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An Article :

Tensides (or Surfactants) and heavy metal soaps

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Metal carboxylates-higher carboxylates of alkali (*Soaps*) and other metals (*metallic soaps*)-are used in many areas of daily life and industry. While the basic colloidal and other physicochemical properties of these derivatives have already been extensively studied, there has recently been a revival of interest in the various modes of bonding exhibited by metal carboxylates. Many metal carboxylates have been known from ancient times. The oldest organic derivatives of metals are the alkali metal carboxylates, commonly known as *soaps*. These soaps are soluble in water, with which they readily produce *foam*, commonly used for washing or cleansing purposes. Carboxylates of metal other than alkali metals (with the exception of lithium) are generally insoluble in water and are called *Metallic soaps*. The first use of such soaps in the form of lead linoleates appears to have been made quite early in paints for mummification. Metallic soaps are, therefore, simple carboxylates of alkaline earths or other polyvalent metals with the general formula, $M(O_2CR)n$, where 'M' is a metal in oxidation state 'n' and 'R' is an organic radical containing at least 6-7-carbon atoms. The term metallic soaps is restricted by some of the salts of fatty acids (*i.e.* those in which R is an aliphatic radical) although in the broad sense the term also includes salts of certain cyclic acids.

The preparation of soaps and detergents is one of the oldest forms of chemical syntheses. Their use began eversince the man's desire for cleanliness increased. For washing purposes a mixture proves to be just as effective as a single pure salt. A cut-throat competition among the producers plus an enormous demand necessiated by increasing population have rendered the task highly challenging. Evidently, any consumer would prefer a product that is cheap and best for him. A producer however needs to manufacture an economically viable product of good quality. Both manufacturers and researchers have, in fact, this common goal to achieve. Researchers would be better off in their endeavour to correlate the studied physico-chemical characteristics of the synthesised compounds with their qualitative worth.

Surfactants, also known as *tensides* are wetting agents that lower the surface tension/ interfacial tension of liquid(s) allowing easier spreading. Surfactants are usually organic compounds that are *amphiphilic i.e.* they contain both hydrophobic and hydrophilic groups. Consequently, they are soluble in both aqueous and non-aqueous solvents.

Various technological applications of amphipathic molecules (possessing polar and apolar moieties on the same molecule) have rendered this versatile group of compounds *(surface–active agents or surfactants)* an interesting subject domain for researchers and academicians alkali. As a matter of fact, *biochemists* (working on membrane structure and function) have long been aware of the selective solubilizing power of surfactants for membrane components. *Chemists* already know that surfactants can modify chemical reactions, whereas pharmaceutical scientists are now very much aware of the formulation potential of surfactants.

The effect on environment:

The effect of various surfactants on