

POLYMER/NANOCLAY ADHESIVE WITH MOISTURE BARRIER

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The production of polymer/nanoclay adhesives is performed to create a new layer of film that acts as moisture barrier used in the packaging industry. The adhesive consisted of Adcote 522 (a polyester polyurethane) and Adcote 532B (a polyester “catalyst”). We added to the Adcote 522 in ethyl acetate as solvent a nanoclay by rapid mixing. We used two types of nanoclays which had been modified with amines as compatibilizers: I30E (a montmorillonite modified with octadecylamine) and Cloisite 20 A (an dimethyl hydrogen tallow ammonium-modified montmorillonite). We did not add the Adcote 532B ourselves for the samples to be laminated to prevent aging of the adhesive. This final step of mixing and lamination of the adhesive layer between packaging films will occur at the site of American Packaging Corporation. For each of the two types of clay, mixtures of Adcote 522 with five different contents of clay were produced (2, 4, 6, 8 and 10 weight %). More than half of the samples we prepared formed mixtures that could be sent out to the packaging company. A simple adhesion test was performed and showed that the adhesive with the incorporated nanoclay provided stronger adhesion than the comparable sample without the nanoclay.