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Effect of particle sizes on film formation behavior of Hevea brasiliensis natural rubber latex

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Natural Rubber (NR) latex is an excellent elastomeric material which contains a wide rubber particle size distribution including Small Rubber Particles (SRP) and Large Rubber Particles (LRP). The NR latex is widely used for producing various dipping rubber products. It is well known that mechanical properties of dipped products depend on latex film formation process. Therefore, in the present work, the effect of particle size on the film formation behavior of NR latex was investigated. The SRP and LRP latex was successfully prepared by centrifugation of the NR latex at various speeds. Particle size of the obtained SRP and LRP latex was characterized by light scattering technique, which showed size of the SRP in range of 200 nm. The relationship of particle sizes and film formation was investigated by study the film compaction time. It was found that the film compaction time increased when particle size of NR increased. Moreover, the effect of particle size on film formation at long time storage was studied. The morphology of samples was characterized by Atomic Forced Microscopy (AFM). The results showed that, SRP film had smoother surface than LRP film at the initial stage. Based on the present findings, it can be deduced that different particle sizes of NR latex is an important parameter, which effects on the film formation behavior.

Biography

Pitipong Kongsut is a student at Mahidol University with Chemistry as his subject of specialization.

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