Product seminar attracts 90

The fifth annual product development seminar sponsored by the Southwest Section of the AOCS attracted more than 90 persons to hear a variety of topics including how product development occurs, potential new ingredients for household and personal care products, and how to label a product once you decide to put it on the market.

John C. Middleton, manager of product safety for U.S. Borax Research Co., began the program by discussing label regulations. A product's end use can determine which labeling regulations apply, Middleton said. He reviewed basic requirements established by the Consumer Product Safety Commission, Food and Drug Administration, Environmental Protection Agency, Federal Trade Commission, Department of Transportation and Occupational Safety and Health Administration.

Labeling laws generally spell out where and how on a label a manufacturer must identify his product, where cautionary phrases must be placed, what cautionary words should be used, where and how contents statements should be included, and similar information.

Middleton noted that manufacturers must be concerned not only that all label requirements are met, but also that the label itself will survive usage. Labels should adhere to the product container as long as the product will last, he said, and should be printed in inks that will not fade or bleed. "One of the biggest problems is finding a protective coating that will prevent the product itself causing the label ink to run or fade in the event of contact," Middleton said.

If a product's label does not comply with the appropriate regulations, the product is considered "misbranded" and subject to recall, Middleton said, and to potential other penalties that can include fines and/or imprisonment of company officials.

Ralph Weber of FMC Corporation described work to develop solid blocks of compounded detergents for use in institutional dishwashing. FMC found that chlorine stability was best when sodium dichloroisocyanurate dihydrate was added as the last ingredient in the slurry at a temperature of less than 50 C and sodium hydroxide levels were kept to less than 10%, Weber said. The best results were obtained when liquid ingredients—water, silicate, sodium hydroxide solution and surfactant(s)—were mixed first and followed by addition of solid ingredients—sodium hydroxide, soda ash, phosphates and isocyanurates.

Use of STPP with large particle sizes and high bulk densities helped impart slow curing times, Weber said. The solid block product was investigated as a means to increase safety, as caustic soda would be safer to handle in the block form, Weber said.

Jerry Conklin of The Dow Chemical Co. described "The Surface Activity and Colloidal Properties of Methocel." Methocel is a trade name used by Dow for nonionic surface-activity cellulosic polymers. The products can significantly increase foaming height and stability because of surface thermal gelation, Conklin said. The surface gelation property is unique, he said, and can be induced or controlled by temperature and/or electrolytes.

Kim Smith of Ethyl Corp. described new amines developed by Ethyl and potential applications. Hair conditioners formulated with the new products were found to be 10 times more effective than those formulated with traditional ingredients, even though the amount of new product used was one-tenth the traditional dosage.

The products also exhibit antimicrobial properties, Smith said. Applications being investigated include use as hair conditioners, as sun tanning lotions that would not wash off while the user was swimming, as food packaging materials with antimicrobial properties, and as a substance bound to metal and other hard surfaces in food preparation areas, to impart antimicrobial properties.

M. F. Nagarajan of B.F. Goodrich Chemical Co. described how the multi-functional properties of poly-

Organizers and speakers at the Southwest Sections's product development seminar: (seated, from left) Program Chairman Fredrick Shook, General Chairman Anne Cowherd, Kim Smith of Ethyl Corp., John Middleton of U.S. Borax Research Co.; (standing, from left) Jerry Conklin of Dow Chemical Co., Ralph Weber of FMC Corp., Jan Gerritsen of Clorox Co., M.K. Nagarajan of B.F. Goodrich Co.

acrylates can be used in detergent products. Nagarajan said the polyacrylates' molecular structure provides unique properties that can aid in soil removal, holding soil in suspension and preventing its redeposition, and in binding of metal ions.

Nagarajan said the product is water-soluble, colorless, odorless, and hydrolytically and thermally stable. Polyacrylates are available in liquid and solid forms or acid or neutralized forms, he said.

Jan Gerritsen of The Clorox Co. discussed "Product Development: The Tortoise and the Hare." Product development must include a thorough market analysis, including potential profit, advantages of the proposed new product, how consumers might use (and misuse) the product, performance testing, validation of test methods and patent searches. Such tests can take six to 12 months to complete, he noted.

All important departments of a company that will be involved in selling the new product should be included in discussions as early as possible, Gerritsen said, including people who can answer questions such as whether the ingredients will be available at economic prices, how the product is to be packaged, stored and shipped, and how it will be marketed and advertised. Technical staff involved in developing and producing the product obviously must be included, he said. Consumer testing will help identify what a consumer does or does not like about a new product, including aesthetics and performance, he said. Tests also should be run on advertising copy to be used in promoting the product, he said.

AOCS Executive Committee members who planned to attend the seminar were delayed by bad flying weather for the mid-February meeting, but AOCS Vice-President Arnold Gavin, Secretary Robert Hastert and Treasurer Timothy Mounts, as well as AOCS Executive Director Jim Lyon, arrived in time to participate in a post-seminar reception. The executive committee held its regular mid-winter meeting the next day in nearby Anaheim, the first time the group has met in southern California apart from AOCS national meetings. The Southwest Section is expected to help organize an AOCS short course on soaps and detergents in southern California for 1987.

Fatty acid symposium

The message at the North Central Section's annual all-day symposium, in the words of industry consultant Norman Sonntag, was, "The fatty acids field is healthy and vibrant, and plenty is going on." The March 18 meeting on "Fatty Acid Derivatives: Process and Analysis," held in Hillside, Illinois, drew more than 40 participants and nine speakers. Among the topics covered were transesterification, gas chromatography of fatty acid derivatives, NMR applications to fatty amine products and fatty nitrogen derivatives.

Bernard Freedman of USDA's Northern Regional Research Center, Peoria, Illinois, described his work in transesterifying methyl esters to produce an alternative diesel fuel from vegetable oils. Freedman reported that he and his colleagues have determined the kinetics of the transesterification process and have confirmed that transesterification occurs in a series of consecutive reactions. These reactions, he said, are reversible. Researchers also have established the reaction rates and energies of activation for the transesterification of methyl esters. Of particular interest to participants was Freedman's use of computers to measure reaction kinetics.

In the symposium's analysis section, Chu Nan Wang and Foad Mozayeni, group leaders at Akzo Chemie America, McCook, Illinois, mentioned techniques for analyzing nitrogen-derived compounds. Wang talked about a new gas chromatographic technique which can measure chain length of quaternary compounds with more than two chains to determine the nature of a starting material. Mozayeni discussed the use of NMR in quantifying and determining the structure of nitrogen derivatives and quaternary compounds in complex mixtures.

On the processing front, Sonntag said the industry will probably no longer build plants based on the Colgate-Emery processing technique. "The future in the U.S. may be to tailor-make enzymes for fat splitting," said Sonntag. He noted that Nisshin Oil and Fat Ltd. in Japan is using enzymes to split fats at minimal costs for heat and electricity. He also reported that researchers at the Massachusetts Institute of Technology have used a natural enzyme at 100 C to split fats and the enzyme was not destroyed.

Other speakers were Lincoln Metcalfe, assistant director of research for Akzo Chemie America; Richard Reck, director of commercial development for Akzo Chemie America; Richard Nadolsky, vice-president of research and development at Miranol Chemical Co. Inc.; Alan Wiese, senior chemist with Harshaw/Filtrol Partnership; and Harinath Bathina of Southland Corp.

SDA looks at the industry

The roles of phosphonates, polymers and ethoxylate distribution in formulating surfactants were among the technical topics explored at the Soap and Detergent Association's 59th annual industry convention in Boca Raton in February.

Henri B. May described the significant increase in the use of phosphonates in European laundry detergent products, noting that the growing number of phosphate bans and changes in the laundering habits of Europeans is creating new opportunities for phosphonate chemicals. May heads water treatment and detergent products R&D/Technical Center in Louvain La Neuve, Belgium.

Because Europeans now wash their clothes at lower temperatures, but still demand one product to

fulfill all cleaning functions, May said phosphonates are a good addition to their detergents. Among the chemicals' good points are the ability to work well on relatively resistant stains when oxidative bleaches cannot be applied and to improve detergent performance and minimize fabric damage at low detergent doses. May also said that the five structurally diverse phosphonate products that have been tested were practically nontoxic to aquatic animals and did not accumulate in fish.

While May considered the benefits of using phosphonates in detergents, Kevin W. Dillan of Union Carbide Corp. talked about the advantages of using narrow-range ethoxylates (NREs) over broad-range ethoxylates (BREs) in household cleaner applications. Dillan is responsible for applied research programs related to Tergitol nonionic surfactants for Union Carbide.

Due to increasing demands being placed on surfactant systems, the selection of surfactants for use in new household cleaning products has become more challenging in recent years, said Dillan, and surfactant manufacturers are trying to determine whether more advantages can be found for using NREs to meet those demands.

The studies show that NREs have lower pour points, higher smoke points, lower haze temperatures and lower freezing points in detergent concentrates than do BREs. The other advantages Dillan cited were that with NREs, less hydrotrope is required to incorporate 5-mole adducts to heavy-duty liquid detergents (HDLs) and to eliminate low temperature gelling in HDLs. NREs also provide better oily-soil removal in HDLs. Dillan predicted that as more demands are placed on surfactant systems, the use of NREs in household cleaners would also increase.

Dr. George T. McGrew, vice-president of technology at Alco Chemical Corp., discussed the role of polymers as anti-redeposition agents, production assists, builder assists and sequestrants in detergent formulation. The banning of phosphates was an important driving factor in the development of polymers in the cleaning industry, said McGrew, and the fact that a reported 25% of the U.S. public cannot buy phosphate-based detergent will have a major impact on the use of polymers in the future.

SDA research director Richard I. Sedlack's presentation of "A Study of LAS and Alcohol Ethoxylate Removal at a Municipal Wastewater Treatment Plant," described a study undertaken by the Treatability Subcommittee of the SDA designed to specifically measure for the removal of linear alkylbenzene sulfonate (LAS) and alcohol ethoxylate (AE) from an activated sludge treatment plant. Besides using specific analytical tests for LAS and AE, researchers also used methylene blue active substances to measure for anionic substances such as LAS. To measure nonionic surfactants like AE, cobalt thiocyanate-activated substances were used. Sedlack said the measurements based on the more specific analytical methods in the study indicated that the non-specific methods greatly overestimated LAS and AE concentrations in wastewater effluents.

Consumer use of surfactants

Increased surfactant consumption in household and personal care products could boost the consumer products market from $27 billion in 1984 to more than $33 billion in constant dollars by 1995, according to a study by Colin A. Houston & Associates, Mamaroneck, New York. "Surfactants for Consumer Products—North American Forecast to 1995" predicts steady growth in surfactant use with some specialty surfactants growing by 10% per year in certain market segments.

The study says Procter & Gamble's introduction of "Liquid Tide" has helped heavy-duty liquids reach a 30% volume growth between 1984 and 1986. This is forcing producers of heavy-duty powders to improve formulations to retain their market share. According to Houston Associates, surfactant growth is partially due to the fact that heavy-duty liquids contain more surfactant per pound than the powders they replace.

Details from the study are available from Colin A. Houston & Associates Inc., P.O. Box 416, Mamaroneck, NY 10543.

Suppliers' day

The New York Chapter of the Society of Cosmetic Chemists will hold its annual suppliers' day on Thursday, May 22, 1986, at Birchwood Manor, Whippany, New Jersey. Featured after the event will be a dinner and a guest speaker.

The speaker will be AOCS member Herman Brown of Finetex Inc., who will talk on ethics. For further information, contact Anthony Latella, Sandoz Chemicals, at 201-584-9252.

News briefs

Cyclo Chemicals Corp. has shortened its name to Cyclo Corp. According to Bob Pettus, president of the Miami-based manufacturer of surfactants, betaines and other specialty chemicals, the name change reflects the "broader nature of Cyclo's product line which now includes food additives, plastic lubricants and mold release agents in addition to our original line of specialty products for cosmetic, household and industrial use."

Stepan Co. has promoted Jeffrey Easley to the position of technical service supervisor in the customer service department, Northfield, Illinois. Meanwhile, Mark R. Hungarland, surfactant sales representative, has been transferred from Indianapolis, Indiana, to the Midwest region, based in Chicago, Illinois.

Richard Bednarz has been named science vice-president of the Cosmetic, Toiletry and Fragrance Association.