

## Miscibility of blends of SAN/SMMA and SAN/PCL

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Miscibility of blends of poly(styrene-co-acrylonitrile)(SAN)/poly(styrene-co-methyl methacrylene)(SMMA) and SAN/poly( $\epsilon$ -caprolactone)(PCL) was examined by observation of enthalpy relaxation and equilibrium melting point depression, respectively.

It was found that SAN's are miscible with PCL and SMMA's within specific ranges of copolymer composition for each blend.

For SAN/PCL blends, segmental interaction energy densities were calculated by applying the binary interaction model to values of overall interaction energy densities obtained from analysis of equilibrium melting point depression.

For SAN/SMMA blends, segmental interaction energy densities were estimated by combining the miscibility map and the binary interaction model for copolymer mixtures containing a common segment. The values were found to be positive for all segment pairs, indicating that no interaction between the acrylonitrile and methyl methacrylate exists.

It was conclusive that a repulsion between two different monomeric units in copolymers is primarily responsible for the miscibility of the blends.