

Abstract Submitted
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Supramolecular **Structure of inclusion complexes of β -cyclodextrin with PEO-b-PPO-b-PEO Triblock Copolymer** CHI-CHUN TSAI, BERNARD LOTZ, MINGMING GUO, S.Z.D. CHENG — Inclusion complexes, formed by non-covalent host-guest interactions, can be useful as building blocks for constructing supramolecular structures. Cyclodextrins (CDs), due to their good water-solubility and ability to include a wide range of guest molecules, have been the most intensively studied host molecules. CDs are shaped like a shallow truncated cone, with hydroxyl groups on the outer surface of the molecule. The cavity is hydrophobic and can act as a host for a great variety of molecular guests. A series of host-guest inclusion complexes were prepared with β -cyclodextrin (β -CD) and poly(ethylene oxide)-poly(propylene oxide)-poly(ethylene oxide) (PEO-PPO-PEO) triblock copolymers of varying molecular weights and compositions. The middle PPO block of the copolymers can be selectively included by β -CD to form an inclusion complex while the PEO blocks cannot. The inclusion complexes with β -CD have been studied by two-dimensional rotating frame overhauser effect spectroscopy (2D ROESY) and solid-state NMR experiments. These inclusion complexes can further aggregate into supramolecular structures in aqueous solution. The formation of self-assembled supramolecular structures has been observed by transmission electron microscopy (TEM) and one- and two- dimensional x-ray diffraction (1D and 2D WAXD).

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