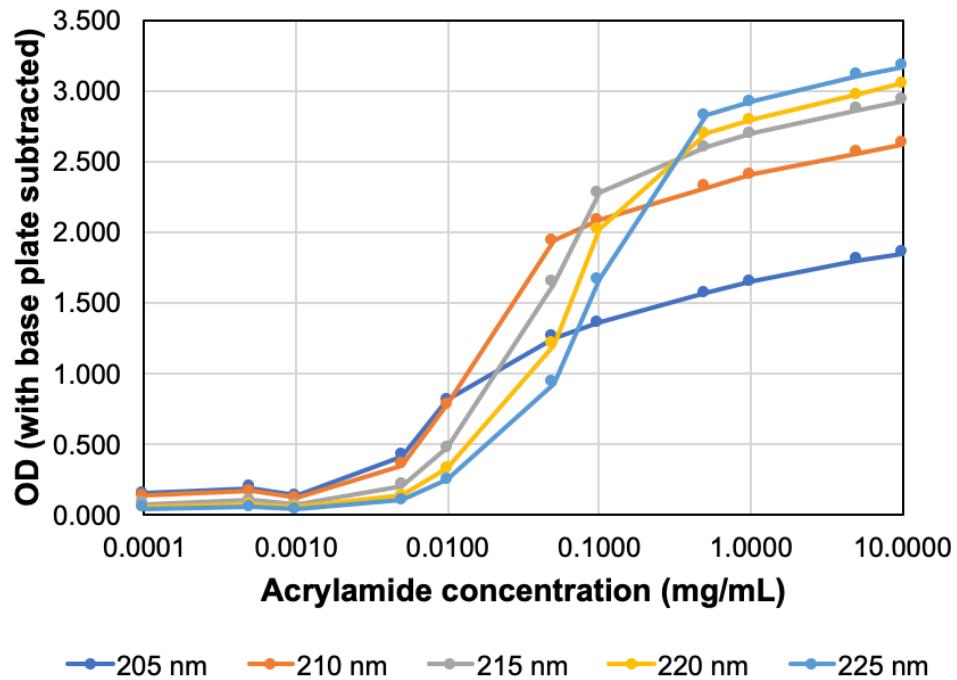


**Adaptation of a polyelectrolyte hydrogel for use as a micromotion-attenuating coating**  
Erika D. Aguas, Jay C. Sy

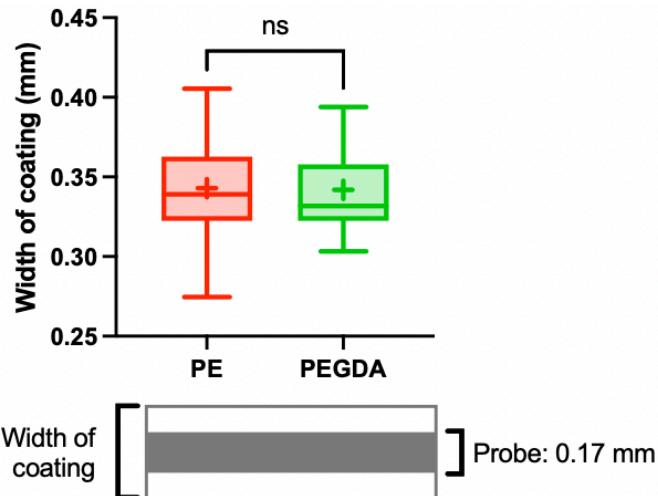
The data repository associated with this submission can be found at:  
<https://github.com/ejdaguas/pegels>

**Supplementary information**



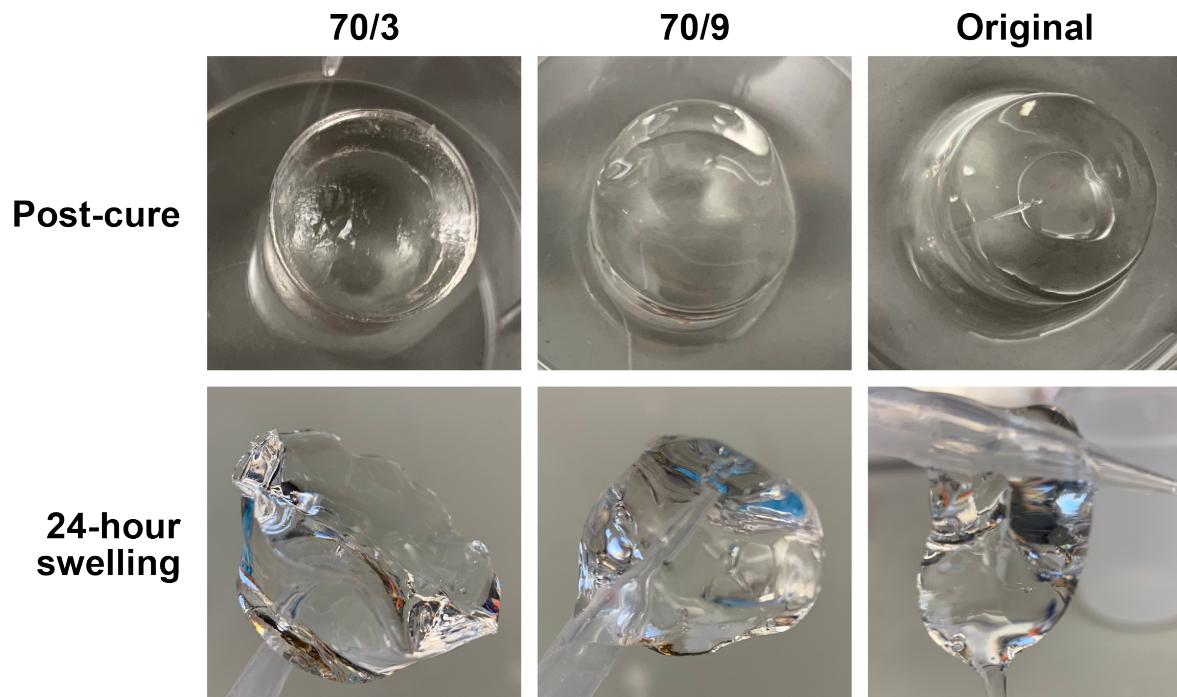
**Supplementary Figure 1:OD calibration curve for acrylamide contact water**

Based on this calibration curve, we chose 215 nm as the standard by which acrylamide concentration was calculated as it had good detection capability at all parts of the spectrum from 0.001 to 10.0 mg/mL acrylamide.



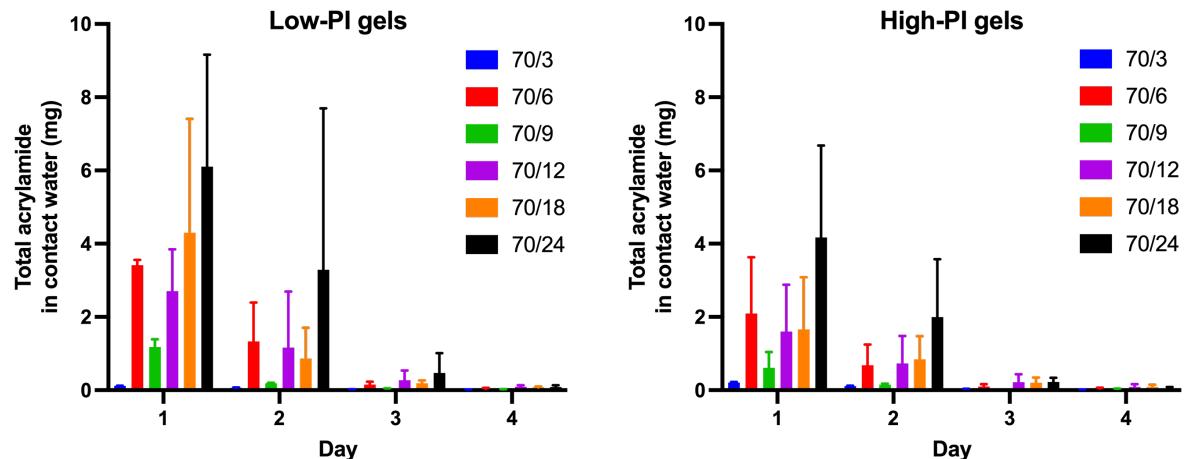
**Supplementary Figure 2: Probe coating widths**

The coating width on 18 probes (9 each per coating type, 3 sampled measurements per probe) were measured in ImageJ. The boxplots indicate the 25%, median and 75% quartiles of the coatings and the mean coating width is indicated with the + symbol. Mean coating width was  $0.343 \pm 0.032$  mm for polyelectrolyte (PE) gels and  $0.342 \pm 0.026$  mm for PEGDA control gels. There was no significant difference in coating width between the gel types ( $p = 0.90$ , unpaired two-tailed t-test).



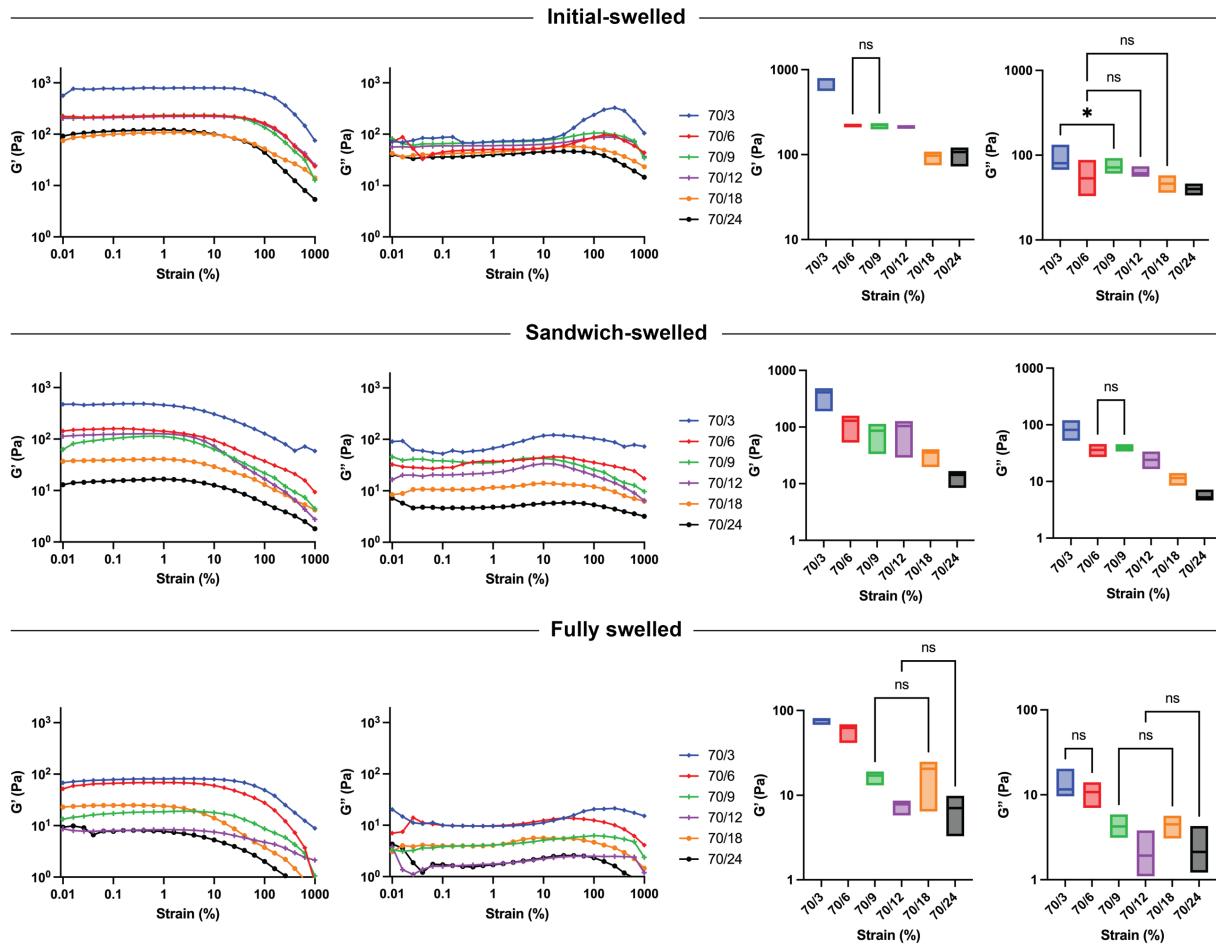
**Supplementary Figure 3: Gel photos**

Pictures of a low-PI 70/3, low-PI 70/9, and initial as-is formulation gel immediately after UV curing and after 24 hours of swelling in water.



**Supplementary Figure 4: Acrylamide leaching into contact water**

This figure is an expanded version of Figure 3 in the text, showing all six tested hydrogels in both low-PI and high-PI configurations.



**Supplementary Figure 5: Graphs and repeated-measure one-way ANOVA results of  $G'$  and  $G''$  in low-PI gels in the three swelling conditions in the strain range of 0.01%-100%**  
 Boxes represent minimum and maximum values (averaged over the three replicates) with the mean indicated by the center line. Only pair-wise comparisons significant at the  $p < 0.05$  level (\*), and not significant (n.s.) are marked. All other pairs are significantly different at the  $p < 0.01$  level or higher.

	Mean Diff.	95.00% CI of diff.	Summary	P Value
70/3 vs. 70/6	-0.001871	-0.006979 to 0.003237	ns	0.9143
70/3 vs. 70/9	0.01456	0.01135 to 0.01778	****	<0.0001
70/3 vs. 70/12	-0.006752	-0.009796 to -0.003709	****	<0.0001
70/3 vs. 70/18	0.001627	-5.702e-005 to 0.003312	ns	0.0643
70/3 vs. 70/24	-0.004228	-0.005866 to -0.002591	****	<0.0001
70/3 vs. PEGDA	-0.01237	-0.01420 to -0.01054	****	<0.0001
70/6 vs. 70/9	0.01643	0.01396 to 0.01891	****	<0.0001
70/6 vs. 70/12	-0.004881	-0.009586 to -0.0001761	*	0.0374
70/6 vs. 70/18	0.003498	-0.001366 to 0.008363	ns	0.3087
70/6 vs. 70/24	-0.002357	-0.007605 to 0.002890	ns	0.8091
70/6 vs. PEGDA	-0.01050	-0.0158 to -0.005815	****	<0.0001
70/9 vs. 70/12	-0.02131	-0.02569 to -0.01694	****	<0.0001
70/9 vs. 70/18	-0.01294	-0.01667 to -0.009196	****	<0.0001
70/9 vs. 70/24	-0.01879	-0.02240 to -0.01518	****	<0.0001
70/9 vs. PEGDA	-0.02693	-0.03049 to -0.02338	****	<0.0001
70/12 vs. 70/18	0.008380	0.006549 to 0.01021	****	<0.0001
70/12 vs. 70/24	0.002524	-0.0006536 to 0.005701	ns	0.2037
70/12 vs. PEGDA	-0.005618	-0.007480 to -0.003756	****	<0.0001
70/18 vs. 70/24	-0.005856	-0.007332 to -0.004380	****	<0.0001
70/18 vs. PEGDA	-0.01400	-0.01464 to -0.01336	****	<0.0001
70/24 vs. PEGDA	-0.008142	-0.009747 to -0.006537	****	<0.0001

**Supplementary Table 1: Tukey's multiple comparisons tests of mean tissue velocity within 1mm of the test probe surface.**