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Supplementary Information for

Single Etch Fabrication and Characterization of Robust Nanoparticle Tipped Bi-Level Superhydrophobic Surfaces

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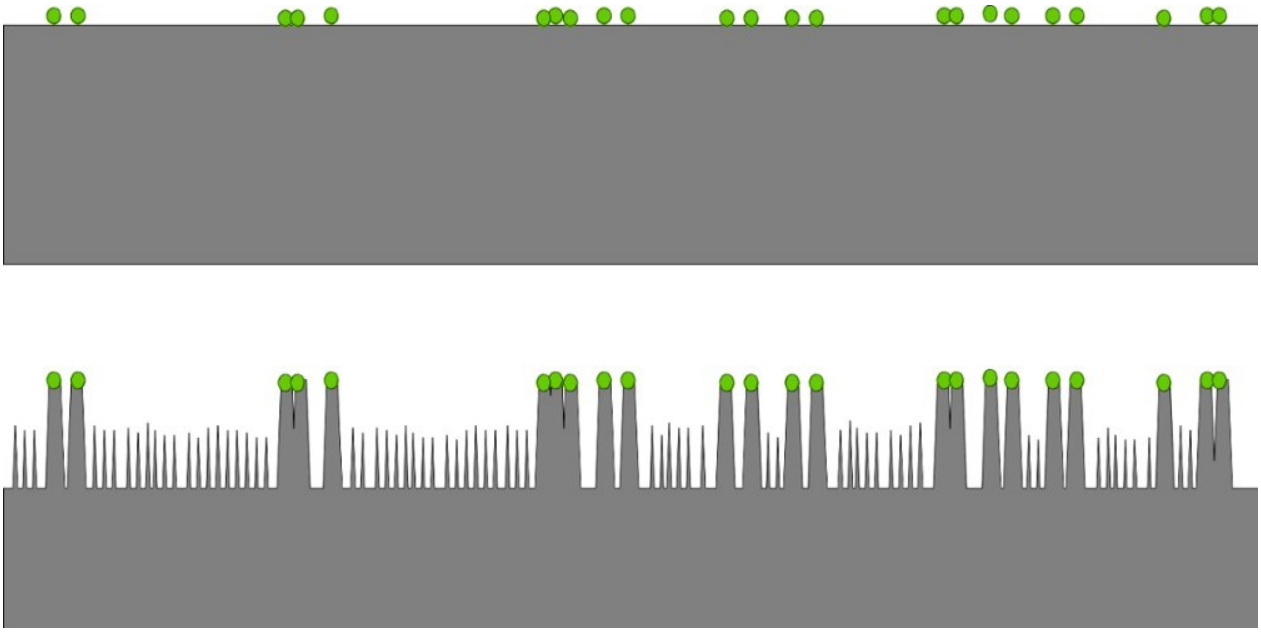

Figure S1: Process flow of fabrication of superhydrophobic surface using DRIE. Alumina nanoparticles suspended in Ethanol are spincoated on to the substrate. Optimized Bosch process is used to get the bi-level superhydrophobic surface

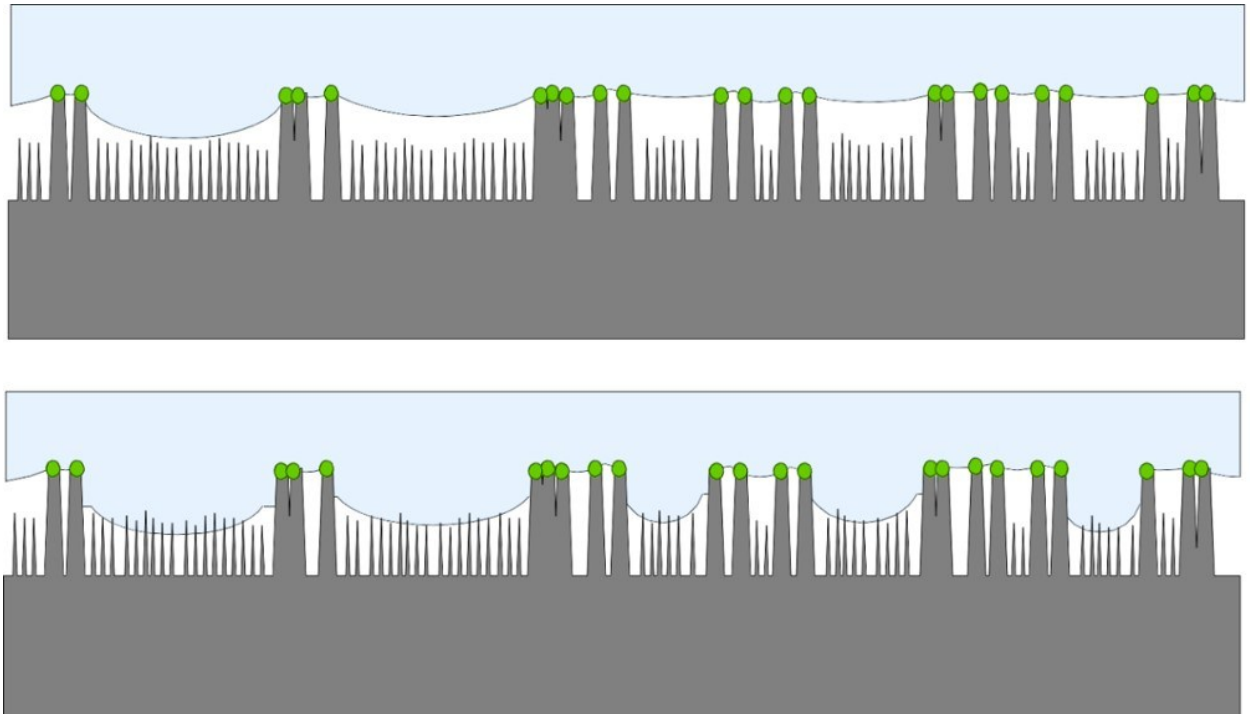

Figure S2: Partial impalement of the top-level superhydrophobic structures

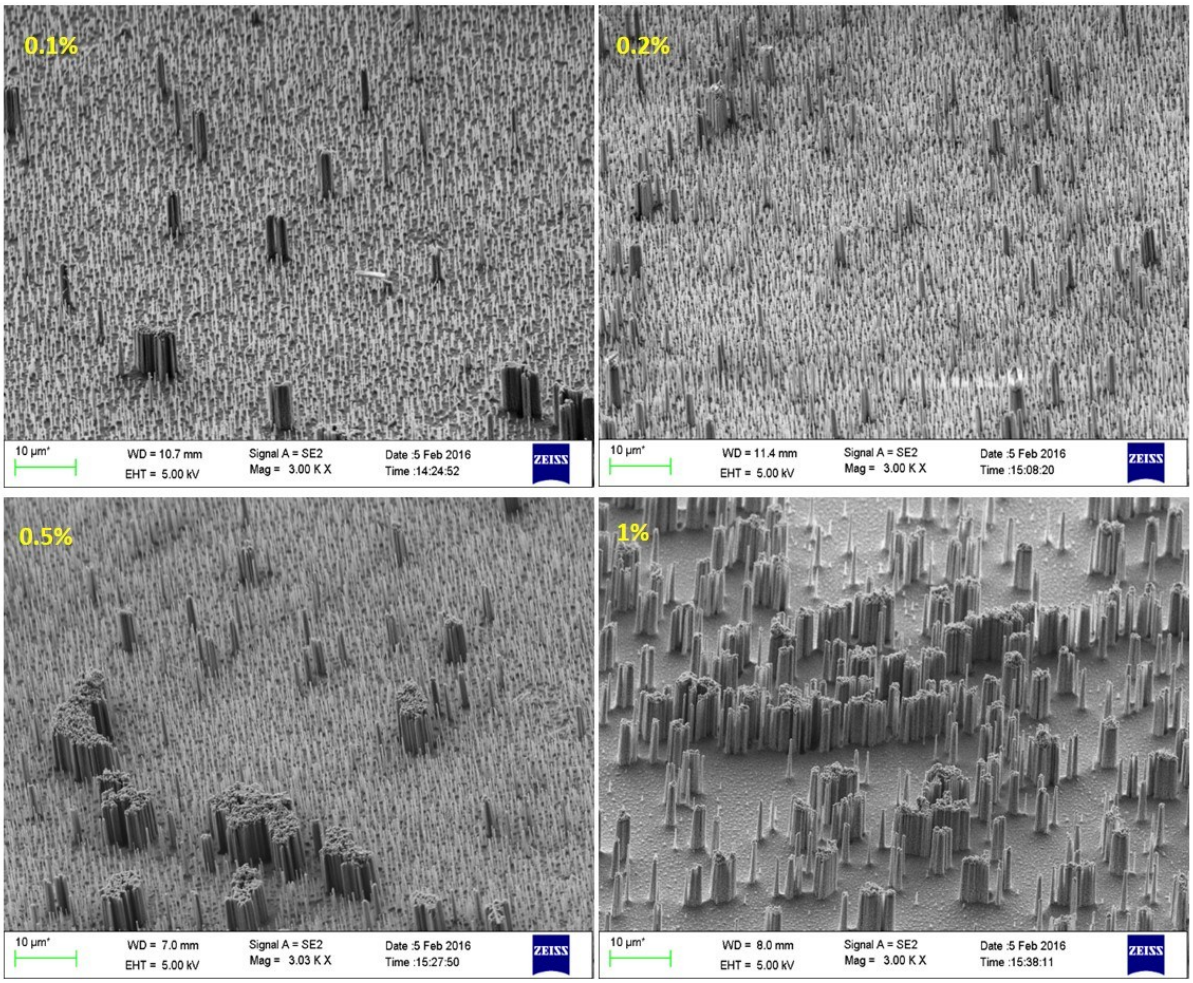

Figure S3: Representative FESEM images of nano structured superhydrophobic silicon surface for different weight % of alumina nanoparticle solution

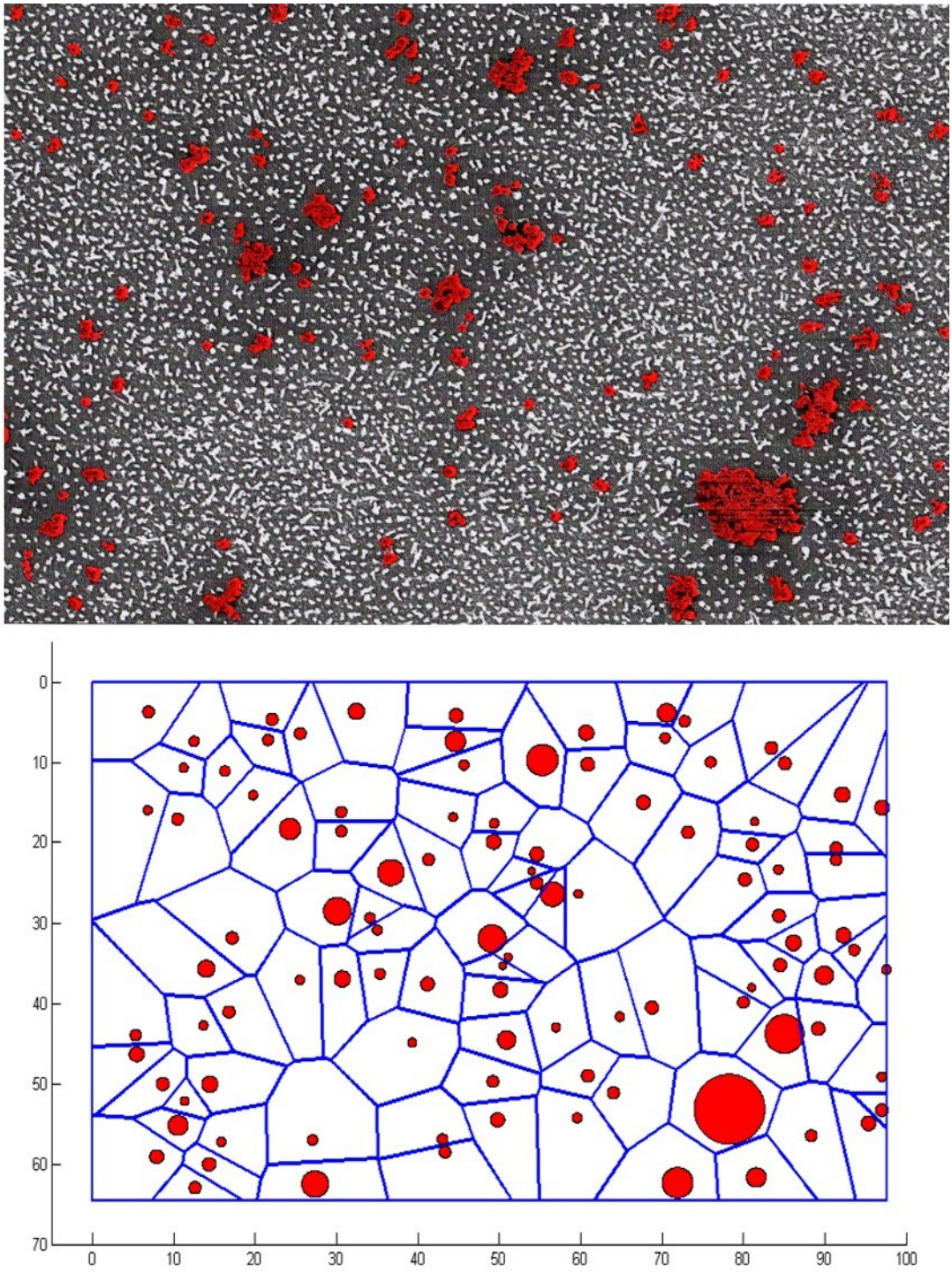

Figure S4: (Above) Nanoparticle tipped pillars identified in the SEM are marked in red. The images are analyzed using ImageJ software to quantify position and size of the pillars. (Below) Calculated Voronoi diagram

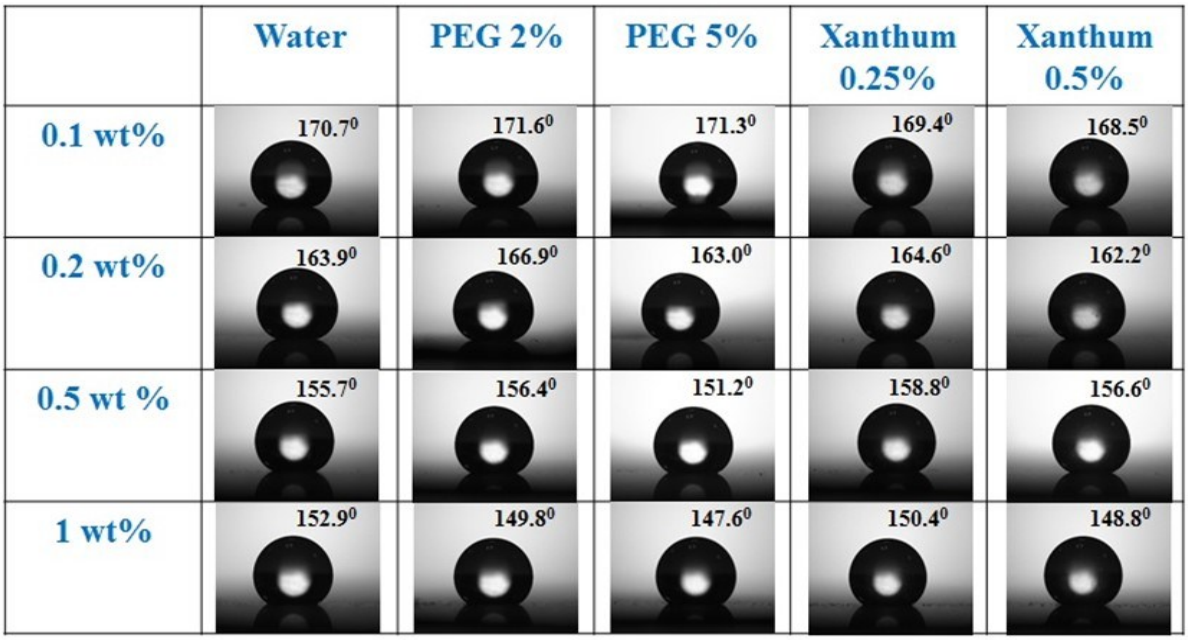

Figure S5: Droplet images of all liquids on different alumina weight percentage nano-structured surfaces

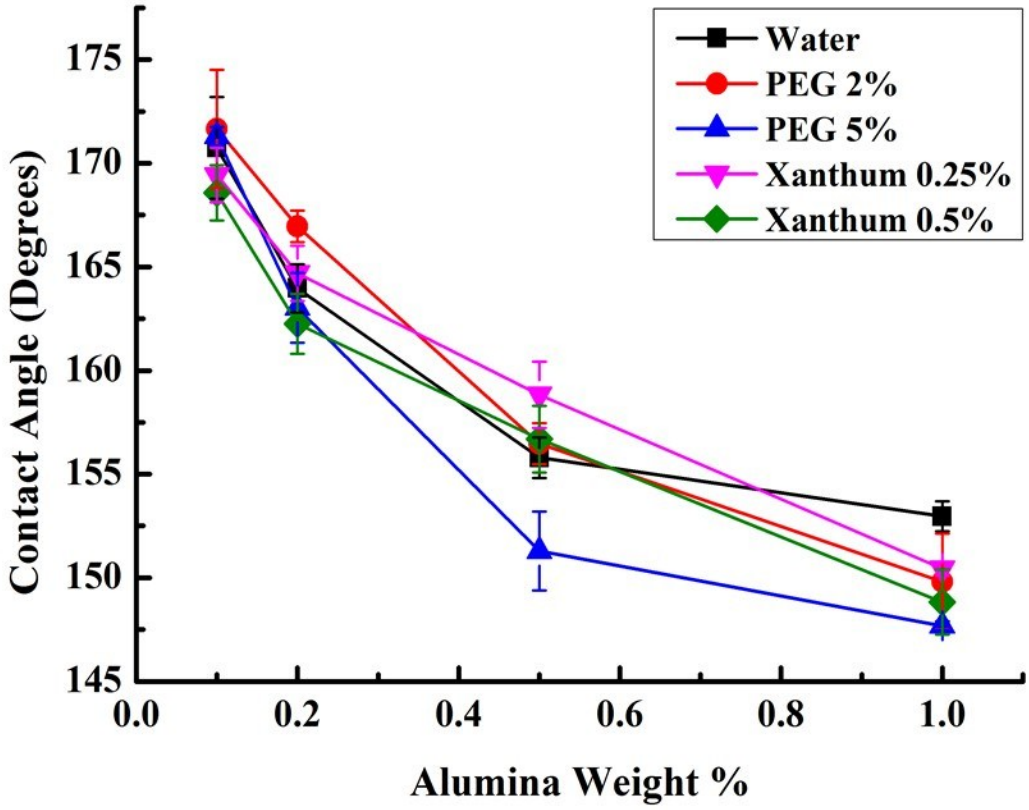

Figure S6: Contact angle as measured for surfaces created with different weight percentage solutions of alumina nanoparticles

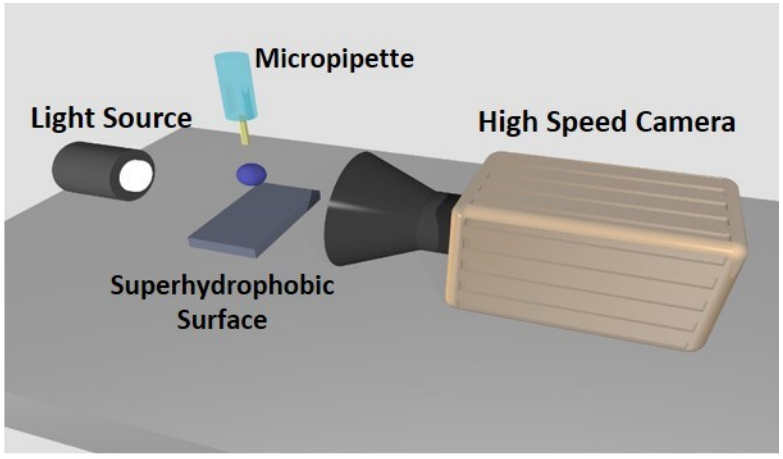

Figure S7: High-speed imaging setup for droplet impact studies. The droplets were generated manually using a micropipette

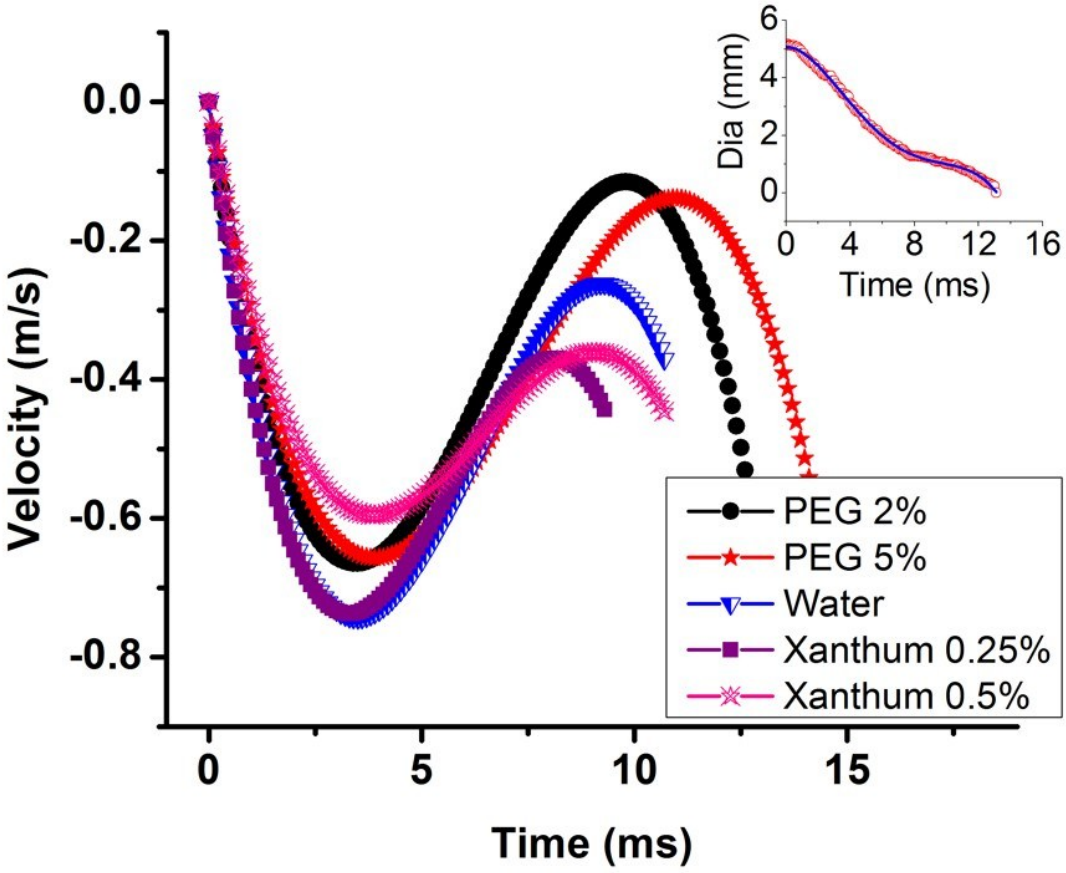

Figure S8: Contact line velocity during the retraction phase as calculated from the polynomial fit to the base radius data extracted from the movies. (Inset) Shows the polynomial fit to one data set

Table S1: Properties of liquids used in this study

Liquid	Viscosity (mPa·s)	Surface Tension (mN/m)
PEG 5%	2.9	53.4
PEG 2%	1.2	55.8
Xanthum 0.5%	57.7 (at 100 s^{-1})	70.9
Xanthum 0.25%	20.6 (at 100 s^{-1})	73.8
Water	1	72

YouTube Links of Videos for Supplementary information:

Video S1:

https://www.youtube.com/watch?v=2LzuHJtjKWM

Video S2:

https://www.youtube.com/watch?v=KMvD7pPawVA

Video S3:

https://www.youtube.com/watch?v=1uvMB0AEVvY

Video S4:

https://www.youtube.com/watch?v=UBwNiva94sU

Video S5:

https://www.youtube.com/watch?v=cYDNW4ATwR8