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Self-assembly of polydisperse acrylic block copolymers ANNE-VALERIE RUZETTE, LUDWIK LEIBLER, Laboratoire Matiére Molle et Chimie, UMR 7167 ESPCI-CNRS, Paris, France, FLORENCE CHAUVIN[1], DENIS BERTIN, Chimie, Biologie et Radicaux Libres, UMR 6517, Marseille, France, PIERRE GERARD, ARKEMA, Lacq, France — Self-assembled block copolymers present great interest since they combine at the nanometer scale intrinsic properties of different homopolymers. Over the past decade, remarkable progress in synthetic chemistry has unveiled new opportunities to prepare tailored block copolymers of judiciously chosen monomer type and architecture at reasonable cost. In particular, controlled radical polymerizations (CRP) are suitable to all kinds of vinyl monomers in common mass, suspension or even emulsion processes. Most synthetic efforts in this field have focused on developing a "living" character of free radical chain-ends and control polydispersity in length and composition. Here, we discuss a different, though quite common, situation where only one of the copolymer blocks is controlled. Overall composition and molecular weight polydispersities are thus large. Self-assembly and mesoscopic order in these "asymmetrically polydisperse" block copolymers and their blends is discussed.

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