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**Flow Instability of Soft Gels from Pluronic F108 Aqueous Solution Under Steady Shear** HANJIN PARK, Rensselaer Polytechnic Institute, GYOO YEOL JUNG, Pohang University of Science and Technology, CHANG YEOL RYU, Rensselaer Polytechnic Institute — Nonionic surfactants of Pluronic tri-block copolymers have received special interest during the past decades because of the temperature dependent self-assembly characteristics that would lead to the formation of hydrogels upon heating. Here, we investigate the gelation behavior of Pluronic F108, (PEO)132-(PPO)50-(PEO)132, aqueous solution with an aim to elucidate how the shear affects the thermo-reversible transitions between micellar liquids and hydrogels. Specifically, we have studied the rheological characteristics of soft gels as an intermediate state between liquid to hard gels. From steady shear experiments, we found that there exists a shear rate window, where the flow instability of soft gels is observed. On the contrary, non-Newtonian behaviors following power-law are still observed at the shear rates above and below the shear rate window showing the flow instability. Small angle x-ray scattering and dynamic light scattering experiments had been performed to reveal how the temperature dependent rheological behavior correlates with the structural changes in the micellar aqueous solutions of F108.

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