

## Scattering Studies of Binary Mixtures of Polymer Colloids

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Recent studies have been devoted to dispersions composed of a binary mixture of polymer colloid particles, for example, small particles of radius  $R_A$ , and larger particles of radius,  $R_B$ . Several radius ratios,  $R_A/R_B$ , and number concentration ratios  $N_A/N_B$  have been examined. The primary technique used has been small angle scattering but some studies have also been made using light scattering. In the neutron work use has been made of contrast variation in order to obtain the partial structure factors,  $S(Q)_{AA}$ ,  $S(Q)_{BB}$  and  $S(Q)_{AB}$ . Under undisturbed conditions the results indicate that the larger particles retain an essentially ordered structure in the mixture. The smaller particles, however, appear to form clusters in the matrix of the larger particles. Recent experiments, in which a shear field has been applied to the systems, indicate that these clusters appear to grow with an increasing rate of shear and coagulate, rather than disperse. Similar experiments on the single dispersions of both A and B particles indicate that they are quite stable under sheared conditions up to  $6000 \text{ S}^{-1}$ .