

Abstract Submitted  
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**Rheology of Pluronics: morphological transitions induced by temperature and concentration** ROSSANA PASQUINO, ALFONSO DI SARNO, MARINA D'APUZZO, SALVATORE COSTANZO, DICMaPI, Universit degli Studi di Napoli Federico II — Pluronics are a class of water-soluble triblock copolymers made by a sequence polyethylene oxide (PEO)-polypropylene oxide (PPO)-polyethylene oxide (PEO) segments. Due to the presence of hydrophilic and hydrophobic parts on the same molecule, they have the ability to self-assembly in water. By varying the molecular weights of EO and PO sections, it is possible to obtain different types of Pluronics, recognized by a different code. In this work, we study the structures detected in aqueous solutions of Pluronic F68 at different polymer concentration and temperature by means of rheology and Small Angle X-ray Scattering. Various concentrations ranging between 10% and 80% by weight of Pluronic in water were tested. We performed dynamic temperature ramp tests in linear regime at different ramp rates and we were able to evaluate, via a rheological extraction, the temperatures at which transitions occur. The temperature at which the transitions appear were measured as a function of the triblock-copolymer concentration. Molecular structures were analyzed via SAXS measurements, which showed a liquid to body-centered cubic phase transition. The results allowed for the determination of a complete rheological phase diagram water/F68.

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