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POLY(ETHYLENE TEREPHTHALATE-*co*-ISOPHTHALATE) COPOLYESTERS OBTAINED FROM LINEAR OLIGOMERIC BLENDS

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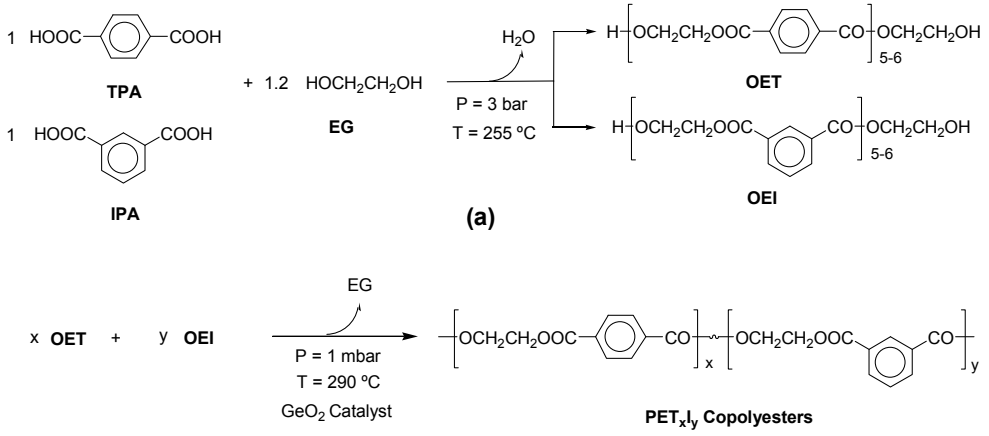
In this work, a series of poly(ethylene terephthalate-*co*-isophthalate) copolyesters containing isophthalic units up to 50%-mole were prepared by polycondensation from blends of ethylene terephthalate and ethylene isophthalate linear oligomers containing 5 to 6 repeating units. The microstructure of the copolymers was studied as a function of reaction time by ^{13}C NMR, showing that a random distribution of comonomers is achieved during the first stages of polycondensation. The copolyesters were obtained with high molecular weights in good yields. The melting temperature and enthalpy of the copolyesters decreased with the content of isophthalic units so that those containing more than 25% of isopthalic units were unable to show crystallinity. Isothermal crystallization studies carried out on the crystalline copolyesters revealed that the crystallization rate decreased with the content of isophthalic units.



Synthetic route followed for the preparation of the copolyesters

This methodology allows producing PETI copolyesters with properties similar to those the obtained by conventional polycondensation of mixtures of TPA and IPA diacids with ethylene glycol.[1]

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References

1. Wu T-M.; Chang C-C. *J. Polym. Sci. Polym. Phys.* **2000**, 38, 2515-2524