

Effect of Zinc Diethyldithiocarbamate to Sulfur Ratio on Strength and Abrasion Resistance of Eco-Pseudo Ceramics Materials

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Eco pseudo-ceramics materials were prepared using clay reinforced with natural rubber latex via a sulfur vulcanization system i.e. conventional, efficient, and semi-efficient vulcanization cure system. The proportion of compound latex was controlled at 9 wt% and heat treatment for materials strengthening process was carried out at 150°C for 12 h. The effect of zinc diethyldithiocarbamate to sulfur ratio on properties such as the flexural strength, compressive strength, and abrasion resistance (in terms of volume loss) of eco pseudo-ceramics materials were investigated. Of the vulcanization systems, the conventional cross-linking of natural rubber using zinc diethyldithiocarbamate to sulfur of 1:1.5 gives appropriate flexural strength (21.28 MPa), compressive strength (22.97 MPa) and volume loss of 1089±64 mm³. This can be attributed to the higher amount of cross-linking observed in the conventional vulcanization system that shown by the swelling resistance in toluene during equilibrium state.

Keywords Strength; Abrasion resistance; Sulfur vulcanization; Eco-pseudo ceramic materials