

## **Palm-based lauryl alcohol ethoxylate behavioural study and recommendations in personal care applications.**

### **ABSTRACT**

Palm-based lauryl alcohol ethoxylate was synthesized with 6 moles of ethylene oxide using an ethoxylation reactor. The 6 moles of ethylene oxide chain length was approximately the same length as the palm-based lauryl alcohol. The synthesized lauryl alcohol ethoxylate consisted of an average of 6 moles of ethylene oxide and was labeled as C12EO6. The molecular structure of lauryl alcohol ethoxylate was determined by Fourier Transformed Infrared Spectroscopy (FTIR). The ternary phase diagrams for olive or olein oil/waer/C12E6 systems were investigated at 25oC. The important features of the ternary phase diagrams are the emulsion and the concentrated emulsion phases. Optical microscope, particle size analyser and rheometer were used to characterize the different compositions of emulsions. Different consistencies of emulsions were recommended for the personal care applications.

**Keyword:** Palm-based lauryl alcohol ethoxylate; Ethoxylation reactor; Ternary phasediagram; Emulsion; Concentrated emulsion.