Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Drop shape analysis of poly-styrene acrylic acid gradient copolymer at oil/water interfaces WA YUAN, MICHELLE MOK, JOHN TORKELSON, KENNETH SHULL, Northwestern University — The behavior of polystyrene/acrylic acid gradient and block copolymers at liquid/liquid interfaces was investigated using drop shape analysis. Copolymers were dissolved in chloroform and then pendant drops of the solutions were created in water. The drop shape was monitored as a function of time in order to determine interfacial parameters. Molecular movements at the interface were inferred by measuring changes in interfacial pressure as the interface was contracted and expanded through control of the drop volume. A picture of the interfacial structure of gradient copolymer system was obtained from an analysis of these results. This analysis suggests that gradient copolymers are more interfacially active than block copolymers. The interfacial properties depend more strongly on the hydrophilic/hydrophobic ratio and sequence distribution than on the molecular weight.

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Date submitted: 21 Nov 2008 Electronic form version 1.4