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**Structure and phase behavior of styrene-ethylene/propylene (SEP) diblock copolymer in crosslinkable acrylate monomers** YE HUANG, ZHIFENG BAI, JAKE JOO, BRIAN LANDES, CHRIS TAYLOR, MICHAEL WILLIAMS, PENKALA KENNETH , DOW CHEMICAL COMPANY — Self-assembly of block copolymers in crosslinkable resins is of significance in applications such as toughening, rheology control, and encapsulation. Examples of block copolymers in acrylate resins however are limited despite their important industrial applications. In this presentation, we will describe self-assembly of a commercial block copolymer, a styrene-ethylene/propylene (SEP) diblock, in a mixture of two commonly-used commercial acrylic monomers, isobornyl acrylate (IBOA) and tricyclodecane dimethanol diacrylate (TDDA). The S block is compatible with both IBOA and TDDA, while the EP block is compatible with IBOA but not TDDA. This study demonstrated that the micellar morphology can be tuned by changing the monomer selectivity, leading to different transitions. It shows the effect of acrylate monomer selectivity on the micellar morphology of SEP diblock copolymer. With varying the monomer selectivity by increasing composition of TDDA, the predominant micellar shape changes from spheres to cylinders. The detailed micellar morphologies were characterized by small-angle X-ray scattering (SAXS) and transmission electron microscopy (TEM).

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