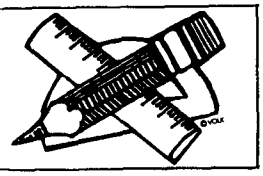
SD&C Abstracts



AUTORADIOGRAPHIC STUDY ON PERCUTANEOUS ABSORPTION OF SEVERAL OILS USEFUL FOR COSMETICS. M. Suzuki et al., *J. Soc. Cosmet. Chem.*, 29(5), 265–82 (1978). Percutaneous absorption of five ^{14}C-labelled oils, n-octadecane, decanoxy decane, 2-hexyldecanoxy octane, isopropyl myristate and glyceryl tri-(oleate), generally used in cosmetics were studied from the point of view of their safety. In whole-body autoradiography with hairless mice, there was no visible penetration into the skin and organs, whereas microautoradiography with guinea pigs showed local penetration. Isopropyl myristate penetrated to the greatest extent, whereas 2-hexadecyldecanoxy octane was hardly absorbed. Percutaneous absorption of these two oils, therefore was examined in Angora rabbits by microautoradiography simultaneously with skin irritation potential by histological method from patterns of penetration and irritation according to application time and fate within the skin and pattern of irritation after application. Intradermal metabolic fate was also studied in vito.

LOW-ENERGY EMULSIFICATION. I—PRINCIPLES AND APPLICATIONS. T.J. Lin. *J. Soc. Cosmet. Chem.* 29(3), 117–25 (1978). The amount of energy normally expended in commercial processing of a cosmetic emulsion is far greater than the amount theoretically required. Thermal energy is first applied to heat the ingredients and mechanical energy is then provided for mixing and emulsification. Additional mechanical energy is expanded to cool the product. A considerable saving in energy can be achieved by careful determination of emulsification temperature and by selective heating of the ingredients. The method discussed basically involves making an emulsion concentrate which is later diluted with the remainder of the external phase at room temperature.

APPLICATION OF INTRINSIC VISCOSITY DATA FOR DETERMINATION OF SOLUBILITY PARAMETERS AND MOLECULAR WEIGHTS OF ALKYDS. H. Ahmad and M. Yaseen, *J. Coatings Technol.* 50(640), 86–93 (1978). Data on the intrinsic viscosity of alkyd solutions in either toluene or ethyl acetate were used for determining the solubility parameters of alkyds. These values were in good agreement with the theoretical values obtained from group contribution technic.

INTERACTION OF KERATINOUS SUBSTRATES WITH SODIUM LAURYL SULFATE (SLS); 1. SORPTION. J.A. Faucher and E.D. Goddard, *J. Soc. Cosmet. Chem.* 29(5), 323–37 (1978). Use was made of radiotagged SLS to determine its sorption by skin and hair. In the initial stages uptake is linear in square root of time, indicative of a diffusion process. The uptakes determined by radiotagged SLS were successfully correlated with data from a simple gravimetric method and showed the procedure can be used satisfactorily under certain conditions when radiotagged compounds are not available. The influence of some additives on the sorption of SLS was studied. Salt increases the sorption, while nonionic surfactants, themselves not sorbed, substantially depress it. Finally, the relation of the sorbed SLS by water of hydration of keratin was examined. Concluded was that most, if not all the absorbed material is bound to keratin, rather than existing in an "internal" solution.

COMMENTS ON THE DETERMINATION OF THE SURFACE TENSION OF PURE LIQUIDS AND SOLUTIONS OF SURFACTANTS BY THE REFLECTION METHOD. K. Rodel and K. Lunkenheimer, *Tenside Deterg.* 15(3), 135–9 (1978). A variant of the EOTVOS reflection method for the determination of the surface tension of liquids and solutions is described. In principle it measures the differences in the height of two laser-rays, which are radiated in a liquid-meniscus so that the angle is equal at every measure between the reflected rays. It is possible by the mode of procedure to measure the boundary angle between the liquid-meniscus and the object to be measured at the same time. For the estimation of accuracy the surface tensions of different pure liquids and solutions of the surfactants are measured with the reflection method and with the ring test method.

A NEW QUANTITATIVE POTENTIOMETRIC ANALYSIS FOR DETERMINATION OF FATTY ACID-HYDROXYLALKYLAMIDES AND ALKYLAMINES IN GENERAL. J.C. Vogt, *Tenside Deterg.* 15(3), 131–4 (1978). Reported is a new potentiometric procedure to determine fatty acid-hydroxyalkylamides and alkylamines. By choice of the solvent methylethyl ketone and isopropanol, both equivalent points of alkylimidazolines could be measured. Equal results were reached with fatty acid-hydroxyalkylamides.

THE FOAM SEPARATION OF COBALT $^{++}$ WITH AEROSOL 18. K. Shakir and M. Aziz, *Tenside Deterg.* 15(3), 128–30 (1978). The foam separation of cobalt^{++} from dilute aqueous solutions was investigated under different conditions of pH, collector and metal ion concentrations, gas flow rate, period of bubbling and ionic strength using Aerosol 18 as collector. The effect of the different factors on the foam separation results are discussed and the optimum conditions established. At the optimum conditions, cobalt^{++} removals exceeding 96% were achieved.

INVESTIGATIONS INTO DIFFUSION IN AQUEOUS DISPERSING AGENT SYSTEMS, USING THE PULSATION-DIFFUSION METHOD. PART 3: EXAMINATION OF ADSORPTION COMPLEXES BETWEEN POLYVINYL ALCOHOL AND VARIOUS ADDITIVE COMPONENTS. F. Wolf, P. Konig and M. Khine, *Tenside Deterg.* 15(3), 126–7 (1978). Using the determination of diffusion coefficients according to the pulsation diffusion method it has been possible to prove that polymer-surfactant complexes between PVA and a range of surfactants, as well as boric acid, exist.

SOME EXPERIMENTS ON DETERGENCY IN AQUEOUS AND NON-AQUEOUS MEDIA. XI. INTERACTIONS BETWEEN ANIONIC SURFACTANTS AND NEUTRAL MONOVALENT ELECTROLYTES IN THE DEPOSITION OF PARTICULATE SOIL. S.V. Vaeck, *Tenside Deterg.* 15(3), 122–5 (1978). Deposition experiments with carbon black and cotton and polyester-cotton fabrics, using two anionic surfactants and a neutral monovalent electrolyte (NaCl) show that complex interactions occur between surfactant and electrolyte. As the electrolyte concentration increases, deposition greatly increases, especially at low surfactant concentrations, up to a maximum whose position and level depend on the surfactant concentration and the kind of fabric.

SYNTHESIS AND PROPERTIES OF SURFACTANT BASED ON CARBOHYDRATES II. SOME PROPERTIES OF O-DODECYL ALDOSES. B. Havlinova *et al.*, *Tenside Deterg.* 15(3), 119–21 (1978). 1-, 3-, and 6-substituted mono-O-dodecyl-hexose derivatives were tested for surfactant efficiency. The results showed that the 3-O-dodecyl derivative is the most effective surfactant according to its ability to decrease the surface tension of water and the interfacial tension of water-toluene mixtures as well as its ability to form stable foam. The 1-O-dodecyl derivative has the lowest surface activity.

STUDY OF THE PHYSIOLOGICAL EFFECT OF THE SURFACE ACTIVE SUBSTANCES. Ya. V. Ganitkevitch, *Tenside Deterg.* 15(3), 113–8 (1978). Review of the investigations of surface active substances of an organism, physiological action of these of an organism and synthetic and vegetable substances. Surface properties of bile acids, tissues and pulmonary surfactants are discussed.

RHEOLOGICAL PROPERTIES OF SOAP FOAM: 1. APPARATUS FOR VISCOELASTIC MEASUREMENT ON FOAM. H. Komatsu, H. Yamada and S. Fukushima, *J. Soc. Cosmet. Chem.*, 29(5), 237–46 (1978). An apparatus was devised to measure the rheological properties of toilet soap foam. The principle of the measurement was based on the analysis of oscillation damped by foam.