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INTERFACIAL INTERACTIONS AND REINFORCEMENT IN  
THERMOPLASTICS/ZEOLITE COMPOSITES

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#### ABSTRACT

Ten different polymers were selected as possible matrices for zeolite containing desiccant composites in order to prepare functional packaging material. A 5A type zeolite was used as desiccant. Composites containing the zeolite up to 50 vol% were prepared. Interfacial adhesion was estimated by various means including the measurement of surface characteristics, cyclic loading experiments and evaluation of composition dependence of mechanical properties by appropriate models. The results showed that composite properties change in a wide range. The deformability of most composites is small and decreases with increasing zeolite content. Interfacial adhesion between the matrix polymer and the zeolite is not very strong, although quantitative determination is hampered by various factors. Most of the composites fail by debonding, brittle matrices by debonding and/or matrix fracture, while considerable shear yielding has been observed in LDPE composites. Composite properties are determined mainly by matrix characteristics; interfacial adhesion plays only a relatively minor role.

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