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Thermoreversible bond formation in end-linking, difunctional polymer blends RICHARD ELLIOTT, GLENN FREDRICKSON, Materials Research Laboratory, University of California, Santa Barbara — We investigate theoretically thermoreversible bond formation and phase transitions in a system composed of linear, end-linking, difunctional polymers. In this melt, two distinct species of equal-length links assemble into chains of varying sequences and polymerization depending on the affinities of binding between the blocks. Several limits, such as that of purely heterogeneous bonding which forms chains of alternating block sequences, are explored. Interactions between dissimilar segments are described with the Flory-Huggins contact potential and a mean-field approach is employed to investigate the effects of prevalent bonding and the onset of meso-scale ordering.

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