

Supporting Information for

**Characterization and Release Mechanisms of Aerogel-
encapsulated Biocide Crystals for Low-loading and High-
utilization Antifouling Coatings**

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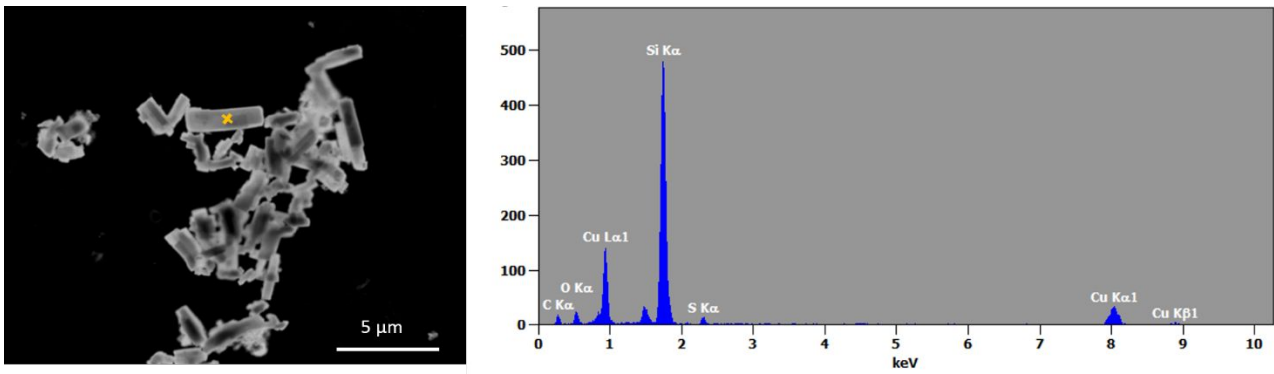


Figure S1. EDS point analysis of elongated particles in sample C75SA. Spectrum extracted from the orange cross in the STEM image.

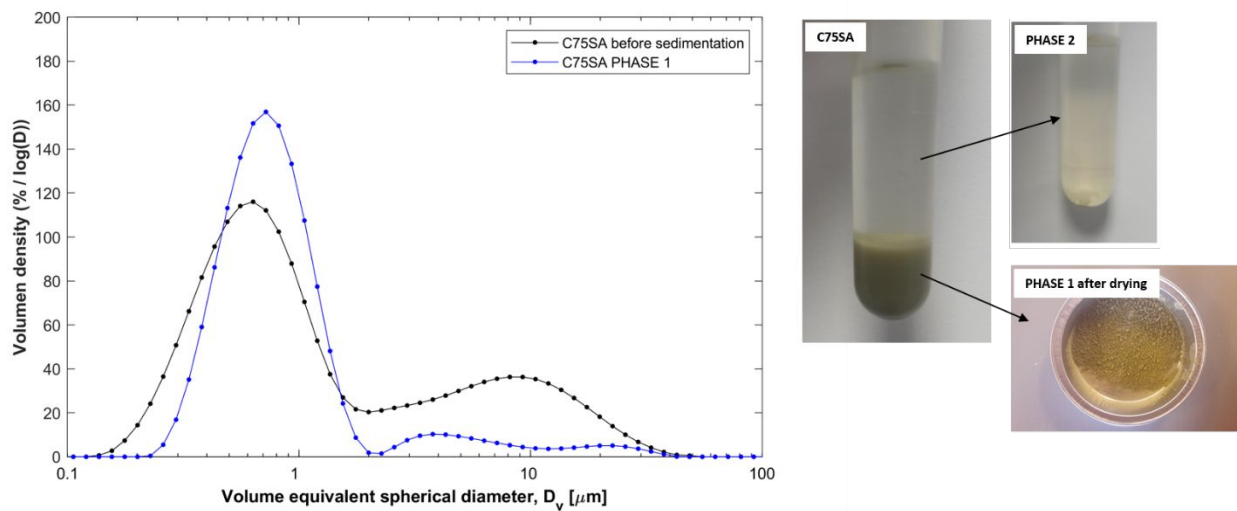


Figure S2. a) Sample C75SA after separation in a centrifuge. The upper supernatant phase (2) consisted of silica aerogels without CuPT, while the lower phase (1) was sedimentation of CuPT-loaded silica aerogels. Phase 2 was removed using a pipette and phase 1 was dried for further analysis. b) PSD of sample C75SA before and after sedimentation test. The second peak was reduced after sedimentation due to the removal of empty silica residues.

$$\text{Silica layer thickness} = \frac{D_{\text{aerogel}} - D_{\text{CuPT}}}{2}$$

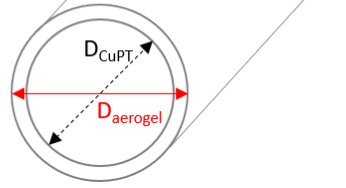


Figure S3. Definition of rod diameters D_{CuPT} and D_{aerogel} observed in PSDs. Assuming an idealized rod shape of the elongated aerogel particles, the silica layer thickness can be estimated by the given formula.