Meetings

ISF/AOCS to attract more than 1,200

More than 1,200 persons are expected to participate in the ISF/AOCS World Congress to be held April 27-May 1, 1980, at the New York Hilton in New York City.

The technical program features presentations on all aspects of the chemistry and biochemistry of fats and oils, and lipids, as well as the use of fats and oils in edible and inedible applications. The full program was published in the February issue of JAOCS.

In addition to the formal presentation of papers, Congress organizers have prepared a series of all-Congress social events, and optional social events, to permit the informal discussion that most registrants find one of the most beneficial aspects of attending such meetings.

Registration desks at the meeting site will open at noon Sunday, April 27. Later that afternoon, the exposition accompanying the Congress will begin. A welcoming tea also will be held for registrants for the spouses' program; details of that program will be available at the tea. The International Society for Fat Research and the American Oil Chemists' Society each will hold business meetings Sunday afternoon. Members of either orgnization may attend both business meetings.

On Sunday evening there will be an informal all-Congress mixer in the Hilton's Trianon Ballroom Complex. Technical and spouses' program registrants receive one ticket to each social event; daily registrants do not receive tickets to social events. Extra tickets for all events will be available for purchase in the registration area.

On Monday, April 28, there will be an all-Congress breakfast in the Grand Ballroom. After spouses' program registrants depart, the AOCS Award in Lipid Chemistry will be presented to Dr. James F. Mead, professor of biological chemistry at UCLA, who will then give his acceptance lecture. Technical program sessions will begin about 10:30 a.m., following Dr. Mead's lecture.

The first optional social event, a sightseeing boat trip around Manhattan, will be held early Monday evening. Participants will be transported by bus from the Hilton to the boat dock, served a box supper on board during the three-hour cruise, and then returned by bus to the hotel. Cost is $22.50 per person. Advance reservation and payment are necessary; send you name, affiliation, address and payment to Dr. David Berner, Registration Chairman, ISF/AOCS World Congress, c/o Frank Beuckman Inc., Coldwater Industrial Park, Rochester, NY 14624.

On Tuesday morning there will be a continental breakfast for foreign registrants and for other persons attending their first AOCS national meeting.

The ISF Kaufmann Award lecture will be held during a plenary session Tuesday morning. The recipient this year will be Dr. Robert G. Ackman, professor at the Nova Scotia Technial College's Department of Fisheries.

The second optional social event, a Broadway theater party, will be held Tuesday evening. Organizers have reserved 100 orchestra seats for the hit musical "Sweeney Todd." Cost is $22.50 per person. Name, affiliation, address and payment should be sent to Dr. Berner at the address given. Only the first 100 applicants can be accommodated; checks will be returned to late applicants.

On Wednesday morning, an all-Congress continental breakfast will be held in the Grand Ballroom. The plenary session following will include a brief talk by Frank C. Naughton, incoming president of the AOCS, and presentation of several AOCS awards.

The all-Congress banquet will be held from 7:30 p.m. to midnight Wednesday with music by the Justin Stewart orchestra under the direction of Joey Scott. Maureen Tomson is the featured vocalist with the orchestra. Entertainment will be Neal, a specialist in ESP and hypnosis, and by SRO, a trio of two guys and a gal who present sparkling medleys of songs from Broadway musicals.

The Congress will formally close at 5 p.m. Thursday, May 1, with the end of technical sessions.

Three post-Congress tours have been arranged. The first is an all-day scenic bus ride through the Hudson River Valley, with a morning visit to the U.S. Military Academy at West Point with luncheon at the Thayer Hotel. The afternoon will include visits to Sunnyside, home of early American author-diplomat Washington Irving. Cost is $22 a person; reservations may be made in the registration area during the Congress. The tour is limited to 39 persons.

There will be a visit to the National Biscuit Co. plant and research laboratories in Fairlawn, NJ, on Friday morning, May 2, and a visit to the Hoffmann-LaRoche plant and laboratories in Clifton, NJ, on Friday afternoon, May 2. Reservations for both or either trip may be made during the Congress in the registration area.

Optional social events, tours

ISF/AOCS World Congress organizers have arranged a series of optional social events and tours that are available to registrants at cost.

Two of the events require payment in advance.

On Monday evening, April 28, there will be an optional sightseeing tour of Manhattan by boat on a chartered Circle Line vessel. The tour will include a boxed supper served on board. Transportation from the New York Hilton to dockside and return to the Hilton will be provided. The

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tour will begin about 5:45 p.m. Cost will be $22.50 per person. Send a check separate from your registration fees to Dr. David Berner at the address given below.

On Tuesday evening, April 29, the organizers have obtained 100 orchestra tickets for the hit Broadway musical, "Sweeney Todd." The story line is based on the true tale of an English barber, some of whose customers would disappear amidst suspicious circumstances, and his next-door neighbor, a woman whose food shop featured meat pies. Cost is $22.50 per person; the first 100 persons ordering tickets will be accommodated; checks will be returned to all others.

One scenic and two industrial plant tours will be held Friday, May 2, the day after the meeting ends. Those attending the World Congress will be able to register for these tours at the meeting, but organizers need to know in advance how many persons would like to participate.

The full-day scenic tour will involve a chartered bus ride up the Hudson River Valley. The bus will leave the New York Hilton at 9 a.m., proceeding up the west side of the Hudson River to the United States Military Academy at West Point. After a guided tour of the military academy, the group will have lunch at the Thayer Hotel. After lunch, the tour will continue down the east side of the Hudson River to Philipsburg Manor near Tarrytown, then on to Sunnyside, south of Tarrytown. Sunnyside is the restored estate of early American author Washington Irving, also a former U.S. ambassador to England. The bus will return to the Hilton about 6 p.m. Cost will be $22 per person, including lunch. Space is limited to the first 49 persons registering.

The first industrial tour will be a morning visit to the National Biscuit Company (Nabisco) food research and production facilities at Fairlawn, NJ.

The second industrial tour will be an afternoon visit to the Hoffmann-LaRoche plant and laboratories in Clifton, NJ. Hoffmann-LaRoche is a pharmaceutical and food additive firm.

If you wish to attend any of these tours and have not yet informed the Congress organizers of your intentions, please send your name, affiliation and address to: Dr. David Berner, Registration Chairman, ISF/AOCS World Congress, c/o Frank Beuckman Inc., Coldwater Industrial Park, Rochester, NY 14624. Payment must accompany reservations for the Monday evening sightseeing boat trip and the Tuesday evening theater party. For the Friday tours, please indicate clearly if you wish to attend the Hudson Valley tour, Nabisco tour or Hoffmann-LaRoche tour. □

Clinic honors Drs. Cater and Mattil

The 29th Oilseed Processing Clinic held during February in New Orleans was dedicated to the late Drs. Carl M. Cater and Karl F. Mattil, who were associated with the Food Protein Research and Development Center at Texas A&M University.

The clinic was entitled "A Look Ahead." Topics included the futures market, multi-seed processing, gossypol, energy, and improving oilseed production. Information on reprints of papers is available from the reprint office at the USDA Southern Regional Research Center, PO Box 19687, New Orleans, LA 70179. □

Applications of Analytical Methodology to Fats and Oils Processing

An AOCS Short Course on Applications of Analytical Methodology to Fats and Oils Processing will be held April 23-25, 1980, at The Concord near Lake Kiamesha, NY. It will immediately follow the AOCS Short Course on Processing and Quality Control of Fats and Oils.

The analytical methodology course is designed to provide a thorough review of how analytical techniques can be applied in industrial situations. It will include material important to quality control personnel, food industry researchers, analytical laboratory and government agency employees, fats and oils processors, and producers of products containing fats and oils.

A registration form for both short courses follows page 252A in this issue of JAOCS. Additional forms are available from AOCS, 508 S. Sixth St., Champaign, IL 61820. Registration deadline is March 17. Registrations received after that date will be accepted only if space is available. Registration fee covers room and board from lunch Wednesday, April 23, through lunch Friday, April 25.

General chairman for both short courses is Frank Naughton, technical manager for N.L. Industries in Hightstown, New Jersey. Mr. Naughton is vice-president of the American Oil Chemists' Society.

Program chairmen for the analytical methodology short course are Dr. David Berner, president of Frank Beuckmann Inc. in Rochester, NY, and Dr. David Min, an assistant professor on the faculty at Ohio State University in Columbus, OH.

Topics, speakers, and abstracts for the short course:

ANALYSIS OF LIPID MATERIALS BY HPLC

Kert Ivie or Dick Cotter, Water Associates, Milford, MA

The use of HPLC in the analysis of lipid materials is described in terms of the modes of separation used in various analyses currently performed. Specific areas of analysis discussed are free fatty acid analysis, *cis-trans* isomer separations, triglyceride analysis, antioxidant analysis, and cholesterol analysis. Additional topics will be the effect of radial compression, a new column technology on lipid analysis using radial-pak cartridges which have higher lipophilic surface coatings, causing a marked change in elution patterns of lipid materials.

MASS SPECTROMETRY APPLICATION IN LIPID FLAVOR STUDY

David B. Min, Department of Food Science
Ohio State University

The use of combined gas chromatography with mass spectrometry is one of the most powerful analytical tools for fast, specific separation to characterize the compounds in complex lipid flavor systems. This paper presents the applications of GC-MS in the study of chemical reaction products during storage and their impact on the flavor of the final product. The postulation of chemical mechanisms for the formation of flavor compounds in oil during storage is discussed. The paper also presents the correlation between objective instrumental evaluation of oil flavor and subjective sensory scores.

WIDELINE NUCLEAR MAGNETIC RESONANCE

Thomas Conway, CPC International Inc., Argo, IL

Wideline nuclear magnetic resonance spectroscopy has been used since 1966 at CPC International Inc. for fat determination. This technique has been used effectively for product quality control as well as the optimization of process streams. It has provided a rapid, nondestructive method to determine oil content of seeds as well as a rapid measurement of oil in single corn kernels for genetic selection in development programs for high oil hybrid corn. Topics covered include wideline NMR theory and instrumentation, some typical NMR methods that have been developed, calibration procedures and process areas in which NMR has been found useful. A computer controlled wideline NMR system for automatically determining the oil in single maize seeds is described in terms of system specification, calibration and performance.

APPLICATIONS OF PULSED NMR IN THE EDIBLE FATS AND OILS INDUSTRY

John Witt, The Praxis Corp., San Antonio, TX

The pulsed nuclear magnetic resonance (PNMR) technique derives signals from all the hydrogen atoms in a given sample. It is possible to distinguish between solids and liquids in the same sample because of the difference in the relative molecular mobility of these two phases, i.e., NMR relaxation time. Depending upon composition, temperature and previous thermal history, a fat sample will contain certain amounts of solid and liquid fat. Available instrumentation can provide both the analytical (PNMR) requirements as well as the thermal requirements to permit solid fat content determination of commercial fats. Dry thermal conditioning of samples covers the temperature range (0 to 60 C) that is in common usage with the AOCS dilatometric method for solid fat index. An operator may run up to 20 samples simultaneously while eliminating weighing of samples, reagents, and special glassware. Another potential application of PNMR is measurement of total fat content in products such as chocolate and peanut butter. The technique is quite rapid and basically compares PNMR readings of two calibration samples with that of the unknown sample.

NEW METHODOLOGIES IN HIGH RESOLUTION NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY

P.E. Pfeffer, USDA Eastern Regional Research Center, Philadelphia, PA

Major advances in NMR spectroscopy have been achieved through the advent of the present-day computer-controlled pulsed Fourier transform instruments. Orders of magnitude increased sensitivity due to signal averaging of rapidly accumulated spectra coupled with high fields achieved with super conducting magnets enable the modern spectrometer to analyze routinely samples in the submicrogram range. Furthermore, the availability of broad band probe technology permits the observation of a variety of dilute spin nuclei such as ^{13}C and ^{2}H which are important for the determination of structure and the study of molecular dynamics. This presentation describes many of the most recent NMR methods that are and can be applied to the field of lipid chemistry. Emphasis will be on analytical methodology and structure elucidation. Additional examples of techniques for examining macromolecular interactions as found in lipid-protein systems also are discussed.

THERMAL ANALYSIS OF OILS, FATS AND WAXES

Charles Earnest, The Perkin-Elmer Corp., Norwalk, CT

Differential scanning calorimetry (DSC) and differential thermal analysis (DTA) are used primarily to quantify the melting range of a blend by determining the fraction melted as a function of temperature. Changes in the blend – or in the thermal history of a blend – directly affect the melting curve and solid fat index; therefore, these changes can be quickly detected by a DSC scan. Applications of this correlation have been made the basis for quality control tests in the food, cosmetic, soap, and petrochemical industries. Other useful thermal analytical methods include the use of thermogravimetric analysis (TGA) for assessing volatile content and oxidative stability, and thermomechanical analysis (TMA) for melt points. The use of microprocessor-controlled programmers to automate more complex analyses is opening up new possibilities for DSC, DTA, TS and TMA techniques. The various techniques are reviewed with examples from the analysis of oils, fats and waxes.

THERMOGRAVIMETRIC ANALYSIS AND PRESSURE DIFFERENTIAL SCANNING CALORIMETRY

P.F. Levy, E.I. DuPont de Nemours and Co., Wilmington, DE

Thermal analysis techniques have been applied to the characterization of both mineral and edible fats and oils during the past decades. Two techniques yielding pertinent information on oil properties are thermogravimetric analysis (TGA) and pressure differential scanning calorimetry (PDSC). TGS measures weight change as a function of temperature, while PDSC, like conventional DSC, measures heat flow as a function of temperature, but at pressures greater than ambient. TGA is most commonly used for compositional analysis and thermal stability studies, while PDSC is used to study oxidative stability and effects of additives. Typical applications of both techniques are discussed.

Meetings

APPLICATIONS OF SPECTROSCOPY

N.M. Ingber, SCM Durkee Foods, Strongsville, OH

Lipids have been analyzed by ultraviolet, visible and infrared instruments for many years. A review of ten years' activity in these areas is presented. Selected applications are noted in detail, with emphasis on lipid characterization as well as quantitative analysis. The analysis of polyunsaturated fatty acids by ultraviolet spectroscopy is cited for its timeliness. The application of near infrared reflectance to the determination of protein, fat and carbohydrates in oilseeds is reviewed. An in-house study of the effect of oxidative stress on the fatty acid portion of an oil by infrared is presented to demonstrate the use of new data acquisition methods on a modern instrument. Parallel determination of peroxide value is used to correlate with the appearance of oxygen functionalities.

METHOD FOR ANTIOXIDANT ANALYSIS

Richard E. Austin, Eastman Chemical Products Inc., Kingsport, TN

An overview of the current methodology for the analysis of food oil antioxidants is presented, with emphasis on determination of the antioxidant content of oils relative to quality assurance and regulatory requirements. Specific methods for TBHQ, BHA, BHT, and propyl gallate determinations are discussed. The presentation concentrates on gas and liquid chromatographic analyses, as well as spectrophotometric methods. Extraction techniques are considered, as well as problems inherent with antioxidant analysis and the need for proper experimental designs for defining method limitations. Questions and open discussion are invited.

RHEOLOGICAL AND PHYSICAL PROPERTIES MEASUREMENTS OF FATS AND OILS PRODUCTS

J.E. deMan, University of Guelph, Guelph, Ontario, Canada

Fats are dispersions of crystalline fat in liquid oil. The rheological and textural characteristics of fats are determined by a number of factors, including amount of solid fat, size and shape of fat crystals, polymorphic transformation, and temperature. Theological properties of fats have been measured with a variety of instruments whose principles of operation are reviewed, with the advantages and disadvantages of each discussed. The most widely used instruments are penetrometers. A major disadvantage is the empirical nature of the results of penetrometer measurements. After reviewing the various suggestions for expressing penetrometer data in terms of yield value, hardness and other indices, a proposal will be described for uniform expression of the results of penetrometer readings. A suitable method of rheological measurement of fats should be a good indicator of the texture over a wide temperature range. Temperature control is an important factor in the testing of fats. The cone penetrometer is used in AOCS Methods Cc16-60. This method does not deal with the problem introduced when additional weight is applied to the cone assembly. It would be desirable to develop a system that would enable the result of different types of penetrometers to be expressed in the same units. Some types of penetrometers have mechanical drive systems. It has been established that the forces registered with fats are proportional to the surface areas of the punch. This allows for easy conversion of data into uniform units. When cones are used with a mechanical drive system, plastic and viscous properties of fats can be measured. Subjective assessment of spreadability can be carried out with panels of judges. Such tests can be useful to establish ranges of values that can be assigned to instrumental data and which correspond with the consumer's image of a desirable texture.

CAPILLARY GAS CHROMATOGRAPHY IN THE ANALYSIS OF FATS AND OILS

Hal T. Slover, USDA-AR, Beltsville, MD

Capillary gas chromatography is a powerful analytical tool with many applications in the analysis of fats and oils, and is particularly useful for the determination of fatty acids and unsaponifiables. Columns capable of high resolution may be used to separate complex mixtures or closely related compounds; some of this resolution may be traded for speed, and very rapid analyses made of less complex mixtures. Fatty acids ranging from butyrate to docosohexaenoate may be separated in a single sample on highly efficient columns. Positional and geometric isomers of unsaturated acids produced during hydrogenation are partially separable, permitting an estimate of *trans* unsaturation on the basis of individual isomers, as well as a summation of essential fatty acids. If such detail is not needed, rapid analyses may be performed on short columns. Tocopherols and sterols in the unsaponifiable fraction may be determined in many oils with good resolution and precision without prior sample cleanup. If cholesterol alone is to be determined, very rapid analyses are possible. Precision and accuracy are comparable to those on packed columns. Typical capillary column instrumentation, and some of the problems encountered in the use of capillary columns will be discussed.

STATISTICAL METHODOLOGY

Lynne B. Hare, Thomas J. Lipton, Inc., Englewood Cliffs, NJ

Because the decisions made on the basis of the applications of chemical analytical methods are inferential in nature, statistics has become part of the chemist's language. It is essential that decisions be made with the widest possible range of validity and that the interpretation of experimental data be free of ambiguity. Examples of types of statistical experimental designs are given that can aid the chemist in the accomplishment of research objectives. It is demonstrated that through the application of appropriately designed experiments, the chemist's objectives will be attained most efficiently. □

Madrid to host food conference

An "International Symposium on Energy and Food Industry" has been scheduled for Oct. 6-8, 1980, in Madrid, Spain, under auspices of the Commission Internale des Industries Agricoles et Alimentaries (CIIA) and the International Union of Food Science and Technology. Information is available from CIIA, B.P. 470-08, 75366 Paris Cedex 08 France, for non-Spanish speaking nations; from Direccion General de Industries Agarias, Simposio 80, Ministerio de Agricultura, Paseo Infanta Isabel 1, Madrid/, 7, Spain, for persons in Spanish-speaking nations. □

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AOCS short courses

Concord Hotel—Lake Kiamesha, New York

FOR OFFICE USE ONLY

Registration number _____

Total fee _____

Amount received _____

Balance due _____

Room number _____

REGISTRATION FORM. Please type or print clearly.

Registration deadline: MARCH 17, 1980

Name _____ male/female (please circle)
(last) (first)

Nickname for badge _____

Firm/Institute _____

Mailing address _____
(street)

(city) (state/province) (postal code)

(country)

Telephone number _____ **Telex number** _____

The registration fee for each course includes double occupancy room and meals for the dates indicated. Single occupancy rooms are available upon payment of the supplemental fee. For persons attending both courses, meals included are from Sunday supper through Friday lunch; first course only, Sunday supper through Wednesday lunch; second course only, Wednesday lunch through Friday lunch. Spouses and children may accompany registrants. The spouse's fee includes room and meals plus the use of The Concord's facilities. Children age 16 or over pay the spouse's rate; rates for children under age 16 are available on request.

Room assignments will be made by The Concord. If you wish to share a room with a specific registrant, please print that person's name here:

_____

☐ I would prefer to share a room with a nonsmoker (check if applicable).

Course 1

Processing and Quality Control of Fats and Oils—April 20-23, 1980
Arrival—Sunday afternoon, April 20; check-out after lunch, Wednesday, April 23.

Course 2

Applications of Analytical Methodology to Fats and Oils Processing—April 23-25, 1980.
Arrival—Wednesday morning, April 23; check-out after lunch Friday, April 25.

Registration is not considered complete until payment is received. (See opposite page for registration and cancellation policies.) Fees are payable in U.S. dollars only. Please mail form with your check to:

AOCS Short Courses
508 S. Sixth St.
Champaign, IL 61820
USA

REGISTRATION FEES

Please check as applicable.	OPTION A (Course 1 only)	OPTION B (Course 2 only)	OPTION C (both courses)
TECHNICAL REGISTRANT (check one)			
AOCS member or ISF/AOCS World Congress registrant	☐ $320	☐ $275	☐ $460
Others	☐ $335	☐ $295	☐ $485
OPTIONAL ADDITIONAL FEES			
Single room supplement	☐ $ 60	☐ $ 40	☐ $100
Accompanying spouse Spouse's name for badge: _____	☐ $190	☐ $150	☐ $290
TOTAL	$_____	$_____	$_____

REGISTER NOW. The Concord requires a MARCH 17 registration deadline. Registrations received after that date will be accepted on a space available basis.

The University of Illinois will grant CEU (continuing education unit) credit for both AOCS short courses. Persons attending the Processing and Quality Control short course will receive 2.0 CEUs; persons attending the analytical methodology short course will receive 1.7 CEUs.

Meetings

AOAC spring registration begins

Registration forms and program details for the AOAC Spring Workshop, April 7-10, 1980, in St. Louis, MO, are available from the Association of Official Analytical Chemists (AOAC), 1111 N. 19th St., Suite 210, Arlington, VA 22209.

The program will include sessions on the environment and mycotoxins; pesticides; environment and residue analysis; odor-flavor behavior and instrumentation; feeds and food chemistry minerals and proximate analysis, microbiology, fermented meats; fertilizers; drug stability; forensic toxicology; brewing; cosmetics; drugs; and other topics. Preregistration is $50, on-site is $55. The program will be at Stouffer's Riverfront Towers.

The AOAC also has issued a call for papers for its 94th annual meeting to be held Oct. 20-23, 1980, at the Marriott Hotel, Twin Bridges, in Washington, DC. The meeting is concerned with current developments in analytical methodology pertaining to agricultural, environmental and public health.

From Washington

Post-embargo soybean shipments rise

Despite President Carter's January 4 suspension of grain shipments to the Soviet Union, figures released in late January by the U.S. Department of Agriculture showed exports of U.S. grain and soybeans running substantially ahead of last year's export levels, said J. Dawson Ahalt, chairman, World Food and Agricultural Outlook and Situation Board.

Department officials are projecting total agricultural exports of $36.4 billion in 1979/80 compared to the 1978/79 record of $32 billion, Ahalt said. Officials also project total agricultural exports to reach a record volume of around 150 million tons, far exceeding last year's record 137.5 million tons, he added. Soybean sales abroad are forecast at 22.2 million tons, up from last year's record 20.5 million tons. Feedgrain and wheat exports also are expected to increase.

The largest purchaser of U.S. grains and soybeans again will be Japan. Europe and Latin America are other leading purchasers of U.S. grain and soybeans. Based on current projections, Mexico, China, Egypt and Spain are expected to import more U.S. grains than had earlier been expected.

Factors that would tend to keep soybean shipments up include the record harvest in the United States and the price drop that occurred immediately following the embargo. A strike at Lake Superior ports caused a backlog of sunflower and soybean loadings that may have led to later shipment of soybeans than normal.

Herbicide experiment approved

The EPA has granted an experimental use permit for the herbicide alachlor to be used on corn and soybeans to evaluate weed control. The permit was issued to the Monsanto Company and is limited to 10,000 lb of chemical on 2,500 acres of land. Expiration date is Dec. 11, 1980. For comments or more information, contact the Product Manager (PM), Registration Division (TS-767), Office of Pesticide Programs, EPA, 401 M St. SW, Washington, DC 20460, or see the *Federal Register,* Friday, Jan. 11, 1980, p. 2390.

Crop insurance expanded

The Federal Crop Insurance Corporation has amended the 1980 regulations to include additional counties in the crop insurance program. The ruling applies to cotton, peanut, soybean, sunflower and other crops. Details are in the *Federal Register,* Tuesday, Dec. 20, 1979, p. 75371.