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SUMMARY

Natural rubber latex is a colloid consisting of negative charged rubber particles of diameter ranging from about 0.05μm to 3μm. The presence of soluble inorganic salts in the latex often decreases its stability and hence some of these ions are used as coagulating agents in the rubber industry.

The present work was undertaken to study systematically the influence of various cations and anions on the rate of coagulation of natural rubber latex. The rate of coagulation of diluted latex was determined at 25^{o}C by measuring the increase of turbidity with time using a UV-visible spectrophotometer. Concentration of different ions were varied in order to find its critical coagulation concentration (c.c.c.) i.e. concentration of ions causing the maximum rate of coagulation. It is found that the coagulating power of bivalent cations such as Zn^{2+},Cd^{2+},Mg^{2+} is about 50-60 times greater than that of univalent cations e.g. Na^{+}, K^{+},NH_4^{+}. This result is in agreement with the Schulze-Hardy rule i.e. the coagulating power of ions increase with the inverse of their valency to the power of six. However, the results for trivalent cations such as Al^{3+} and La^{3+}, do not appear to comply such rule. This is probably due to their hydrolysis. Comparing results among the cations of the same charge, the coagulating power found to increase with

increasing ionic radii. On the other hand, the effect of different anions on c.c.c. values are not significant. It was also found that for a fixed concentration of different coagulating ion, the rate of coagulation increased with increasing temperature. From stability curves, the average value of the Stern potential of natural rubber latex was calculated to be 7.32 mV and consequently the Hamaker constant lie in the range of $0.42\text{-}16.00\times10^{-14}$ ergs.