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**KEY WORDS : SKIM RUBBER/ SKIM LATEX/ DEPROTEINIZATION/
STRUCTURAL CHARACTERIZATION/ RECOVERY/
LINEAR MOLECULE**

**SIRISAK SUKSUJARITPORN: CHARACTERIZATION AND
RECOVERY OF SMALL RUBBER PARTICLES FROM SKIM NATURAL
RUBBER LATEX. THESIS ADVISORS: JITLADDA SAKDAPIPANICH,
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A problem of skim latex is the difficulty to recover the residual rubber, since it contains low rubber content and a large amount of non-rubber components. In the latex factory, the concentrated sulfuric acid is applied directly in the skim latex for coagulation. However, other problems took place to cause a low quality of recovered rubber, and water pollution. The present work was an attempt to find a new method to reduce water pollution from the skim latex and produce the rubber in the form of concentrated latex.

As a new approach technique, the small rubber particles in the skim latex were incubated using proteolytic enzyme followed by an addition of sodium chloride. The small rubber particles from the skim latex were recovered as concentrated skim latex by using deproteinization and salting-out technique (DP/S).

In the first part of this study, the mechanism of phase separation of the DP/S skim latex relied on the evidence of the surface charge or zeta-potential on rubber particle and the agglomeration of small rubber particles. Time dependence study of phase separation in the DP/S in skim latex was found to depend upon the sources of latex, working temperature of enzyme, and concentrations of sodium chloride and enzyme.

In the second part, the skim rubber showed a linear molecular characteristic, high mechanical stability time (MST), low auto-oxidative resistance and mechanical properties. Based on the accelerated storage-hardening test, the skim rubber showed a preferable trend to degradation, which is different from usual natural rubber. After an application of DP/S technique into the skim latex, the dry rubber content (DRC) of skim latex was increased while nitrogen, gel, MST and metal content were reduced. The rheological properties of skim rubber correspond with a linear molecular behaviour under different processing machines. According to the present study, the characteristics and processing properties of the skim rubber are controlled by both micro-molecular structure and basic properties, *e.g.*, linear structure and non-rubber content.

Based on the present work, it can be pointed out that the applications of skim rubber should be concerned about the degradation during storage time, processing and end used performance. Therefore, it is necessary to add some antioxidants to the skim rubber to keep rubber from degradation.