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**INFLUENCE OF MMT CONTENT AND PROCESSING SPEED ON THE MORPHOLOGY PROPERTIES OF NANOCOMPOSITES - EPOXY-BASED POWDER COATING**

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The development of nanocomposites with the addition of nanoclays in polymer matrix has shown to have great potential for a variety of applications. This is due to the resultant physical properties, such as the barrier and the thermal effects, which are enhanced by the nanoparticles. Nanoclays have been incorporated in powder coatings to obtain organic films with better properties and have received much attention by the industry. In this work, montmorillonite (MMT) was incorporated in an epoxy based powder coating. The nanoparticles (2 and 4%w/w) were added to the matrix in the melt phase using different processing speed in the twin-screw extruder (200 rpm- 400 rpm). The particle morphology and its dispersion in the organic matrix were examined by transmission electron microscopy (TEM) and X-ray diffraction analysis (XRD). Scanning electron microscopy was also used to address the film texture. Shift to smaller angles of the basal planes ( $d_{001}$ ), characteristic of MMT, was observed in the XRD, indicating the presence of nanocomposites predominantly in the exfoliated phase. This result was supported by the images obtained by TEM. The SEM electromicrographs exhibited fragile and rough films with the addition of MMT. An optimum dispersion was obtained for specimens processed at 400 rpm.