Study on car shampoo formulation using D-optimal statistical design

Abstract

Background

In this investigation car shampoo formulation was studied. The quality of car shampoo is directly linked to the basic material used in the formulation. By varying the ratio of ingredients such as sodium metasilicate (SMS), sodium lauryl ether sulphate (SLES), coco dimethyl betaine (betaine), coconut fatty acid diethanolamide (CDE) and linear alkyl benzene sulphonate (LABS), the final product characteristics were determined. A common problem in pre-formulation is the optimization of the mixture composition which is aimed to obtain a product with the required characteristics.

Results

In this work, various composition surfactants were used to prepare the car shampoo formulations. The D-optimal mixture design was performed to obtain the optimum formulation. Twenty-five combination components were selected according to the D-optimal criterion. Physical properties of the car shampoo such as pH, power of removal and foaming ability were studied. Contour graphics were formed to assess the change in the response surface in order to understand the effect of the mixture composition on car shampoo characteristics.

Conclusion

The statistical study shows that the fitted model was adequate to describe the viscosity response. The optimum composition formulation was SMS 1.48%, SLES 3.52%, betaine 4.0%, CDE 4.5% and LABS 1.5%.