

CHROMBIO. 4089

Letter to the Editor

Misuse of the term "detergent"

Sir,

In various papers published in the *Journal of Chromatography* (in *Biochemical Applications* especially) the term "detergent" is often used erroneously, e.g. in refs. 1-3 and many other papers. All the "detergents" cited in these papers are surfactants (dodecyl sulphate, Triton X-100, Emulgen 911, etc.). The difference between the term "surfactant" (or surface active agent, corresponding to the term used in German: Tensid) and the term "detergent" can be drawn from the Draft International Standard ISO/DIS 862, where following definitions are presented.

Detergent. A product specially formulated for cleaning through the process of detergency. Note that a detergent comprises essential components: surface active agents and generally complementary components (builders, etc.).

Surface active agent. A chemical compound including in its molecule at least one group with affinity for markedly polar surfaces, ensuring in most cases its dissolution in water, and a non-polar group, which has little affinity to water. Surfactant is a chemical compound possessing surface activity: after dissolution in a liquid, in particular in water, it lowers the surface tension or interfacial tension by positive adsorption at the liquid-vapour surface or other interfaces.

According to the structural properties and behaviour in (aqueous) solutions, surfactants can be classified into anionic, cationic, non-ionic and ampholytic surfactants. In this system, the term "non-ionic detergent", which is used in some papers, is a nonsense: detergents as complex products for laundering processes, washing, cleaning, etc., are formulated from surfactants of different nature, builders and additives to improve the detergency (defined as a process of soil dislodging from the substrate and bringing it into a state of solution or dispersion). In its usual sense detergency has the effect of cleaning surfaces. In practice, all products marketed for washing and cleaning in household, industry, etc., can be described as detergents. On the contrary, substances used in various systems for their sorption behaviour on surfaces or interfaces for dispersion, emulsion stabilization, suppression of surface tension, or for ion-pairing, etc., are produced as individual surfactants of defined structure (anionic, cationic, non-ionic or ampholytic). They can be neither described nor applied as detergents because their detergent (washing or cleaning) effect is (usually) imperfect and insufficient.

To achieve true detergency further substances must be added (e.g. phosphates, zeolites, silicates, chelating agents, bleaching agents, optical brighteners, perfumes, etc.) even though not all of these additives are active for detergency.

I hope this note helps to prevent future errors in this nomenclature.

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