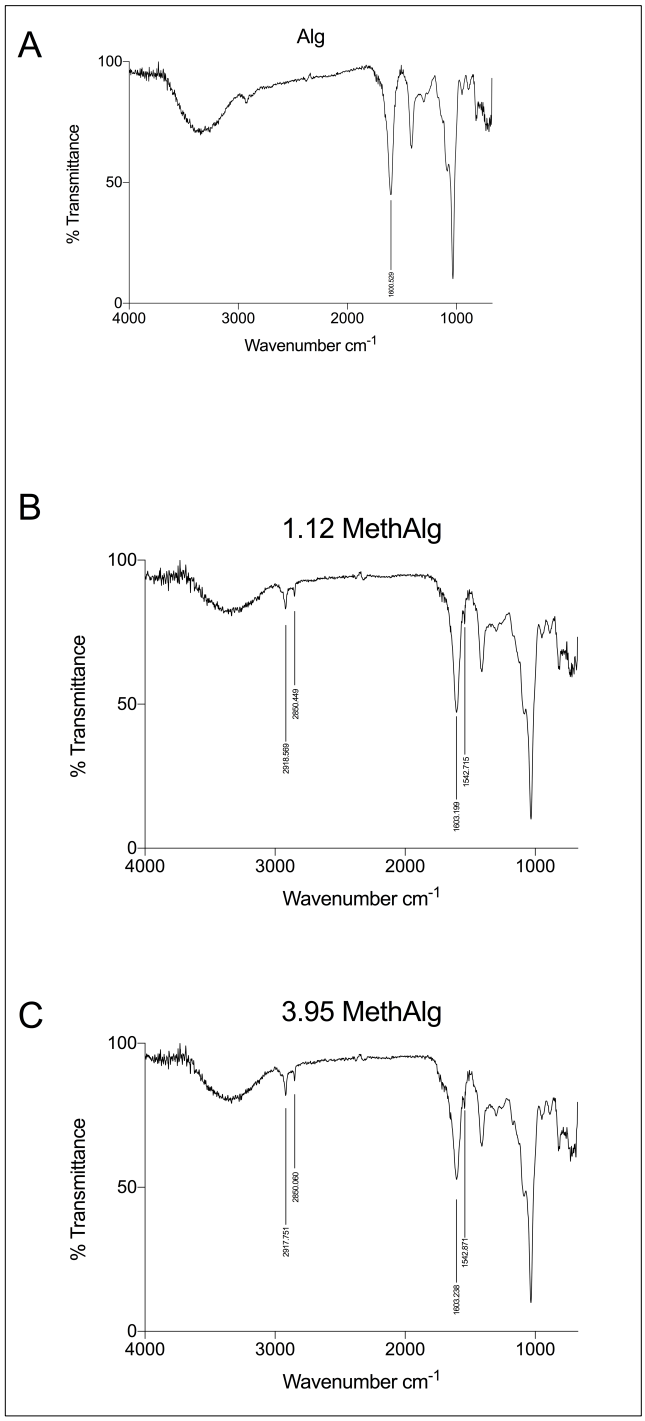
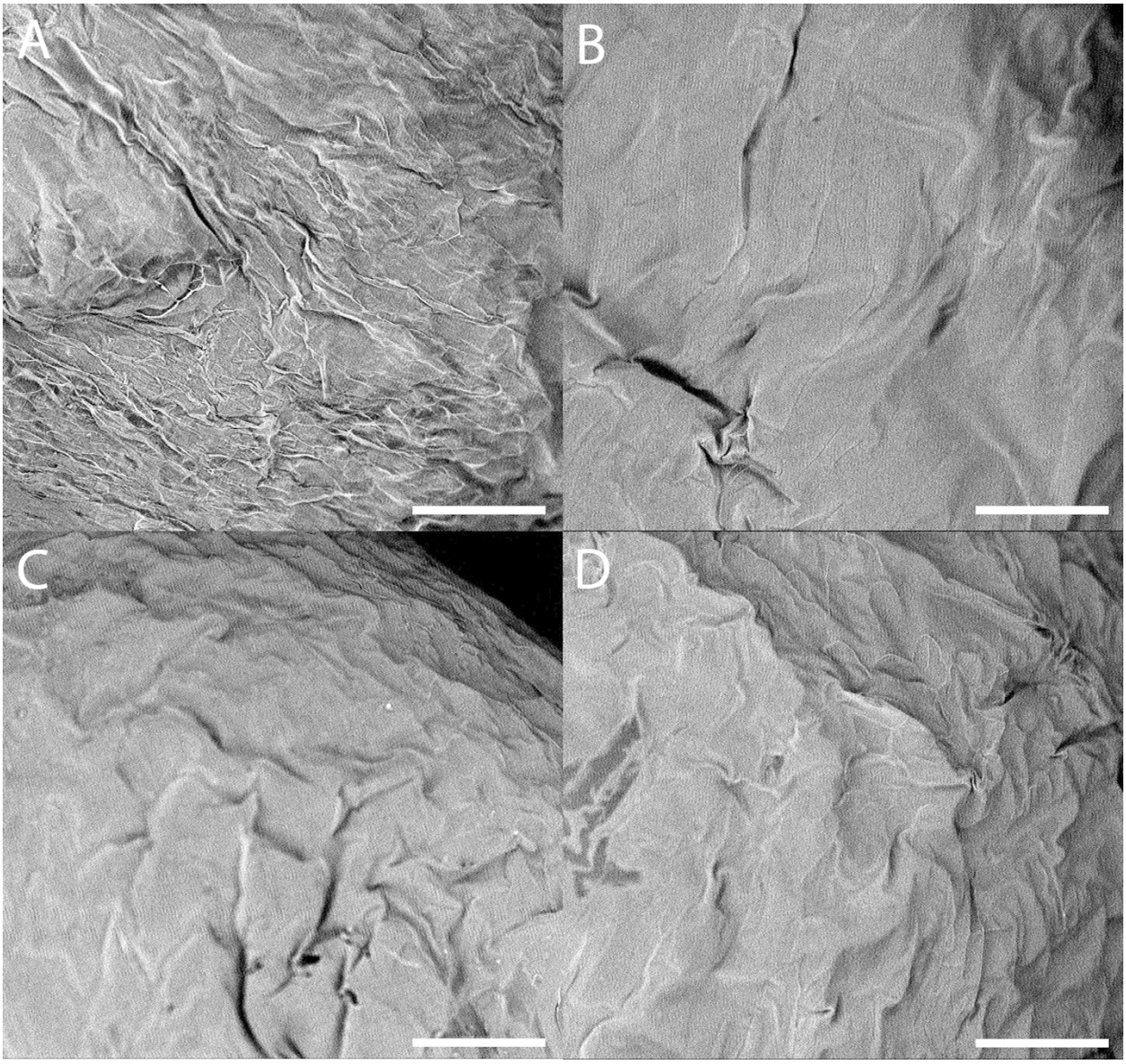
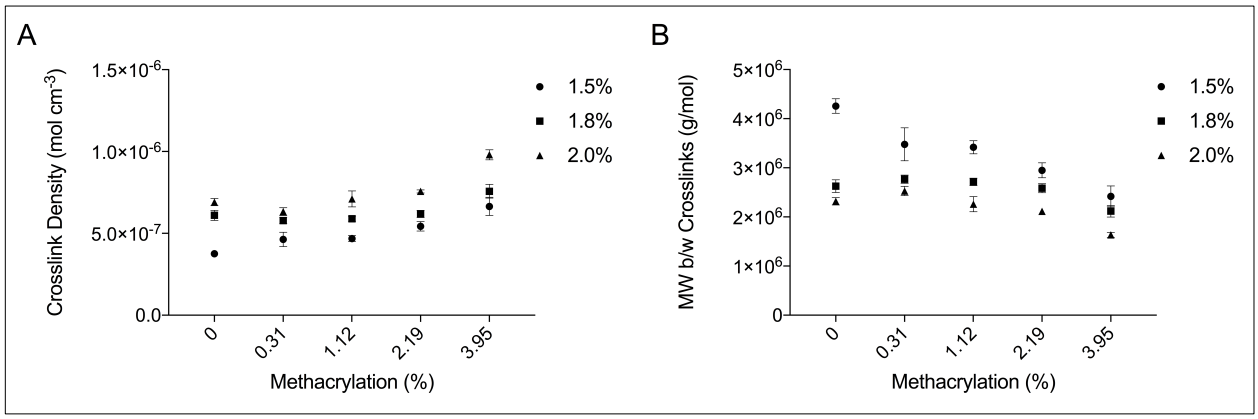


Supplementary Figure S1. FTIR spectra of A) alginate, B) 1.12 MethAlg, and C) 3.95 MethAlg. The shift for alginate (1600 cm^{-1}) shifts and broadens after the coupling of AEMA, the new center of the peak is 1603 cm^{-1} for 1.12 and 3.95 as a result of the amide I bond, between 1620 and 1640 cm^{-1}. The newly visible shoulder peak at 1542 cm^{-1} is the amide II peak. The two additional peaks in B)1.12 MethAlg (2918 and 2850 cm^{-1}) and C) 3.95 MethAlg represent (2917

and 2850 cm^{-1}) the asymmetric and symmetric stretching vibrations of the additional carbon atoms of AEMA.



Supplementary Figure S2. Scanning Electron Microscopy (SEM) of Alg (A,B) and 1.12 MethAlg (C,D) at 1.5% (A,C) and 2.0% (B,D). Surface of alginate beads similar for all formulations of microbeads tested. Scale bar represents 200 μm.



Supplementary Figure S3. A) Crosslink density and B) molecular weight between crosslinks of dual crosslinked alginate microbeads as a function of methacrylation efficiency. Crosslink density increases with increasing methacrylation efficiency and alginate concentrations. MW between crosslinks decreases with increasing methacrylation efficiency and alginate concentrations.