



P-2-174

EVALUATION OF VISCOELASTIC PROPERTIES OF CURAUA COMPOSITES

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In this study, unsaturated isophthalic polyester resin/curaua composites were studied using dynamic mechanical analysis (DMA) operating under isothermal mode at a preset temperature of 113°C (defined as the glass transition temperature from a previous non-isothermal run). The curaua fibers used were chopped (50 mm), washed in distilled water and dried in an oven prior to use. Composites were prepared using the hot compression molding technique and different curaua contents were incorporated in the matrix (11, 22, 32 and 38 vol.%). Relaxation and retardation modulus were evaluated. Two distinct relaxation peaks were obtained, the first was associated with fiber-matrix bond failure and the second with the relaxation of the matrix phase. The concentration of elastic chains was calculated using the theory of ideal rubbers and it was found to increase for higher curaua content. Crosslink density decreased upon fiber incorporation perhaps due to a more prominent fiber dwell between the crosslinks.