

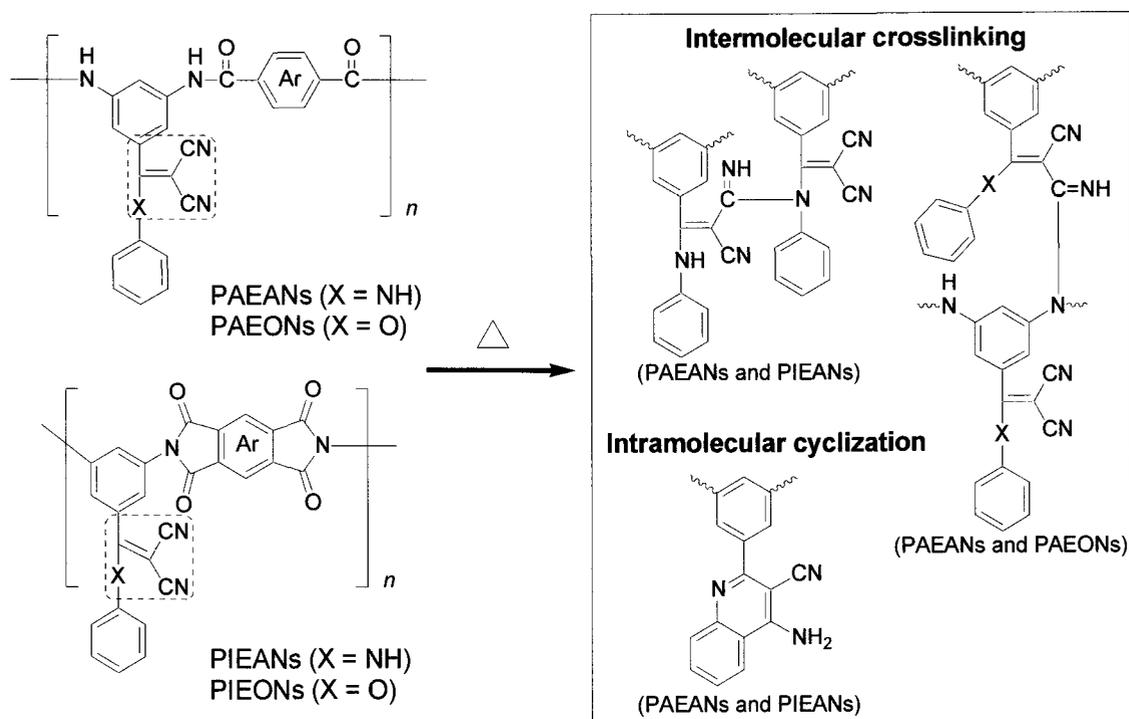
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## Soluble Rigid Rod-Like Polyimides and Polyamides Containing Curable Pendent Groups

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Soluble rod-like aromatic polyimides and polyamides containing curable pendent groups were synthesized. The polyimides (PIEANs) and polyamides (PAEANs) containing pendent enaminonitrile groups showed good thermal stability, and underwent curing reactions without the emission of volatile by-products above 300 °C to stable materials which were not soluble in any organic solvents. However, the polyimides (PIEONs) and polyamides (PAEONs) containing pendent enoxynitrile groups started to decompose around 300 °C, because of the instability of enoxynitrile groups. PAEONs underwent curing reactions around 420 °C in spite of the initial decomposition, but PIEONs exhibited only thermal degradation process. Thermal analyses of these polymers and the corresponding model compounds revealed that the curing of enaminonitrile groups proceeded via intermolecular crosslinking as well as intramolecular cyclization, while the enoxynitrile groups, known to undergo self-curing reaction, could not be cured by itself, and a reactive amine group was essential for the curing of the enoxynitrile groups.



**Figure 1.** Soluble rod-like aromatic polyimides and polyamides containing curable pendent groups and their curing behaviors.