

Rheology and melt fracture of poly(lactides)

Abstract :

The wall slip and melt fracture behaviour of several commercial polylactides (PLAs) have been investigated. PLAs with molecular weights greater than a certain value were found to slip, with the slip velocity to increase with decrease of molecular weight. The onset of melt fracture for the high molecular weight PLAs was found to occur at around 0.2 to 0.3 MPa, depending on the geometrical characteristics of the dies. Addition of 0.5wt% of a poly(ϵ -caprolactone) (PCL) into the PLA that exhibits melt fracture was found to be effective in eliminating and delaying the onset of melt fracture to higher shear rates.