

Side chain liquid crystalline composites, occurrence of interdigitated bilayer smectic c phases

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We report on the results of X-ray investigations in two series of polymer monomer composites, PM6Rm-33 and PMnR12-33, which consist of mixtures of achiral liquid crystalline side chain polymers and their monomers. These mixtures present a unique integration of monomer in the polymeric base which assists in modifying their properties and forming homogenous composites. X-ray measurements for all the investigated composites indicate the existence of bilayered smectic C phases (SmC₂). In several composites, the interlayer distance of the SmC₂ phase abnormally increases with cooling; this is associated with the aliphatic interdigitation at the tail-to-tail interface being more prominent when longer aliphatic tails are present. © 2011 Taylor & Francis.