Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Amphiphilic Block Copolymers in Condensed Carbon Dioxide WILLIAM EDMONDS, Department of Chemical Engineering and Materials Science, University of Minnesota, TIMOTHY LODGE, MARC HILLMYER, University of Minnesota — Condensed carbon dioxide represents a promising "green" solvent alternative on the basis of its abundance and modest critical conditions. Amphiphilic block copolymers offer the potential of enhancing the versatility and usefulness of this solvent through the formation of micelles. Our goal is to understand and define the parameters that control aggregate shape and dimensions in solution; these parameters include copolymer volume fraction and solvent density. We will present dynamic light scattering and solubility data for a series of polybutadiene-*b*-poly(hexafluoropropylene oxide) and polylactide-*b*-poly(hexafluoropropylene oxide) copolymers. At modest pressures (< 500 bar), these materials are readily soluble. In addition, initial measurements suggest the formation of non-spherical micelles in solution.

William Edmonds
Department of Chemical Engineering and Materials Science, University of Minnesota

Date submitted: 16 Jan 2006 Electronic form version 1.4