

TAILORED POLYVINYLAMINES BY RAFT POLYMERIZATION

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Poly(*N*-vinylamides) are water-soluble polymers known for decades as aqueous formulation additives for diverse applications. Cyclic monomer derivatives such as *N*-vinylpyrrolidone (VP) and *N*-vinylcaprolactam (VCL), can be controlled by nearly all Reversible Deactivation Radical Polymerization (RDRP) methodologies. On the other hand, only a few studies reported the successful controlled polymerization of non-cyclic *N*-vinylamides such as *N*-vinylformamide (NVF), *N*-vinylacetamide (NVA) and *N*-methyl-*N*-vinylacetamide (NMVA), with the works of Debuigne and coworkers using Cobalt-Mediated Radical Polymerization (CMRP) and Yamago and coworkers using Tellurium-mediated Radical Polymerization (TERP). Surprisingly, before this work, suitable RAFT process conditions for controlling homopolymerization and block copolymerization of acyclic *N*-vinylamides could not be found.

We here report on RAFT polymerization of NMVA⁽¹⁾ and NVF monomers,^(2,3) using either thermal or photoiniferter (PI) activation. Original thermoresponsive double hydrophilic block copolymers (DHBCs) are presented.

References

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