

**Influence of branch content on the microstructure of blends of linear and octene-branched polyethylene: a MD simulation study.**

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**Abstract**

Microstructure of linear low-d. polyethylene (LLDPE) with linear high-d. polyethylene (HDPE) is investigated by mol. dynamics (MD) simulation. The branch content of LLDPE was varied from 10 to 60 branches/1000 C. An equimolar mixt. of each of the two polymers is simulated in the NVT ensemble at 500 K and at av. exptl. densities of the two polymer melts. Initially, chains of LLDPE and HDPE were completely mixed and evolution of conformations with time was monitored. The blends were found to microphase sep. when the branch content of LLDPE exceeded 30 branches/1000 C. At 40 branches/1000 C, the two polymers displayed partial microphase sepn. and complete microphase sepn. was obsd. at 60 branches/1000 C. Substantial short-range order and mismatch of mol. conformations is obsd. in the microphase-sepd. systems.