

The Application of Liquid Smoke by Pyrolysis for Coagulant latex and Preservation of Latex Coagulum as Sheet Raw Material

ABSTRACT

Rubber wood waste has become a problem in the rubber industry. One solution is to involve wood as liquid smoke because rubber wood waste in rubber plantations can be directly involved by rubber farmers and the industry as a coagulant and sheet preservative. Rubber wood contains lignin and cellulose. In addition, this study aims to evaluate the possibility of using liquid smoke produced by PB 340 rubber wood clones as a coagulant and preservative in rubber handling. Using the pyrolysis method, rubber wood waste is converted into liquid smoke at 400°C. Their chemical makeup, including the presence of carbonyl, acids and phenolic compounds, was analyzed. Gas chromatography-mass spectrometry was used to determine the composition of liquid smoke (GC-MS). The analysis showed that 57.82% cellulose, 12.18% hemicellulose, and 19.02% lignin were present in the PB 340 rubberwood clone. The pyrolysis interaction of the PB 340 rubberwood clone produced liquid smoke which had the expected properties as a latex coagulant, including pH 2.55, 2.42% phenolic content, 5.33% carbonyl content, and 16.45% acid content. Based on the results of volatile chemical analysis, there are 57 natural mixtures in the liquid smoke produced by PB 340 rubber wood clones namely. Phenolic compounds, furan, furfural, corrosive acids and cyclopenta are some examples. The effectiveness of liquid smoke as a latex coagulant at concentrations of 5, 10, 15, 20, and 25 (% v/v) and storage time was evaluated (1, 7 and 14 days). The sheet quality limits for processed latex, including initial plasticity (P0), plasticity retention index (PRI), volatile matter content, impurity content, and ash content, are then examined. Comparison of pure liquid smoke concentration and coagulum storage time for 14 days all shows that the quality is in accordance with the Indonesian Rubber Standard (SIR) number 1903:2000.

Keywords: Liquids smoke, coagulant, rubber wood, ribbed smoke sheet (RSS), klon PB340