

Solid-State Polymerization of High-Temperature Nylon: Composition of Nylon 4,6-Nylon 4,T-Nylon 6,T

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High temperature nylon nowadays is commonly used in automobile parts with huge industrial scale and in electronics parts with a relative small industrial scale and laboratory improvement, which some are applied in high temperature condition. It is needed material that has good thermal and physical properties. High temperature nylon was synthesized and investigated to overcome limited value of its application in higher temperature condition with consideration of its melting temperature behavior.

Three composition of high temperature nylon prepolymer were prepared by melting polymerization (MP) process of tetramethyleneadipamide (nylon 4,6) salt, tetramethyleneterephthalamide (nylon 4,T) salt, and hexamethyleneterephthalamide (nylon 6,T). Kinetic study of using nylon 6,T as monomer constituent on nylon polymer was investigated by solid state polymerization (SSP) as a function of time and temperature at atmospheric pressure. The thermal properties and molecular weight were measured by differential scanning calorimetry(DSC), thermogravimetric analysis (TGA) and ubbelohde viscometer.