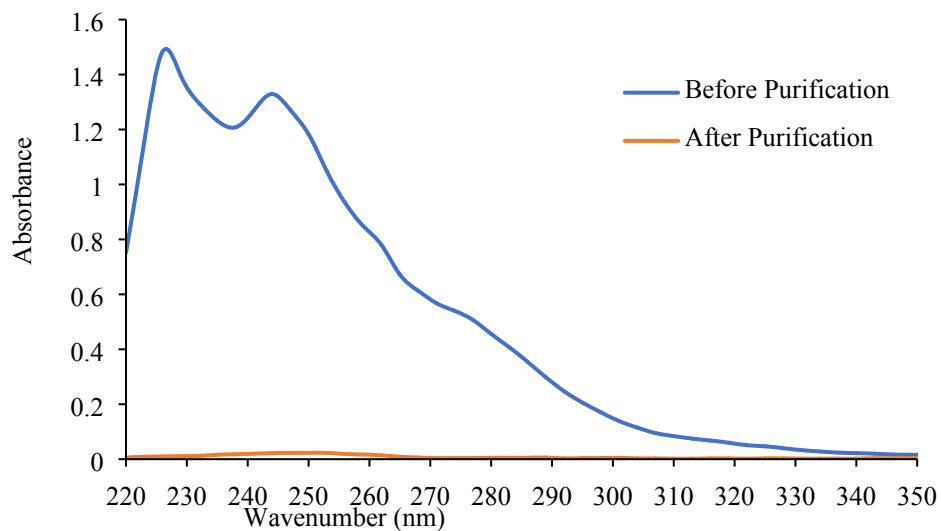


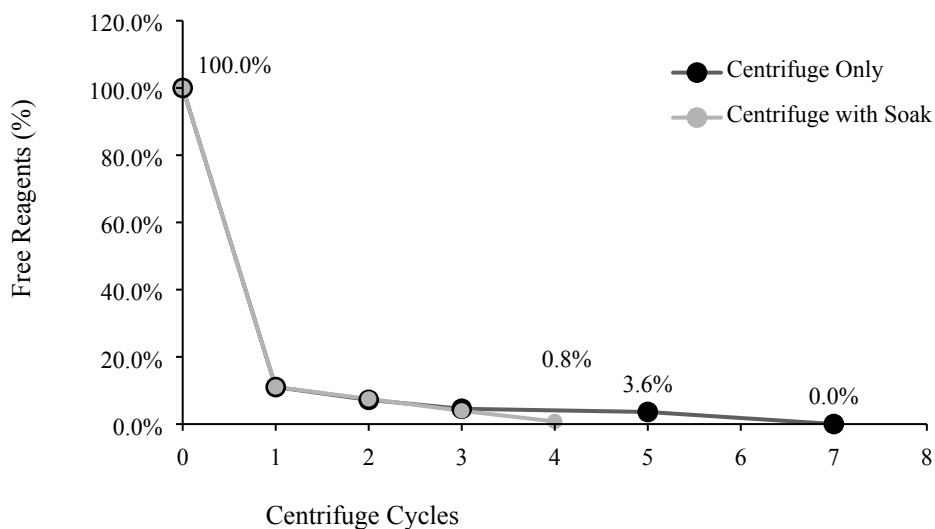
### Supplementary Information

<b>2-thiol:4-thiol mol ratio 0.1:0.9</b>						
#	2-Ene:Hitenol mole ratio	2-ene (μL)	2-thiol (μL)	4-thiol (μL)	Hitenol (mL)	Water (mL)
1	1.0:0.0	89.0	6.4	272.5	0.0	10.0
2	0.9:0.1	78.5	6.4	272.5	0.4	9.6
3	0.8:0.2	68.0	6.4	272.5	0.8	9.2
4	0.7:0.3	57.5	6.4	272.5	1.2	8.8
5	0.6:0.4	47.1	6.4	272.5	1.6	8.4
6	0.5:0.5	36.6	6.4	272.5	2.0	8.0
<b>2-thiol:4-thiol mol ratio 0.2:0.8</b>						
#	2-Ene:Hitenol mole ratio	2-ene (μL)	2-thiol (μL)	4-thiol (μL)	Hitenol (mL)	Water (mL)
1	1.0:0.0	89.0	12.8	242.2	0	10
2	0.9:0.1	78.5	12.8	242.2	0.4	9.6
3	0.8:0.2	68.0	12.8	242.2	0.8	9.2
4	0.7:0.3	57.5	12.8	242.2	1.2	8.8
5	0.6:0.4	47.1	12.8	242.2	1.6	8.4
6	0.5:0.5	36.6	12.8	242.2	2	8
<b>2-thiol:4-thiol mol ratio 0.3:0.7</b>						
#	2-Ene:Hitenol mole ratio	2-ene (μL)	2-thiol (μL)	4-thiol (μL)	Hitenol (mL)	Water (mL)
1	1.0:0.0	89.0	19.2	212.0	0	10
2	0.9:0.1	78.5	19.2	212.0	0.4	9.6
3	0.8:0.2	68.0	19.2	212.0	0.8	9.2
4	0.7:0.3	57.5	19.2	212.0	1.2	8.8
5	0.6:0.4	47.1	19.2	212.0	1.6	8.4
6	0.5:0.5	36.6	19.2	212.0	2	8
<b>2-thiol:4-thiol mol ratio 0.4:0.6</b>						
#	2-Ene:Hitenol mole ratio	2-ene (μL)	2-thiol (μL)	4-thiol (μL)	Hitenol (mL)	Water (mL)
1	1.0:0.0	89.0	25.6	181.7	0	10
2	0.9:0.1	78.5	25.6	181.7	0.4	9.6
3	0.8:0.2	68.0	25.6	181.7	0.8	9.2
4	0.7:0.3	57.5	25.6	181.7	1.2	8.8
5	0.6:0.4	47.1	25.6	181.7	1.6	8.4
6	0.5:0.5	36.6	25.6	181.7	2	8
<b>2-thiol:4-thiol mol ratio 0.5:0.5</b>						
#	2-Ene:Hitenol mole ratio	2-ene (μL)	2-thiol (μL)	4-thiol (μL)	Hitenol (mL)	Water (mL)
1	1.0:0.0	89.0	32.1	151.4	0	10
2	0.9:0.1	78.5	32.1	151.4	0.4	9.6
3	0.8:0.2	68.0	32.1	151.4	0.8	9.2
4	0.7:0.3	57.5	32.1	151.4	1.2	8.8
5	0.6:0.4	47.1	32.1	151.4	1.6	8.4
6	0.5:0.5	36.6	32.1	151.4	2	8

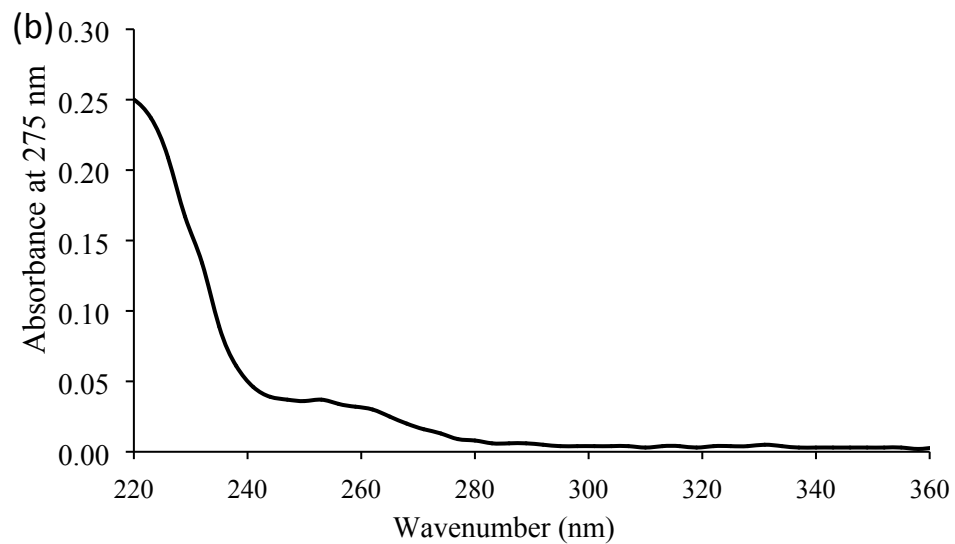
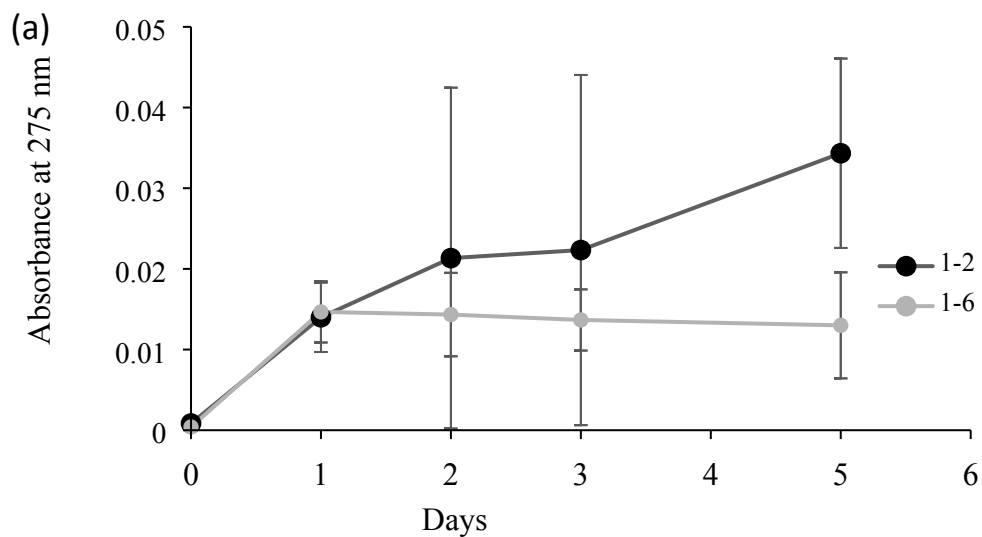
**Supplementary Figure S1.** The thirty formulations tested for this project. 2-thiol to 4-thiol and 2-ene to Hitenol KH functional group molar ratios were altered to test the effect of crosslinking and surfactant concentration.



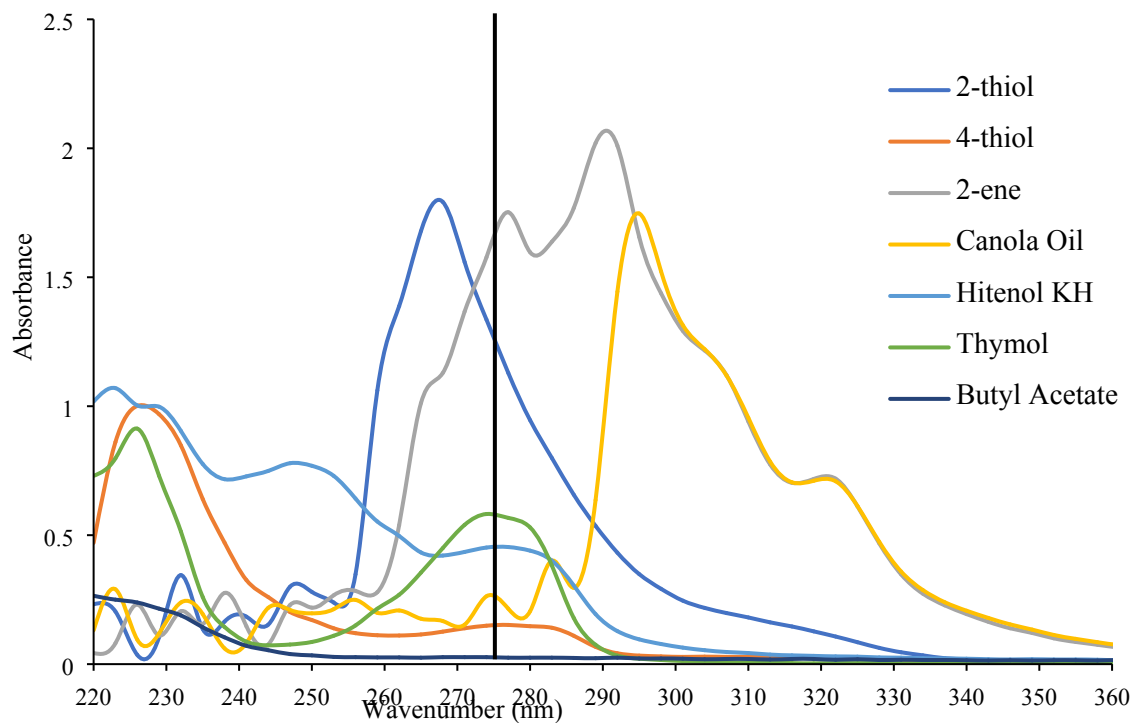
**Supplementary Figure S2.** The UV-Vis spectrum of PBS after three centrifugation cycles, soaking in DI water for 24 hours, and one final centrifugation cycle.



**Supplementary Figure S3.** Nanodrop peak-height measurements at 275 nm. Nanodrop peak-height measurements at 275 nm demonstrating the decreasing amounts of unreacted reagents with an increase in centrifugation cycles. (a) first purification method that used 7 centrifuge cycles to achieve greater than 99 % purity; (b) second purification method that used three centrifuges, a 24-hour soak in DI water, and one final centrifuge cycle.



**Supplementary Figure S4.** UV-Vis measurements showing butyl acetate (a) Peak height at 275 nm for UV-Vis demonstrating the low absorbance values for the butyl acetate control particles that have no statistical change from day 1 to day 5 ( $p \leq 0.05$ ). (b) The UV spectrum is identical to that of butyl acetate.



**Supplementary Figure S5.** UV-Vis of all monomers. Nanodrop UV-Vis spectra of all monomers, surfactant, and solvents used. The UV spectra for all components overlap at 275 nm.