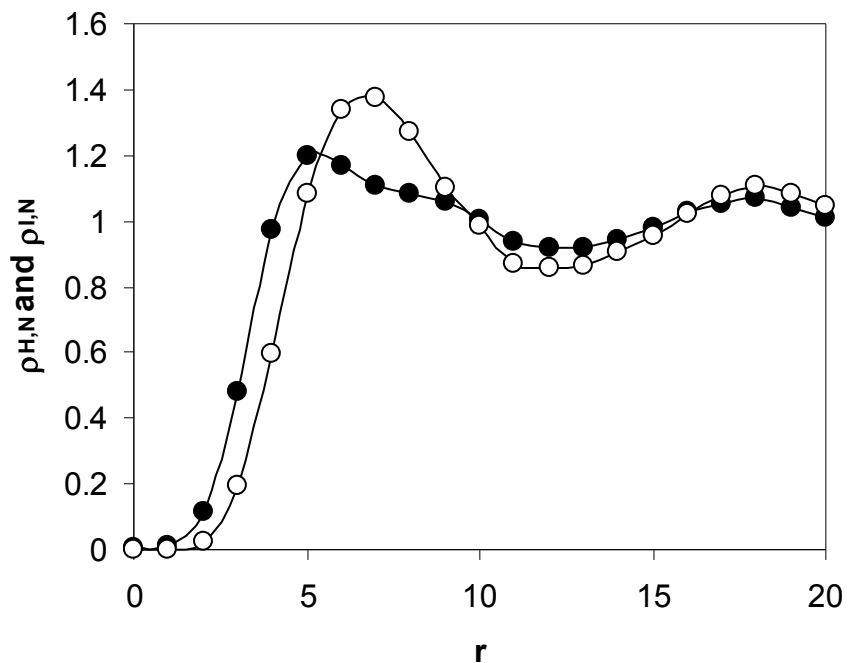
Figure S4. Normalized head (●) and inorganic (○) segment density profiles for spherical aggregates made up of 70 surfactant chains in System 4 from Table S4.
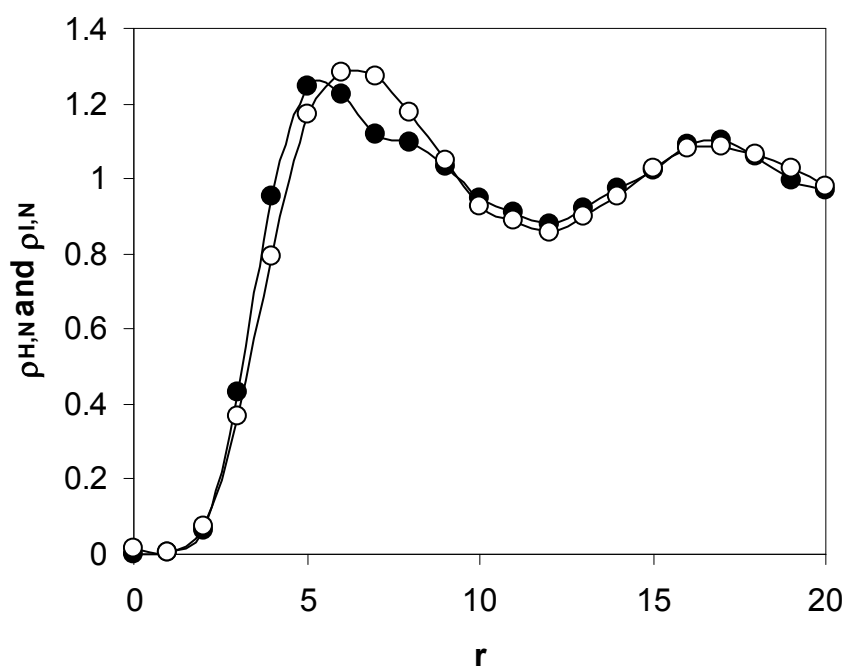

Figure S5. Normalized head (●) and inorganic (○) segment density profiles for spherical aggregates made up of 70 surfactant chains in System 5 from Table S1.
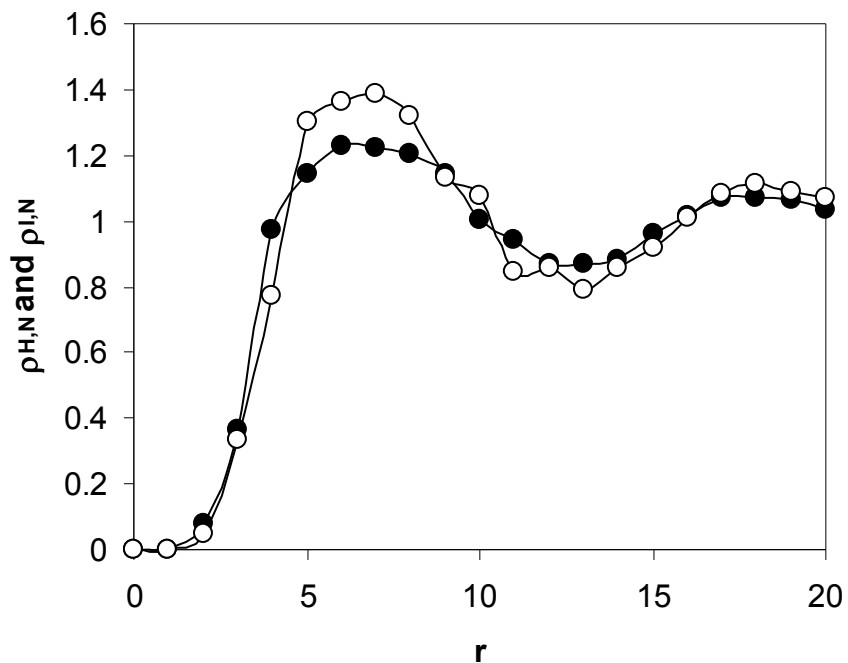
Figure S6. Normalized head (●) and inorganic (○) segment density profiles for spherical aggregates made up of 70 surfactant chains in System 6 from Table S1.
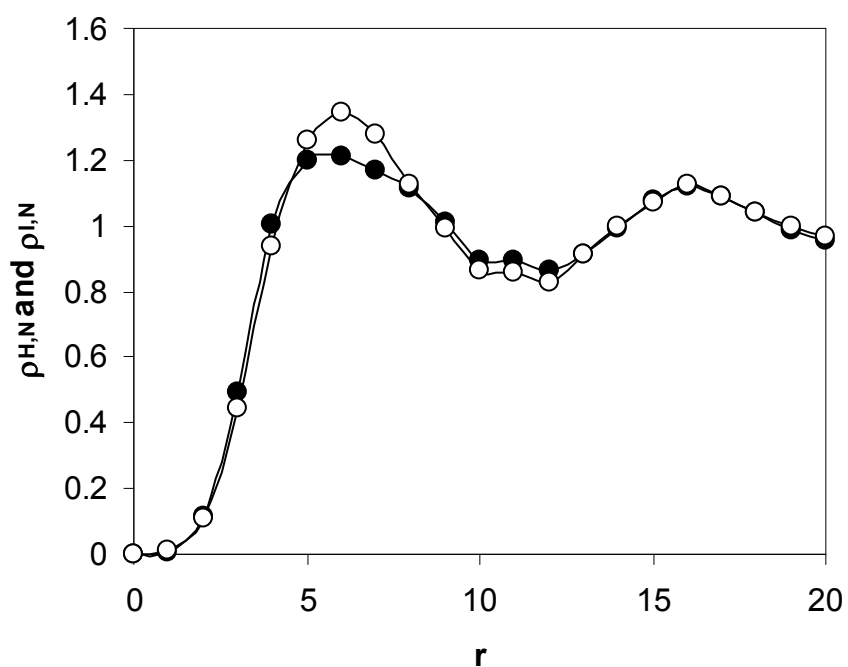

Figure S7. Normalized head (●) and inorganic (○) segment density profiles for spherical aggregates made up of 70 surfactant chains in System 7 from Table S1.