

### Solid-State Polymerization of High Temperature Nylon

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Solid-state polymerization is one of promising polymerization method among other methods, since it needs no solvent, environmentally green process to high molecular weight polymer.

The effect of Nylon-6,T (T from terephthalic acid/TPA) composition on copolyamide with Nylon-4,6 and Nylon-4,T was examined using solid-state polymerization with nitrogen-steam mixing sweep fluid. At each reaction temperature, polymer from higher composition of Nylon-6,T always have slower polymerization rate compare to polymer from lower composition of Nylon-6,T in same solids-state polymerization condition.

2,5-furandicarboxylic acid (FDCA) is well known as a potential replacement for terephthalic acid (TPA) compound. The effect of replacing terephthalic acid compound using 2,5-furandicarboxylic acid were examined on copolyamide of Nylon-4,F (F from FDCA) and Nylon 4,6; which previous study about copolyamide of Nylon-4,T and Nylon-4,6 was already published. Polymerization rate of polymer contains FDCA compound were lower than polymerization rate of polymer contains TPA compound.