

Report on Lake Placid Short Course Continued

The Short Course on "Update on Detergents and Raw Materials" proved to be worthwhile scientifically for chemists and marketing men. It provided an excellent means for cross-fertilization and interchange of ideas. It also brought forth a great diversity of opinions which were often strongly polarized.

Organizationally, the program committee and its chairman, did a fine job. Since most of the attendees had pre-registered by mail, registration ran smoothly. The Sunday evening mixer was well attended and served the purpose of meeting old friends and making new ones.

Technical Sessions Attended

Some of the papers presented were reported in the July issue of the Journal. Highlights of the remaining papers follow.

On Monday morning, W.D. Burch, Continental Oil Co., presented a paper entitled "A Study of the Removal of Individual Oily Soil Components in Detergency Tests." In his paper, he reported on work done to determine the extent of oily soil removal and a determination of which individual oily soils most strongly influence particulate soil removal. Natural sebum samples from 20 individuals were quantitatively analyzed by thin layer chromatography for comparison to the artificial sebum used in making Spangler-type test cloths. Individual oily soils were quantitatively spotted on permanent press cloth and their removal by a typical detergent formulation was determined. It was found that oily soil removal correlated fairly well with reflectance measurements. The composition of the natural skin soils analyzed was found to be somewhat different from the composition of the oily soils on the artificially soiled cloth.

James R. Trowbridge, Colgate-Palmolive Co., discussed the "Experimental Design and Evaluation of Data." He found that designed experiments may guard against unsuspected sources of bias which might otherwise lead to an unwarranted conclusion. They may increase the efficiency of experimental programs by providing a way of estimating the effects of several variables simultaneously, and they may provide useful information for the planning of future experimental work. Several statistical techniques, such as randomized blocks, latin squares, balanced incomplete blocks and rotatable multifactor designs were applied to detergency testing.

G.H. Täuber, Farbwerke Hoechst, Germany, discussed "Paraffin-Sulfonate (SAS) Ex Sulfoxidation Process." He presented a short description of the Sulfoxidation Process, historical background, raw materials, analytical data and physical properties of SAS. He discussed the use of SAS in the detergent industry, wetting properties, detergency and solubility. Other applications, such as cosmetic formulations, emulsifier for biocides, emulsion-polymerisation were also covered.

W.J. DeWitt, Ethyl Corp., presented a talk on "Alpha Olefin Sulfonate—Third Generation Anionic Family." This paper dealt primarily with the use of these relatively old chemicals in light duty liquid detergent formulations. Of particular interest was the data he presented on the effect of free oil on dishwashing mileage, with up to 5% free oil, there was no effect, while at 7.5%, a noticeable reduction (29 vs. 34 plates) was noted.

During the Tuesday evening session, C.W. Liebert, Ciba-Geigy Corp., presented "Prediction of Seasonal Fluctuation in Soap and Detergent Forecasts." He found that the Soap and Detergent Association quarterly data on soap and detergent production fluctuates consistently year after year. These fluctuations range from +11% to -11% from one quarter to the next. Two statistical techniques (moving

average and regression analysis) were used to construct seasonal models for the base period 1949-1969 and the derived models used to predict quarterly production for 1970 to 1974. Since the models were constructed, the SDA data for 1970 has been reported. The model predictions and actual soap and detergent production for 1970 showed good agreement.

Another paper was presented during the same session by S.L. Daniels, Dow Chemical Co., entitled "Phosphorus Removal from Wastewater by Chemical Precipitation and Flocculation." Soluble phosphates present in wastewater contribute to eutrophication which can lead to dense algal blooms and undesirable tastes and odors. Chemical removal can usually be accomplished prior to conventional primary clarification in two steps: (a) conversion of soluble phosphate forms into insoluble suspended colloidal particles upon addition of small amounts of an iron or aluminum salt, and (b) flocculation of the finely suspended metal-phosphate colloids into large settleable aggregates using an anionic organic polyelectrolyte flocculant. Laboratory studies of the effects of metal concentration, flocculant concentration, and intervening mixing time, can be coupled with hydraulic studies of existing treatment plants to evaluate the feasibility of phosphorus removal to meet established standards. Predictions of chemical requirements and physical conditions necessary to achieve a desired level of treatment can be made using a digital computer to process data and generate graphical output.

Chemical addition is amenable to automatic control using process instrumentation for measurements of waste flow and phosphorus concentration. Chemical removal of phosphorus from wastewaters has been proven to be a practical and controllable process which can result in low discharges from secondary treatment plants. All present standards as established in the Great Lakes area can be met without requiring severe limitations as to the types and concentrations of phosphates entering the treatment facilities. Additional costs for chemicals and attendant mixing and dispersing equipment are of the order of \$20-30/10⁶ gal.

It is hoped that this Short Course enabled industrial scientists, government scientists and marketing men to take a good look at the challenges and the opportunities of the industry in the 70's.



"The Fundamental Phenomenon of Cleaning" was the subject of the Monday morning session at the Lake Placid Short Course. Attending were, from left, M.J. Rosen, Brooklyn College; Arno Cahn, Lever Brothers, chairman; B.J. Rutkowski, Whirlpool Corp.; W. Burch, Continental Oil Co.; and J.M. Huggins, Monsanto.

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