

Abstract Submitted  
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**Spectroscopic Analysis of 10MAG/LDAO Reverse Micelles to Determine Characteristic Properties and Behavioral Extrema .<sup>1</sup>** JOSHUA BERG<sup>2</sup>, CARA MAWSON<sup>3</sup>, ZACH NORRIS, NATHANIEL NUCCI, Rowan University — Reverse micelles are spontaneously organizing complexes of surfactant that encapsulate a nanoscale pool of water in a bulk non-polar solvent. Reverse micelle (RM) mixtures have a wide range of applications, including biophysical investigation of protein systems. A new RM mixture composed of decyl-1-monoglycerol (10MAG) and lauryldimethylammonium-N-oxide (LDAO) was recently described. This mixture has the potential to prove more widely applicable for use of RMs in applications that involve encapsulation of macromolecules, yet little is known about the phase behavior or size of reverse micelles created by this mixture. Data describing such behaviors for this mixture are presented here. We have used dynamic light scattering (DLS) and fluorescence spectroscopy to investigate the size and partitioning behavior of RMs in varying mixtures of 10MAG, LDAO, water, pentane, and hexanol. These data demonstrate that the 10MAG/LDAO RM mixture exhibits markedly different phase and RM size behavior than that of commonly used RM surfactant mixtures. The implications of these findings for use of the 10MAG/LDAO mix for RM applications will also be addressed.

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