

Solid-State Polymerization and Thermal properties of High-temperature Nylon

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Prepolymers of high-temperature co-nylons were prepared by melt-polymerization (MP) process with nylon 4T salt, nylon 6T salt, and nylon 46 salt. Normally, these have very low molecular weight and it is difficult to obtain high molecular weight co-nylons using MP process. High molecular co-nylon was synthesized using the low-molecular-weight species by solid-state polymerization (SSP) as a function of time and temperature in a gaseous nitrogen/steam flow of atmospheric pressure. The solid-state polymerization behavior, molecular weights, and thermal properties measured by differential scanning calorimetry (DSC), thermogravimetric analysis (TGA), titrater, and ubbelohde viscometer will be discussed.