

Oral Presentation

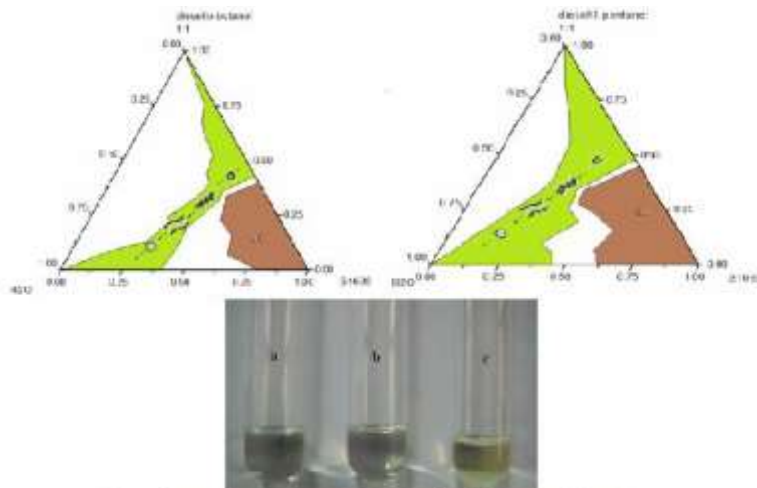
Formulation of Microemulsion Based on Sugar Surfactant as an Alternative Fuel.

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Abstract:

In this study we innovated microemulsion formula that serve as water in diesel fuel using minimum amount of commercial and strongly hydrophilic sucrose monolaurate surfactant (1695) combined with medium chain alcohol. 1-pentanol has the best effect in enhancing w/o micremulsion region in the pseudo ternary phase diagrams. Moreover the Phase behavior of sucrose monolaurate (1695) was studied as a function of temperature and surfactant concentration; that is presented in the form of the well-known 'fish' diagram. Anisotropy was detected using visual inspection, cross polarizers and polarizing microscope. Water volume fraction percolation thresholds were determined by studying the electrical conductivity. The average hydrodynamic diameter of microemulsion measured using dynamic light scattering equals 10.86 nm at 25°C.



Photos for samples representing water in diesel microemulsion (a), 100% diesel (b), and a two phase mixture in the absence of the alcohol (c).