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Impact of poly (ethylene glycol) on the structure and interaction parameters of anionic surfactants micellar systems

The impact of addition neutral, water-soluble polymer poly (ethylene glycol)
(PEG) on the micelle structure of anionic surfactants sodium oleate (SO) and dodecylbenzene sulphonic acid (DBSA) was considered basing on the small-angle neutron scattering (SANS) and tensiometer measurements. Thus, the formation of surfactant-polymer complexes in such systems was confirmed by surface tension data analysis, also was determined the shifting of critical micelle concentration (CMC) and estimated the value of critical aggregation concentration (CAC) in case of PEG addition. The structure and interaction parameters of micelles (micelle aggregation number, fractional charge, charge per micelle and surface potential, etc.) derived from the SANS data analysis. There was observed qualitatively changes in parameters dependence on surfactant concentration in case of PEG addition. That was interpreted as influence of micelles binding on polymer chain and surfactant-polymer formation.
This results can be useful for estimation of estimation ferofluids stability where anionic surfactants and PEG are used for stabilization.

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