

Interaction of Triglyceride Molecule of Corn Oil with Hydrotrope Solution

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Abstract: - The solubility studies of corn oil triglycerides in hydrotrope solution were been studied in Naresh et al(2012). Here, the interaction of triglyceride molecule of Corn oil with hydrotrope solution has been discussed in detail. The hydrotropes used are sodium benzoate, sodium salicylate and sodium acetate trihydrate. It was later known that these hydrotropes forms their respective bases and acids with water.

I. INTRODUCTION

It is the Neuberg who coined the term Hydrotrope. Hydrotrope is a group of molecules that forms aggregation behavior when added to water. The increase in the solubility in the water is due to the formation of the organize assemblies of the hydrotrope molecule at critical concentrations. The hydrotropes used are non toxic and do not produce any temperature effect when dissolved in water. Hydrotropes in general are water-soluble and surface-active compounds that enhances the solubility of organic solutes like acids, esters, alcohols, aldehydes, ketones, hydrocarbons and fats¹⁻⁴. Hydrotropes have been widely used in drug solubilization⁵⁻⁷, detergents formulation, health care, household applications^{8,9} and also an extraction agent for fragrances. Each hydrotrope has a selective ability towards a particular component in the mixture to facilitate easy recovery of the hydrotrope solution by controlled dilution with the distilled water^{10,11}.

II. MATERIALS AND METHODS USED

2 L of corn oil was obtained from retail shop, which contains 990 g of corn oil in 1 L. All the chemicals used in this experiment were bought from SD chemicals of 99 % purity.

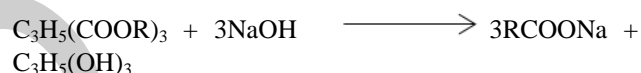
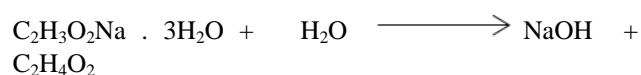
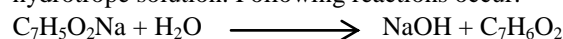
For each run, to measure the mass transfer coefficient, an excess amount of corn oil was added to the aqueous solution of the hydrotrope of known concentration. The sample was then agitated for 600, 1200, 1800 or 2400 s and the mixture was transferred to a separating funnel. After allowing the sample to stand for some time, the solution was separated from the remaining solution.

III. RESULTS AND DISCUSSIONS

Observations

In Naresh et al(2012), it was misobserved that these hydrotropes increases the triglyceride solubility in

solution. Later it was found that a third layer, glycerol is formed as a result of mixing of the corn oil and hydrotrope solution. Following reactions occur:



IV. CONCLUSION

From the literature, it was found that these hydrotropes especially sodium benzoate, sodium salicylate and sodium acetate trihydrate do not form any enhancement in the solubility of triglyceride of Corn oil.

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