

curves for both formulas tested present similar behavior, the performance of the formula Z, designed especially for this study, was found to be greatly superior when compared with existing commercial products. In spite of the problems associated with the subjective nature of the evaluation procedure used, it seems fair to conclude that the specially designed formula Z is indeed the formula of choice for this particular set of constraints.

It appears that in the system studied, an industrial cleaning process of glass lenses under in vivo conditions, the interplay between the various parameters contribute towards keeping the system in some sort of dynamic equilibrium with which the resultant formula effectiveness is directly correlated. However, the change in the type and/or the ratio, and/or the concentration of some selected components of the cleaning formula, within a certain range, does bring about changes in performance. Thus, it was found, that phosphate esters (ca. 3% in the detergent based formula) are the surfactants of choice for this process when the alkali-phosphate ratio in the formula is between 1:1.7 and 1:2.4 and the concentration of the cleaning compound in the solution is in the range of 2.5–3.5%. Also, a relatively high level of condensed phosphates (mainly sodium tripolyphosphate) and chelating agents was found essential for the success of the process. Optimization of the process in accordance with the particular set of local constraints was found to be economically rewarding.

Currently, the surfactant chemist or formulator can work with over 600 surface active agents manufactured by about 160 producers in the USA alone (9). The effective optimization of an industrial chemical cleaning process as well as the formula to be used in the process can be envisioned therefore, as an insurmountable problem. However, as is shown in this study, it can be and should be done. The

data collected in one process can be creatively adopted and applied to the optimization of similar processes under a given set of local conditions. The economical benefits to the glass lenses' industry are apparent.

Heavy duty surfactant-based formulations used in the cleaning process of glass lenses (and glass in general), form a complex multivariant, self-contained, multipurpose system, which is capable of useful performance under a variety of working conditions. Therefore, from a practical point of view, a dialogue between the laboratory and the field is suggested to fill the gap between theory and practice as far as cleaning techniques and the performance of the surfactant-based formulations are concerned.

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ERRATUM

In the article "Synergism in Binary Mixtures of Surfactants: II. Some Experimental Data" appearing in the December issue of *JAOCS* (Rosen and Hua 59:582 [1982]), five lines were misplaced. The last five lines on page 583 ("systems showing synergism . . . i.e., the cmc, area") should be omitted, and inserted at the bottom of page 584. The last paragraph on page 584, continuing on page 585, should then

read "Currently, there are almost no data in the literature from which calculations of β , β^M , X_c , and X^M can be made on systems showing synergism in this respect. Table III lists some data for the system: $C_{12}H_{25}SO_3K/C_{12}H_{25}N(CH_3)_2O$ (6) in which this type of synergism is present. It also includes data for some hypothetical systems in which the values of C_1^M , C_2^M , A_1 , A_2 , γ_1^M , and γ_2^M (i.e., the cmc, area per molecule and surface tension at the cmc for the individual surfactants) and the value of β^M are identical with those in the real system, while the value of β is changed."