

Influence of crystallinity on the mechanical properties of XLPE/POE and LDPE/POE blend systems

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Crosslinked and noncrosslinked linear low density polyethylene (XLPE/LDPE) with different contents of polyolefin elastomer (POE) has been evaluated. Influence of POE and crosslinking on the mechanical properties of LDPE/POE and XLPE/POE blends has been investigated using dynamic mechanical analysis (DMA). The storage modulus and T_g was found that sensitively depend on crystallinity. The storage modulus and T_g was decrease with increase of POE contents. This results were due to POE with many branches reduce the crystallinity of blends. The results showed a new finding about decrease in T_g as a consequence of the 'chemical crosslinking' of blends. This was explained by reduction of crystallinity, which chain packing was hindered because of POE branches and free volume was increased.