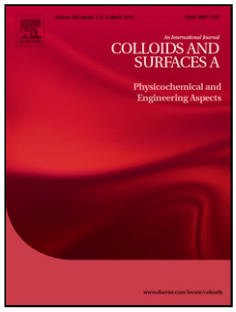

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Revisiting the Influence of Carboxylic Acids on Emulsions and Equilibrated SOW systems using the PIT-Slope Method

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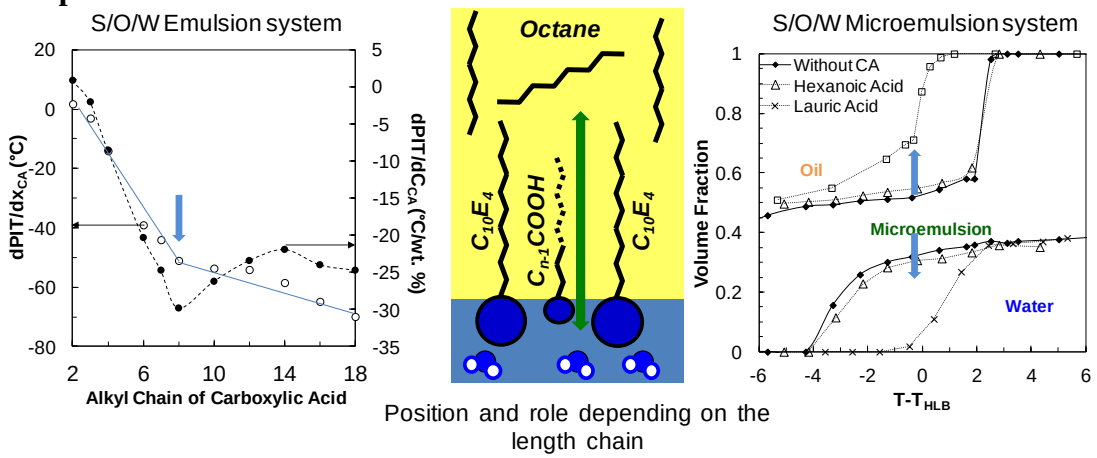
Graphical Abstract



Highlights

- Influence of carboxylic acids on the PIT of the $C_{10}E_4$/octane/water reference emulsion system
- Emulsion morphology of Span80/alkane/water system change depending on the added CA.
- Octanoic and higher CA increase solubilization of nonionic SOW equilibrated system.
- Carboxylic acid role in SOW systems depends on alkyl length chain.

Abstract

The influence of various carboxylic acids (from C_2 to C_{18}) one equilibrated and emulsified surfactant/oil/water (SOW) systems is investigated. The PIT-slope method, based on the influence of an additive on the PIT of the $C_{10}E_4$/*n*-octane/10^{-2} M $NaCl_{(aq)}$ reference emulsion, shows that from butanoic to hexadecanoic acids, the PIT of the system is decreased. A breakdown on dPIT/dx (considering the molar fraction x) or a minimum on dPIT/dC (taking into account the weight percentage C) is obtained with octanoic acid. The phase behavior of