SUPPLEMENTARY INFORMATION

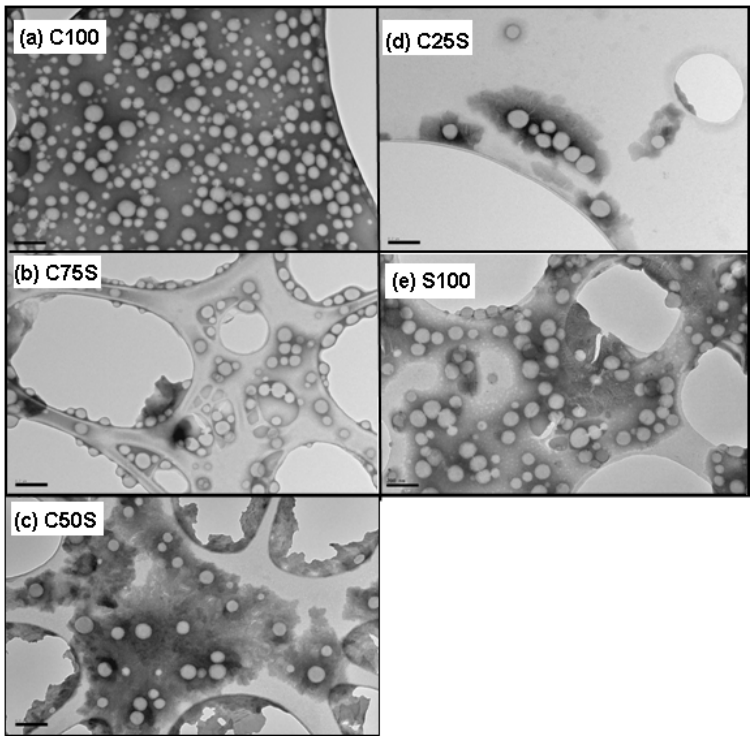

Figure S1. Transmission electron micrographs of the nanoparticles used for this study. The scale bars represent 200 nm.

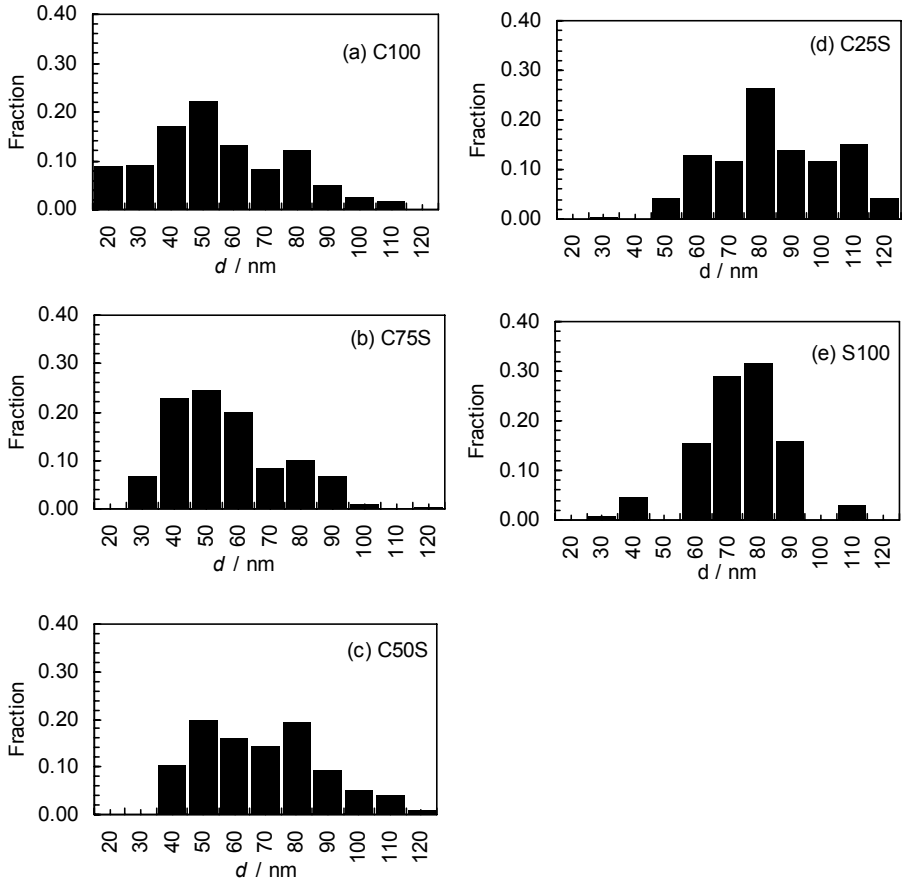

Figure S2. Particle size distributions obtained from TEM for the nanoparticles investigated in this work.

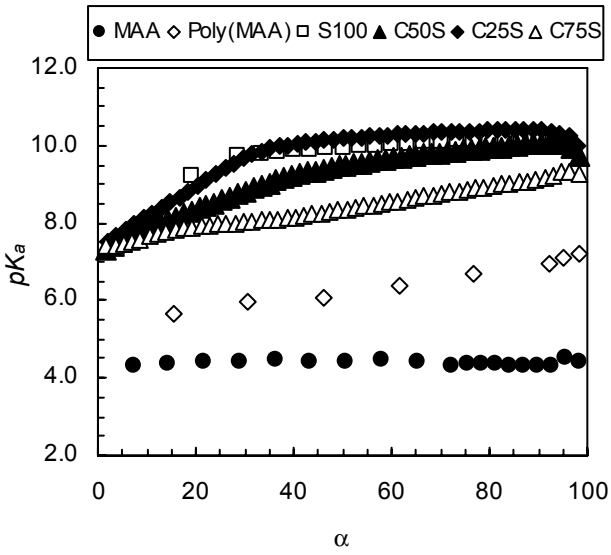

Figure S3. Calculated pK_a as a function of neutralisation for the nanoparticles considered in this study. Data for poly(MAA) and MAA are also shown for comparison.

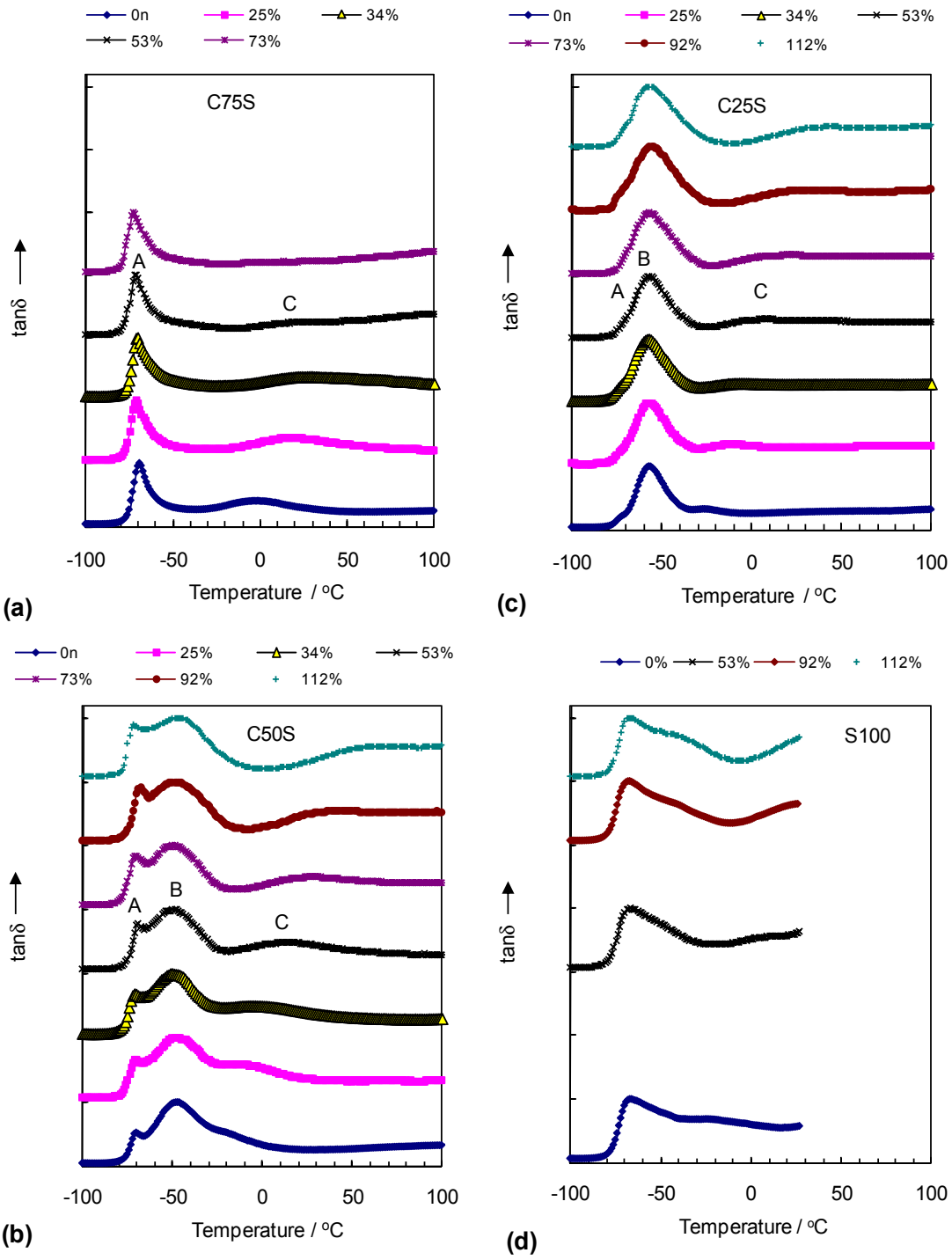

Figure S4. Effect of temperature on tanδ for (a) C75S, (b) C50S, (c) C25S and (d) S100 nanoparticle films at different α values (legends). The tanδ values have been normalised and shifted vertically in order to improve clarity. A, B and C show the positions of the T_g values for poly(Bd), poly(Bd-*co*-MAA) and poly(Bd-*co*-MAA)/Zn^{2+}, respectively.

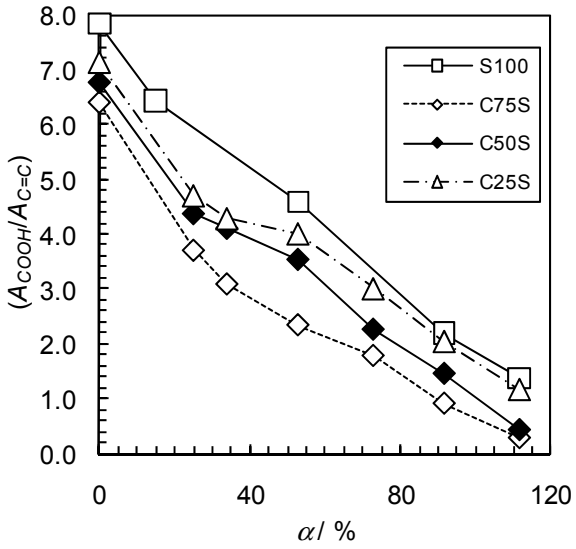

Figure S5. Variation of the area ratio for the RCOOH bands and -C=C- bands with nominal neutralisation.

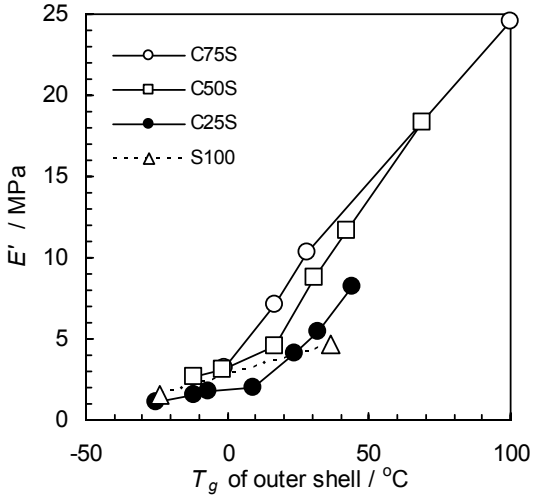

Figure S6 Variation of *E'* as a function of the T_g of the outer poly(Bd-*co*-MAA)/Zn^{2+} shell. These values were obtained the higher temperature peak labelled C in Fig. S4.

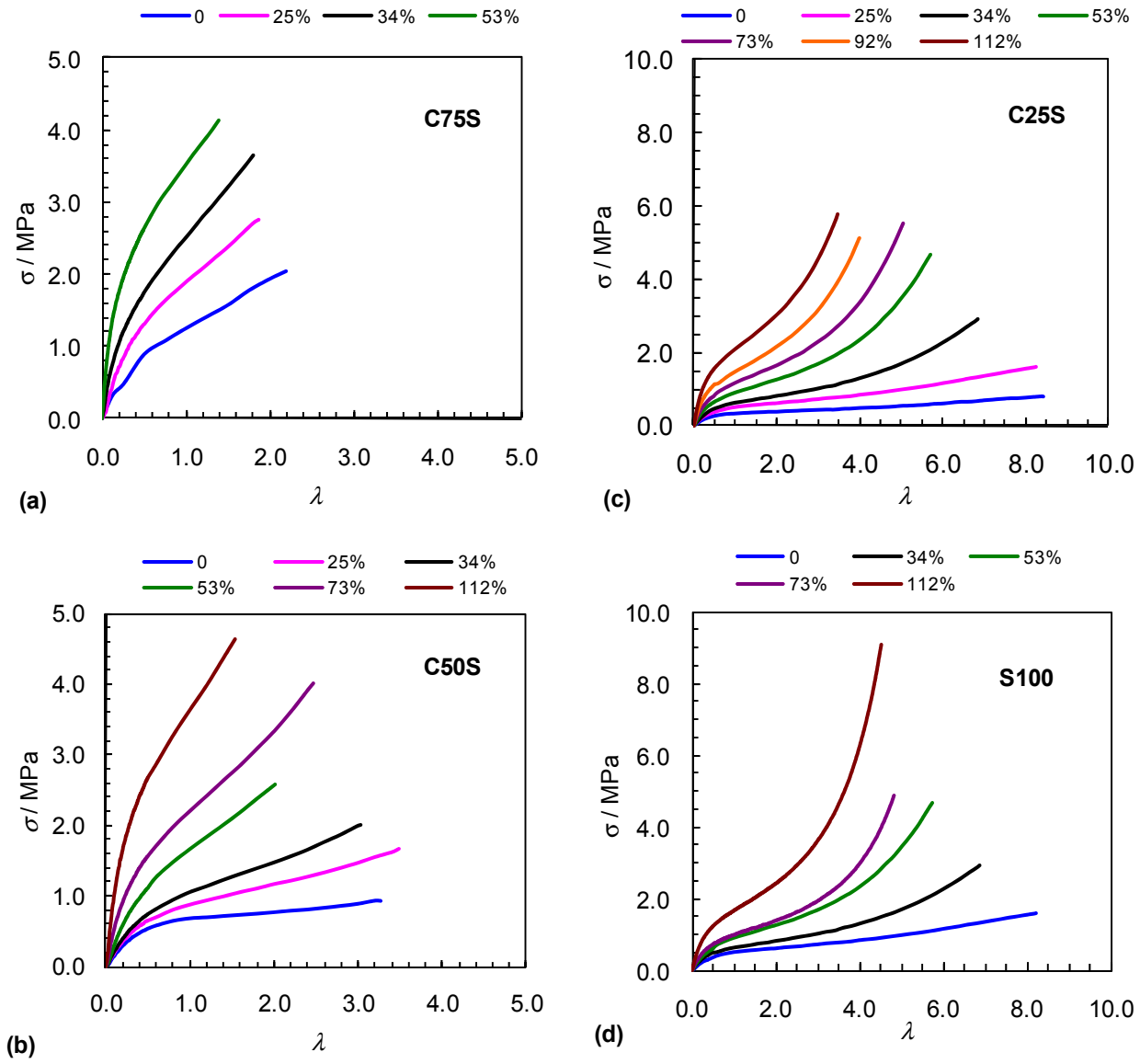

Figure S7 Stress as a function of strain for nanoparticle films at various nominal α values (see legends). The nanoparticle films were (a) C75S, (b) C50S, (c) C25S and (d) S100. Note the change of axis scale of (a) and (b) compared to (c) and (d).

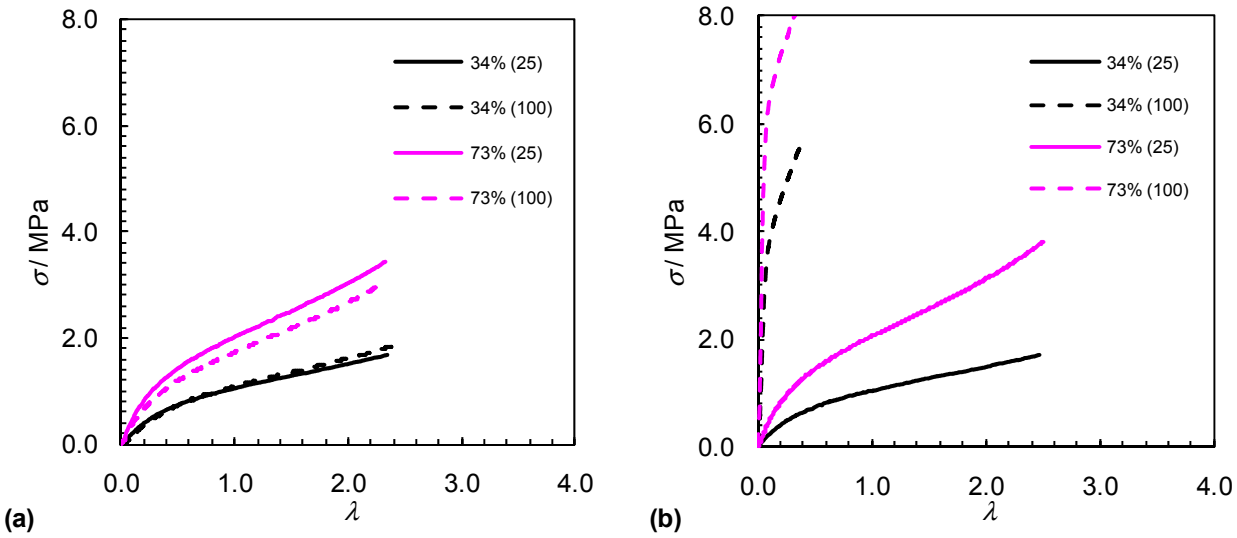

Figure S8 Stress as a function of strain for C50S nanoparticle films at nominal α values of 34 and 73 % (see legends). The nanoparticle films were stored at 25 ^{o}C or heated at 100 ^{o}C for 22 h prior to measurement. The films shown in (a) contained Wingstay L; whereas, those used to obtain the data shown in (b) did not.