

Abstract Submitted  
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**Characterization of Surfactant Free Emulsions** RAMANINDER BRAR, JACOB URQUIDI, New Mexico State University — There is a pharmacological interest in providing a delivery mechanism for highly hydrophobic drugs through the bloodstream. A typical methodology would be to introduce a surfactant which would serve to bind the hydrophobic molecule to the aqueous environment. Because of the need for the surfactant to be non-toxic this avenue proves problematic and many highly hydrophobic drugs which could prove effective are not useable. We have demonstrated the formation of a stable emulsion of Silicone Oil in degassed water alone. The emulsion droplets were on the order of 50 nm in diameter and stable over a period of 8 hours. Previous studies have shown that the surfactant free emulsions do not lose their stability when the previously removed gasses are reintroduced. The formation of a stable emulsion in the complete absence of a surfactant could provide an alternative approach to a physiologically safe drug carrier. The present work involves the formation of stabilized surfactant free emulsions in a homologous series from pentane through decane. The emulsion's structure and thermodynamic stability were then characterized using small angle x-ray scattering.

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