

# Self-assembly of Triton X-100 in the Presence of Hydrophobic Diol-Surfynol<sup>®</sup> 104: A SANS Study <sup>†</sup>

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**Abstract:** Self-assembly of Triton X – 100 was investigated in the presence of Surfynol<sup>®</sup> 104, using various physicochemical methods. Surfynol<sup>®</sup> 104, a hydrophobic diol with low solubility in water, is partitioned into TX – 100 micelles. Accordingly, a lowering of cloud points and a corresponding increase in solution viscosity are observed. Progressive addition of Surfynol<sup>®</sup> 104 leads to ellipsoidal to the rod-like micellar transition of TX-100 micelles. The micellar transition suggested by viscosity measurements is confirmed from dynamic light scattering and small-angle neutron scattering measurements. The addition of salt and increase of temperature of TX-100 solution in the presence of Surfynol<sup>®</sup> 104 also display analogous micellar transitions. Such micellar transitions were confirmed from SANS analysis. The structural changes observed are explained in terms of the hydrophobic interaction between TX-100 and Surfynol<sup>®</sup> 104. The presence of salt drag down the micellar transition to room temperature was otherwise observed at a higher concentration of Surfynol<sup>®</sup> 104.

**Keywords:** TX-100; Surfynol<sup>®</sup> 104; micellar transition.

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## Conflicts of Interest

The authors declare no conflict of interest.