

Twin screw extruders used for reactive compounding

Sakai Tadamoto

The use of polymer processing equipment to conduct reactive processing, particularly polymerization and reactive blending, can create newly functionalized polymers with very sophisticated morphology. Recent morphology control is requested at the level of nano-scale. Screw type extruders, in particular twin screw extruders, are the preferred devices for these purposes, but must be solved the major issues of required residence time, temperature and morphology development. This study deals with extruder design to provide the necessary reaction temperature and residence time, intensity of mixing, and devolatilization to remove by-products and residual reactants/solvent.