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Surface Characterization of Aliphatic Polyester *-g-* Phosphorylcholine Copolymers XIONGFEI ZHANG, TODD EMRICK, SHAW L. HSU, Polymer Science and Engineering, University of Massachusetts, Amherst — In order to control biodegradation behavior of a class of polyesters, hydrophilic functional groups were grafted onto the main chains. Phosphorylcholine (PC) molecules with azide attached at the end were synthesized. Due to their excellent biocompatibility and hydrophilicity, they have been covalently coupled to biodegradable aliphatic polyesters via a "click" cycloaddition reaction to produce amphiphilic graft copolymers. A series of copolymers were prepared by varying the molar incorporation of PC groups. Surface properties of the copolymers were examined to further explore their applications in drug delivery systems. Grazing angle reflection infrared spectroscopy was employed to determine segmental orientation at the film surface. XPS was used to verify surface composition. A water adsorption experiment was carried out to determine the water permeation rate. The improvement in hydrophilicity was confirmed by a water contact experiment. Results indicate that the graft copolymers were promising in drug delivery systems.

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