

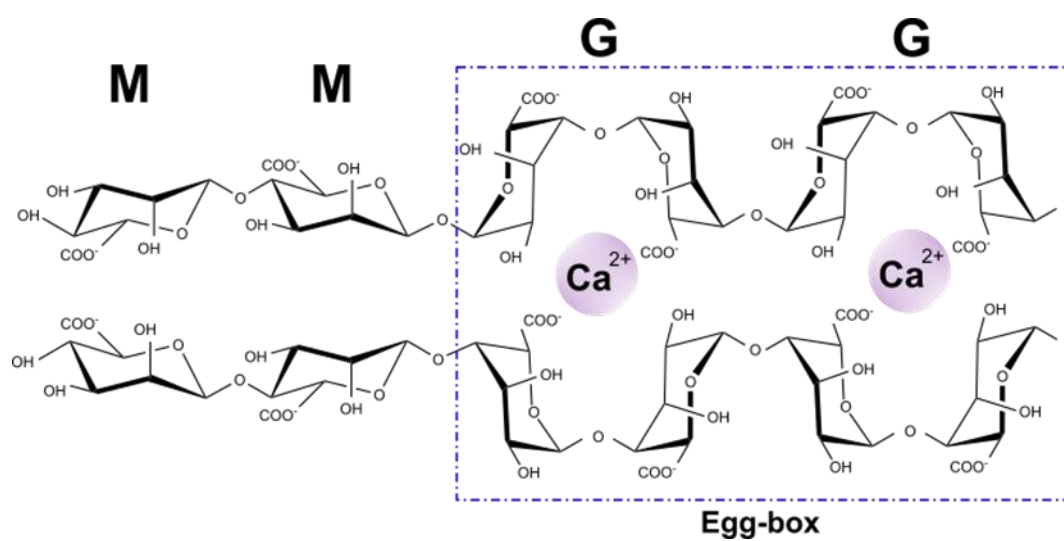
**Supplementary material**  
**Mechano-sensitive alginate gels with multi-stimuli-responsive swelling**

H. Malektaj, A.D. Drozdov, J. deClaville Christiansen

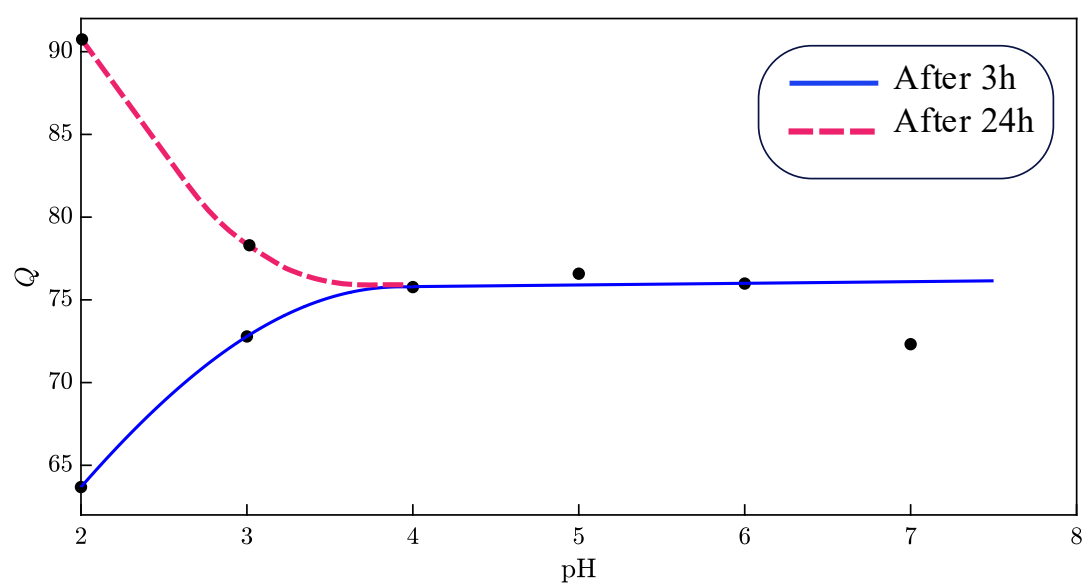
Department of Materials and Production

Aalborg University

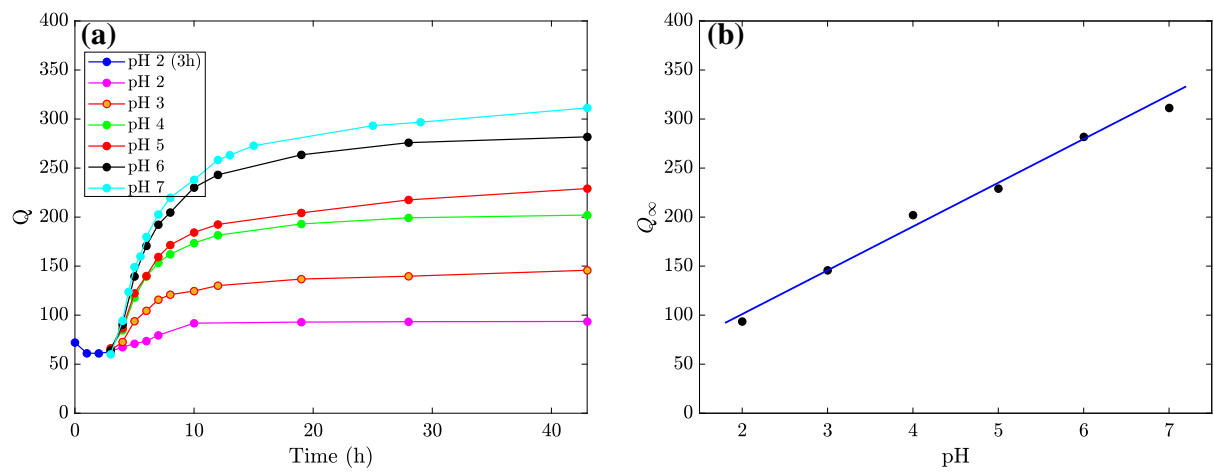
Fibigerstraede 16, Aalborg 9220, Denmark



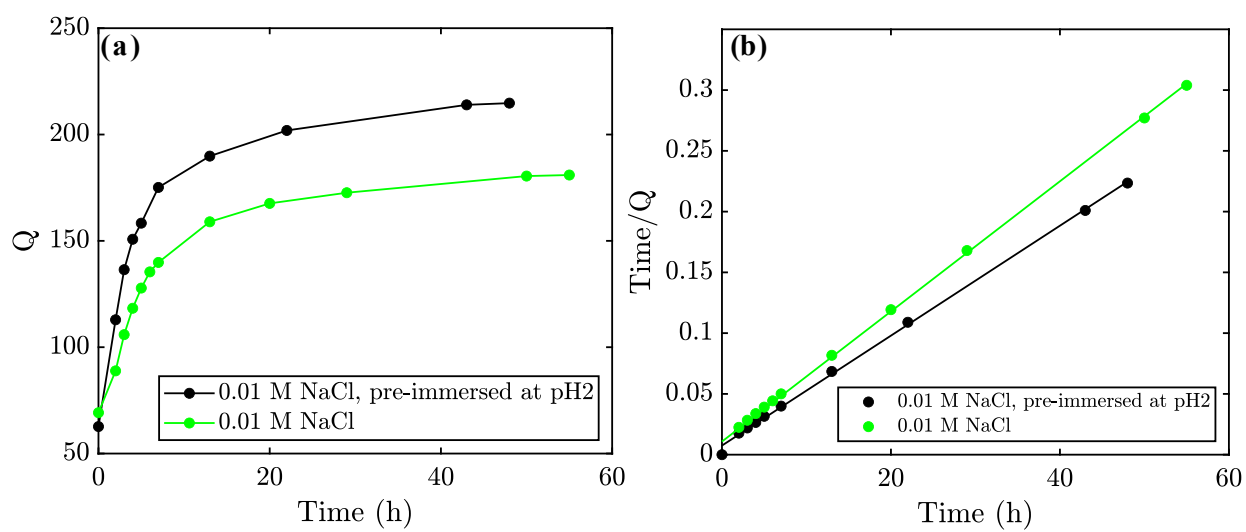
**Figure S1.** Molecular structure of alginate chains consisting of G and M blocks, and the egg-box model.



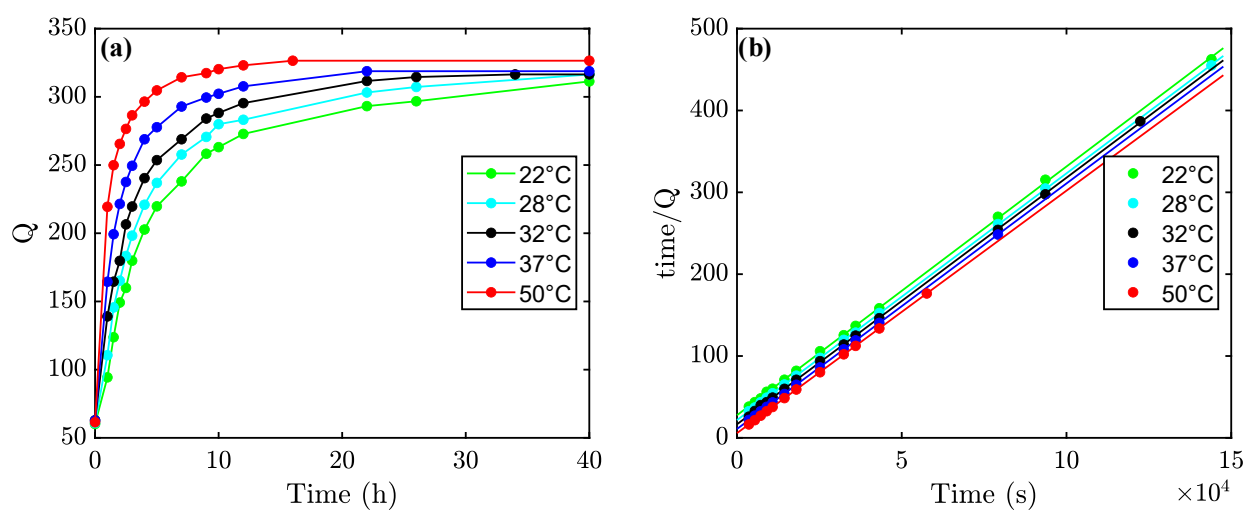
**Figure S2.** Degree of swelling  $Q$  of Gel-0.1 versus pH.



**Figure S3.** a) Degree of swelling  $Q$  versus time  $t$  for Gel-0.1 in aqueous solutions with various pH after immersion of the gel in solution with pH=2 for 3h. b) The equilibrium degree of swelling  $Q_{\infty}$  of Gel-0.1 versus pH.



**Figure S4.** a) Degree of swelling  $Q$  of Gel-0.1 versus time  $t$  in aqueous solution with 0.01M NaCl. b) Fitting of the data for Gel-0.1 by Eq. 3.



**Figure S5.** a) Degree of swelling  $Q$  of Gel-0.1 versus time  $t$  at various temperatures  $T$ . b) Fitting of the data for Gel-0.1 by Equation (3).