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Thermal and optical studies on the compositions of low-density polyethylene with highly refined mineral oil

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Highlights

- Full phase diagram LDPE – highly refined mineral oil is constructed for the first time
- The diagram does not include a liquid-liquid binodal
- A capillary-porous body is formed during thermally induced phase separation
- Highly refined mineral oil is less miscible with LDPE than decane and tridecane
- The system attracts practical interest as a component of vibration-damping compositions

ABSTRACT

An original optical method and differential scanning calorimetry were used to construct an experimental phase diagram for the binary composition low-density polyethylene – highly refined mineral oil. This diagram includes the polymer full amorphization curve and the oil solubility curve