Call for nominations

Alton E. Bailey Award

The North Central Section of AOCS is requesting written nominations from Society members for the 1978-79 Alton E. Bailey Award. The purpose of the Bailey Award is to recognize research and/or service in the field of fats and oils. The nomination should contain at least five pertinent references or contributions in the field of oils, fats, waxes, etc. Some of the past Bailey Award winners are: V.C. Mehlenbacher (1959), R.H. Potts (1960), J.C. Cowan (1961), A.R. Baldwin (1963), T.P. Hilditch (1965), D. Swern (1966), W.O. Lundberg (1967), H.J. Dutton (1968), H.S. Olcott (1969), H.E. Carter (1970), J.F. Mead (1971), R.T. Holman, (1972), C.M. Gooding (1973), S.S. Chang (1974), W.M. Cochran (1975), Raymond Reiser (1976), L.A. Goldblatt (1977), O.S. Privett (1978), R.O. Feuge (1979).

Please send nominations to the Alton E. Bailey Award Chaiman, Vern Witte, Research & Development, Kraft, Inc., 801 Waukegan Rd., Glenview, IL 60025. The deadline for nominations is December 15, 1979, and notification of the selection will appear in this journal. The presentation of the Bailey Award is scheduled for February 1980.

Deadline: December 15, 1979

Call for nominations

1980 Honored Student Awards

Nominations are now being solicited for the 1980 AOCS Honored Student Awards. Graduate students at any North American institution of higher learning, in any area of science dealing with fats and lipids, who are doing research toward an advanced degree, and who are interested in the areas of science and technology fostered by this Society, are eligible. To receive the award, he/she must remain a registered graduate student and must not have received his/her degree or begun career employment prior to the AOCS meeting he/she is to attend. Selection of awardees is based upon educational qualifications and performance.

The awards provide funds equal to travel costs, plus an additional stipend to permit attendance at the national meeting of the AOCS to be held in New York on April 27-May 1, 1980.

Nomination forms may be obtained from AOCS Headquarters, 508 S. Sixth St., Champaign, IL 61820.

Deadline: October 20, 1979

Award in Lipid Chemistry

In April 1964, the Governing Board of the American Oil Chemists' Society established an Award in Lipid Chemistry under the sponsorship of the Applied Science Laboratories, Inc., State College, PA. Previous awards were presented as follows: Erich Baer, August 1964; Ernest Klenk, October 1965; H.E. Carter, October 1966; Sune Bergstrom, October 1967; Daniel Swern, October 1968; H.J. Dutton, October 1969; E.P. Kennedy, September 1970; E.S. Lutton, October 1971; A.T. James, September 1972; F.D. Gunstone, September 1973; P.K. Stumpf, September 1974; W.O. Lundberg, September 1975; George Popjak, May 1977; Ralph Holman, May 1978; and Stephen S. Chang, 1979.

The award consists of $2500 accompanied by an appropriate certificate. It is planned that the sixteenth award will be presented at the AOCS Annual Meeting in New York, April 27-May 1, 1980.

Canvassing Committee Appointees

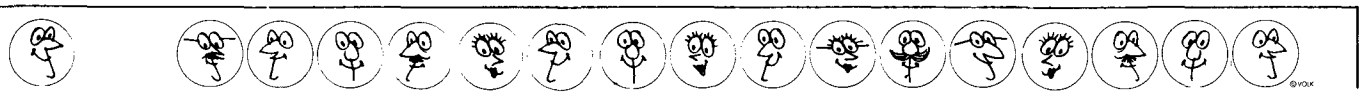
Policies and procedures governing the selection of award winners have been set by the AOCS Governing Board. An Award Nomination Canvassing Committee is appointed; chairman is Earl G. Hammond. The function of this committee is to solicit nominations for the sixteenth award. Selection of the award winner will be made by the Award Committee whose membership will remain anonymous.

Rules

The rules prescribe that nominees will have been responsible for the accomplishment of original research in lipid chemistry and must have presented the results thereof through publication of technical papers of high quality. Preference will be given to individuals who are actively associated with research in lipid chemistry and who have made fundamental discoveries that affect a large segment of the lipid field. For award purposes, the term "lipid chemistry" is considered to embrace all aspects of the chemistry and biochemistry of fatty acids, of naturally occurring and synthetic compounds and derivatives of fatty acids, and of compounds that are related to fatty acids metabolically or occur naturally in close association with fatty acids or derivatives thereof. The award will be made without regard for national origin, race, color, creed, or sex.

Letters of nomination together with supporting documents must be submitted in octuplicate to Earl G. Hammond, Department of Food Technology, Iowa State University, Ames, IA 50010, USA, before the deadline of November 1, 1979. The supporting documents will consist of professional biographical data, including a summary of the nominee's research accomplishments, a list of his publications, the degrees he holds, together with the names of the granting institutions, and the positions held during his professional career. There is no requirement that either the nominator or the nominee be a member of the American Oil Chemists' Society. In addition, letters from at least three other scientists supporting the nomination must be submitted in octuplicate. •

Remember the deadline: November 1, 1979



President's Club & Honor Roll

The members listed here have qualified for either the AOCS President's Club or President's Honor Roll. All current members who successfully recruit at least one new member qualify for Club membership. Successful recruitment of at least three new members is the qualification for the more prestigious Honor Roll. All Club and Honor Roll members will receive further recognition and the opportunity to participate in other special programs and activities. Forms for use in recruiting new members are available from the AOCS Headquarters.

Four

Edward G. Perkins
Francis B. White
Randall Wood

Three

Robert Faulkner
George Kopas

Two

Kenneth Brobst
Jacques R. Chipault
Norman C. Heins
Ralph T. Holman
Ernest J. Jacobson
Theodore K. Mag
Arthur C. McConnell
Andrew Peng
Frank E. Sullivan

One

Thomas H. Applewhite
Harold R. Baker
Guntis Baltabols
Jose Becerra-Rique
Philip L. Bernstein
Wayne R. Bidlack
John E. Blum
Charles H. Brain
John Braunwarth
Glenn D. Brueske
Juan Bryce-Cotes
Mario Calebotta
Angel Capra
Abimalek M. David
Robert R. Delaney
John M. DeMan
Leroy R. Dugan
David R. Erickson
John R. Euber
James V. Falco
Elie Farah
Walter Farr
Norman J. Field
David Firestone
Earle Fritz
Henry B. Gaffney
J. Fred Gerecht
Ernst Goebel
Thomas H. Haines
Earl G. Hammond
Frances C. Hummel
James J. Jasko
Robert W. Johnson
Jon J. Kabara
C. Louis Kingsbaker
David Kritchevsky
Joel Landis
Roger A. Leedy
Roger Leysen
William E. Link
Edward M. Lloyd
Roger Logan
Roger Loh
Ron G. Mason
Ted P. Matson
Jack McEwan
John McKinney
Hector F. Moncada
Mary G. Murphy
Prakash Chand Mutha
Wassef W. Nawar
Michael Neale
Terry W. Osborn
Nicholas Pelick
Marshall Pike
Ananda G. Rao
Raymond Reiser
Jose Guedes Rodrigues
Larry Rogovin
Arthur Rose
Michael Rothbart
Steven M. Royce
Alicia Sanchez
Earl O. Seabold
Verendra Kumar Sharma
E. Richard Sherwin
James G. Smith
Lloyd M. Smith
Teck C. Soon
Nishith K. Swaika
Arthur G. Waltking
Theodore J. Weiss
Mary Ann Williams
William E. Willis
Robert L. Winters
Kosaku Yasuda

The following persons had applied for membership in the American Oil Chemists' Society through mid-August, 1979. If an applicant had been invited to join by an AOCS member, the member's last name appears in parentheses at the end of the paragraph.

Donald Ardrey, quality supervisor, Anderson Clayton Foods, 1201 E. Pecan, Sherman, TX 75090. (Field)

Paul C. Browne, student, Department of Chemistry, City College of New York, 138th St. & Convent Ave., New York, NY 10031. (Haines)

Susanne K. Czarnecki, graduate student, Wistar Institute, University of Pennsylvania, 36th & Spruce Sts., Philadelphia, PA 19104. (Kritchevsky)

William H. Dunn, chemist, Beecham Products, Western Hemisphere Research, 1500 Littleton Rd., Parsippany, NJ 07054.

Navarro Yoja Gallarde, student, Departamento de Graduados e Investigacion en Alimentos, Apdo. Postal 42-186, Mexico 17, D.F.

Nerijus A. Jarmas, analytical chemist, Best Foods Research & Engineering Center, Division of CPC International, 1120 Commerce Ave., Union, NJ 07083. (Waltking)

Zenzyuro Kuroda, technical adviser, Nitinan Engineering Co. Ltd., 3-5, Maenotyo 3-tyome, Itabasi-ku, Tokyo, Japan.

Miguel Mata Montes de Oca, student, Departamento de Graduados e Investigacion en Alimentos, E.N.C.B., Apdo. Postal 42-186, Mexico 17, D.F.

Ketan I. Mehta, student, Bombay University Department of Chemical Technology, 8 Saket, Saraswati Rd., Bombay, India 400 054. (David)

Horst Niemann, director, Schering AG, 170-178 Mullerstrasse, Berlin, West Germany 1000. (Link)

Fernando J.L. Oliveira, manager, Westfalia Separator de Portugal Lda., Travesia do Alecrim, 3-4°, Lisbon, Portugal 1200. (Rodrigues)

Naravatla R. Reddy, graduate student, Department of Nutrition and Food Science, Utah State University, UMC-87, Logan, Utah 84322.

Warwick J. Rush, chief chemist, Gardner Smith Pty. Ltd., 61-69 Macquarie St., Sydney, N.S.W., 2000 Australia.

Shridhar K. Sathe, graduate research assistant, Nutrition & Food Sciences, Utah State University, UMC-87, Logan, Utah.

George Shedlarshi, manager–sales & engineering, The Duriron Co. Inc., 9542 Hardpan Rd., Angola, NY 14006.

Robert C. Slagel, technical director, Chemical Division, Union Camp Corp., P.O. Box 2668, Savannah, GA 31402. (Fritz)

Jonas P. Stroszel, section leader, Institute of Food Science and Technology, Jagićeva 31, Zagreb, Yugoslavia 41000.

Judith A. Trujillo, soy nutrition specialist, American Soybean Association, Box 27300, 777 Craig Rd., St. Louis, MO 63141. (Erickson)

Antoine Verhulst, 589 Av. de Boulouris, F-83700 Saint Raphael, France.

Thomas H. Wood, refinery manager, Archer Daniels

(Continued on page 638A)

New Books

L.A. Witting, Book Review Editor

Instrumentation for High-Performance Liquid Chromatography, Journal of Chromatography Library, Vol. 13, Edited by J.F. Huber, (Elsevier Scientific Pub. Co., PO Box 330, 1000 AH Amsterdan, The Netherlands, 204 p.)

This volume contains 11 chapters by 10 contributors from Austria, the Netherlands, France and Switzerland. Separate chapters deal with pump systems, gradient systems, sample introduction systems, column design selection, components and accessories for preparative HPLC, and there are four chapters on various types of detectors. It is perhaps an indication of the pace of development in this area that the chapters vary from page to page in terms of being up to date or obsolescent. Any discussion of preparative HPLC that fails to mention the Waters Prep 500 unit is obviously in the latter category. Coverage in general tends toward the exhaustive, but occasionally the reader is left hanging. On page 72 it is noted without illustration that a bypass is present on certain sample injection valves to minimize deformation of the sample injection profile. In a later chapter such a bypass is illustrated, page 97, without explanation. Actually such a bypass has a rather significant role in extending column life. Some values which operate relatively slowly, i.e., 0.5 sec., permit loss of column pressure and a damaging pressure surge than occurs with each injection.

A rather interesting statement is also included to the effect that development of highly efficient columns has exceeded the capability of the existing commercial equipment to utilize this high efficiency. System losses of 10-20% of the theoretical plates available in such columns are indeed frequently observed. In the final chapter on specifications of commercially available equipment, there is a partial tabulation of dead volumes from injector to column and from column to detector. These volumes vary from 0.7$\mu\ell$ to 110$\mu\ell$ with the majority in the 20 to 50$\mu\ell$ range. Frequent references in one section to Swagelok fittings which must be drilled out to provide low dead volume connections are in contrast to the statement in another section that Chrompak distributes low dead volume fittings for all columns.

This is an excellent and comprehensive book which can be recommended to anyone interested in HPLC. Through no fault of the authors or editor, it will have a limited lifespan of up-to-date usefulness in this fast moving field.

LLOYD A. WITTING, Ph.D.
Supelco Inc.
Bellefonte, PA

- **President's Club & Honor Roll** . . . . . .

(Continued from page 636A)

Midland Co., 4666 Farries Parkway, Decatur, IL 62526. (Lloyd)

Chin Ah Yong, senior chemist, Pan Century Edible Oils SDN. BHD, Lot 240, Pasir Gudang Industrial Estate, Johore, Malaysia. (Soon)

Raphael A. Zoeller, graduate student, Department of Biochemistry & Biophysics, Texas A&M University, College Station, TX 77843. (Wood)

New Publications

Proceedings of the Conference on the Decline in Coronary Heart Disease Mortality; National Heart, Lung and Blood Institute, National Institutes of Health, HEW, Bethesda, MD; approx. 450 p., available through office of Dr. Richard Havlik, Medical Officer, Epidemiology Branch, Division of Heart and Vascular Diseases, National Heart, Lunch and Blood Institute, Federal Building, Room 2C08, Bethesda, MD 20205 (tele: 301-496-2327). Proceedings of conference held Oct. 24-25, 1978.

Vegetable Protein Foods, tomorrow's food today, is an illustrated teaching pack designed as a study guide for the teacher of beginning nutritionists. It is contained in a two-piece card box and offers a full-color wall chart, two fact sheets, and worksheets. The teacher's background text on vegetable food proteins is a 32-page guide complete with teaching suggestions. This teaching pack is available for £2.50 from Forbes Publications, Ltd., Hartree House, Queensway, London W2 4SH, U.K. (tele: 01-229-9322.)

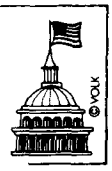
A technical bibliography is being offered by Perkin-Elmer as a service to the practicing chemist. Subscriptions at $27/year provide access to newly published technical articles in several major categories: Natural Products/Agriculture, Biochemistry, Clinical Chemistry/Lab Medicine, Food/Beverage, Pesticides, Forensic Science, Pharmaceuticals/Cosmetics, and Polymers/Organic Coatings. A subscription includes three bibliography updates plus one special technology issue per year and is available by contacting Perkin-Elmer Corp., Instrument Division, Main Ave., Mail Station 12, Norwalk, CT 06856, (tele: 203-762-1000).

A series of lectures, *Science and Technology in America–An Assessment,* is available from the U.S. Government Printing Office. The lectures were given in 1976 to commemorate the 75th anniversary of the National Bureau of Standards (NBS). The first lecture in the 166-page publication is by Edward Teller, university professor emeritus of the University of California, and is entitled, "Science and Technology in America: A Chronicle and Some Predictions." The lectures may be purchased for $2.50 ($3.12 foreign postage) from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. (Order by SD Stock No. 003-003-01728-1).

ASTM has recently released *Part 31 of the Annual Book of ASTM Standards,* which contains 152 standards covering water. The book is soft cover and is available for $38 from ASTM, 1916 Race St., Philadelphia, PA 19103 (tele: 251-299-5400). Ask for Publication code no. 01-031079-16.

Sadtler Research Laboratories has published nine new volumes supplementing their existing literature on Infrared and Carbon-13 NMR Spectr. Two of the volumes update standard infrared vapor phase spectra; one covers new infrared spectra of surface active agents; five contain recent advances in Carbon-13 NMR techniques; and one volume updates infrared spectra of monomers and polymers. For additional information, contact Sadtler Research Laboratories, Inc., 3316 Spring Garden St., Philadelphia, PA 19104 (tele: 215-382-7800).

from Washington



The FDA has issued a final rule specifying restrictions for provisional color additives used in cosmetics and drugs. The rules apply particularly to color additives in lipsticks and certain ingested drugs and includes tolerance levels for several red, yellow and orange dyes. The closing date for provisional listing for these dyes is January 31, 1981. For further information, contact Gerad McCowin, Bureau of Foods (HFF-334), FDA, HEW, 200 C St., SW, Washington, DC 20204, or see the Federal Register, Tuesday, August 27, 1979, p. 48964.

At the request of the National Soft Drink Association (NSDA), the FDA has granted an extension until July 1, 1980, for revised labeling of nonnutritional products. The FDA had formerly permitted abbreviated labeling for such products, but new regulations require that complete information be visible on the packaging. The NSDA argued that the unsettled status of saccharin makes future labeling changes unclear and that major legislation should await the outcome of pending data. NSDA had asked that the July 1, 1979 deadline be moved into 1981. For more information, see the Federal Register, Tuesday, August 7, 1979, p. 46266, or contact Taylor M. Quinn, Bureau of Foods (HF-300), FDA, HEW, 200 C St., SW, Washington, DC 20204.

The American Cynamid Co. has proposed an amendment to the Federal Food, Drug and Cosmetic Act changing the acid specification number for glycerol esters of tall oil resin used as a chewing gum base. The amendment would change the wording for the acid specification number from "5-12" to "not to exceed 10." The FDA has determined that no environmental impact statement is necessary for this proposal. For more information, contact Gerad L. McCowin, Bureau of Foods (Hff-334), FDA, HEW, 200 C St., SW, Washington, DC 20204, or see the Federal Register, Friday, Aug. 17, 1979, p. 48351.

The FDA has allocated $430,000 for studying the background concentration of cadmium, lead, and other specified metals in soils and crops with the USDA and the EPA over the next 2-½ years. For details, contact Gary Dykstra, Regulatory Operations Section (HFC-22), FDA, HEW, 5600 Fishers Lane, Rockville, MD 20857, or see the Federal Register, Tuesday, July 31, 1979, p. 44940.

The FDA is considering a request by the Kelco Division of Merck & Co. that Xanthin Gum stabilizers be permitted in animal feeds. Information, the Federal Register, Tuesday, July 31, 1979, p. 44942.

Hair dyes containing coal-tar derivatives may be excluded from the 1938 Food, Drug and Cosmetic Act exemptions because of new FDA evidence that the dyes are carcinogenic. In addition, 4-metholy-meta-phenylenediamine, used as an alternative ingredient, is being tested as a possible carcinogen. Information, Chemical Week, August 1, 1979.

The Federal Crop Insurance Corporation has proposed regulations for insuring the 1980 sunflower crops. This proposal is designed to clarify existing rules. More information is in the Federal Register, Tuesday, July 31, 1979, p. 44861.

It will no longer be necessary for a pesticide applicant to submit letters of authorization as a means of releasing confidential information to the Agency. If any confidential data will support an application, it may be used as evidence; however, such information is considered classified and may not be used outside the EPA, as provided by section 10 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). For more information, see the Federal Register, Wednesday, August 15, 1979, p. 47809.

The EPA has issued an experimental use permit to the Rohm and Haas Company for testing the herbicide oxyfluorfen on cotton. The test program is limited to 1,025 acres and stipulates that all treated crops will be destroyed or used in research only. This permit is in effect until July 11, 1980. Comments may be directed to the Product Manager (PM), Registration Division (TS-767), Office of Pesticide Programs, EPA, 401 M St., SW, Washington, DC 20460. Additional permits are listed in the Federal Register, Tuesday, July 31, 1979, p. 44930.

Elanco Products Co. of Indianapolis has been granted permission by the EPA to use the herbicide fluoridone on cottonseed. The temporary tolerance request is for residues of not more than 0.05 parts per million (ppm) and will expire July 16, 1980. For details, see the Federal Register, Wednesday, August 15, 1979, p. 47806.

Shell Oil Co. has petitioned the EPA for permission to use the herbicide 2-[[4-chloro-6-(ethylamino)-s-triazin-2-yl]amino]-2-methylpropionitrile on soybeans. The proposed tolerance lever is 0.1 part per million (ppm) on raw soybeans. Additional information, Federal Register, Wednesday, August 15, 1979, p. 47807.

The Rohm and Haas Co. of Philadelphia has requested a temporary tolerance for the herbicide oxyfluorfen and its metabolites in refined soybean oil at .25 parts per million. Comments may be sent to the Product Manager (PM) 25, Rm. E-359, Registration Division (TS-767), Office of Pesticide Programs, EPA, 401 M. St., SW, Washington, DC 20460. More information is in the Federal Register, Wednesday, August 15, 1979, p. 47807.

The FDA is withdrawing a proposal to ban drugs and cosmetics labels that can only be read through the container and its contents. Because too much time has elapsed without action since the proposal was published, the FDA will reconsider and, if action is needed, will issue a new proposal. More information, the Federal Register, Tuesday, August 14, 1979, p. 45747.

The National Cottonseed Products Association, Inc. has requested FDA to amend regulations to permit use of ammoniated cottonseed meal in ruminant and poultry feed. The meal is derived from the inactivation of aflatoxin in cottonseed meal by anhydrous ammonia. Questions and comments may be directed to Loniie W. Luther, Bureau of Veterinary Medicine (HVF-174), FDA, HEW, 5600 Fishers Lane, Rockville, MD 20857. More information, the Federal Register, Friday, July 27, 1979, p. 44276.

A National Institutes of Health recently published bioassay report lists aldicarb as noncarcinogenic in rats and mice. The tests included aldicarb's use as an agricultural pesticide. Copies of the report are available from the Office of Cancer Communications, National Institutes of Health, Bethesda, MD 20205. Details are in the Federal Register, Friday, July 27, 1979, p. 44277.

The EPA issues a reminder: Under the Toxic Substances Control Act, anyone intending to manufacture or import a new chemical for use in a commercial product must submit a premanufacture notice (PMN) to the EPA at least 90 days prior to manufacture or importation. Questions should be directed to Mr. Peter Principe, Premanufacturing Review Division (TS-794), Office of Toxic Substances, EPA, Washington, DC 20460 (tele: 202-426-2601). Information, the Federal Register, July 31, 1979, p. 44930.

The FDA has approved a petition from the American Cyanamid Co. for the use of 1,3,5-tris(4-tert-butyl-3-hydroxy-2,6-dimethylbynzyl)-1, 3, 5-triazine-2, 4, 6-(1H,3H,5H) trione as an antioxidant/stabilizer. This additive is used in polymers for food contact operations and is limited to levels of 0.1% by weight of olefin polymers. Information, Federal Register, Tuesday, August 14, 1979, p. 47538.

The effective date for bulk labeling requirements for all flavor ingredients generally recognized as safe (GRAS) has been extended to July 1, 1981. The chemical products affected by this ruling are listed in the FDA's ingredients safety review, available from Corbin I. Miles, Bureau of Foods (HFF-335), FDA, HEW, 200 C St., SW, Washington, DC 20204. Additional information, the Federal Register, Friday, August 3, 1979, p. 45641.

The FDA is testing beta-carotene for safety as a food additive. This action is part of the FDA's safety review of substances generally recognized as safe (GRAS). Comments maybe submitted to Corbin I. Miles, Bureau of Foods (HFF-335), FDA, HEW, 200 C St., SW, Washington, DC 20204. Details, the Federal Register, Friday, August 3, 1979, p. 45759.

The Assistant Secretary for Science and Technology has given new responsibilities to the Deputy Assistant Secretary for Product Standards under the National Voluntary Laboratory Accreditation Program (NVLAP). These functions include determining whether an individual laboratory's application for accreditation is complete, whether to grant accreditation and whether to terminate an accreditation. Any ruling made by the Deputy Assistant Secretary is subject to appeal by the applicant. For more information, see the Federal Register, Monday, Aug. 20, 1979, p. 48741.

Pro-Stars Mills, Ltd. has informed the FDA that it will withdraw without prejudice a petition proposing pea protein concentrate, pea fiber, and pea starch be recognized as safe for use in human food. For more information, contact Corbin I. Miles, Bureau of Foods (HFF-335), FDA, DHEW, 200 C St SW, Washington, DC 20204, or see the Federal Register, Friday, Aug. 24, 1979, p. 49791.

The FDA has issued a final rule amending the food additive regulations to include the use of 2-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl) phenol as an antioxidant/stabilizer in polycarbonate resins intended for food contact. This ruling follows a petition by the American Cyanamid Co. of Wayne, NJ. For further information, see the Federal Register, Tuesday, August 14, 1979, p. 47537.

The FDA is continuing its study of cyclamate as an artificial sweetener following a formal public hearing reviewing recent evidence. For more information, contact Ted Herman, Regulations Policy Staff (HFC-10), FDA, HEW, 5600 Fishers Lane, Rockville, MD 20757, or see the Federal Register, Tuesday, August 14, 1979, p. 47620.

The EPA has granted an experimental use permit to the Elanco Products Co. to evaluate the effect of fluoridine on cotton broadleaf weeds. The permit is scheduled to expire July 16, 1980. For more information, see the Federal Register, Monday, August 6, 1979, p. 45996.

The EPA has renewed a feed additive regulation for the experimental use of the pesticide profenofos in or on cottonseed hulls and soapstock. For more information, contact Mr. William Miller, Product manager (PM) 16, Registration Division (TS-767), Office of Pesticide Programs, EPA, 401 M. St., SW, Washington, DC 20460, or see the Federal Register, Wednesday, August 22, 1979, p. 49249. •

Four Corners

Chairman, International Relations – Eugene Marshack • Corresponding Secretaries – M. Bergel and H.K. Mangold

Argentina ..... Meny Bergel

Four meetings have recently been held or will shortly be held that are of potential interest.

On July 26-27, a meeting on "The Study of the Methods of Analysis to Determine the Quality of Oils" was held in Buenos Aires under the sponsorship of the National Ministry of Chemistry under the secretary of finance.

Two meetings will be held in October. A Conference for the Study of Analytical Methods to Determine the Effect of Preservatives in Foods will be held Oct. 25-26 in Buenos Aires under sponsorship of the National Ministry of Chemistry. A conference entitled "Preservation of Foods by Radiation" has been scheduled for October by the School of Applied Sciences in Industry of the National University of Cuyo. The conference is scheduled for San Rafael.

A fourth meeting, "Conference on the Capacity of Human Resources in Nutrition" is being planned by the School of Veterinary Science of the National University of the Center in the Province of Buenos Aires.

Germany ..... H.K. Mangold

Guest scientist at Münster

During the past year, Walter O. Lundberg and his wife Olga have resided in Münster, where he has been a Visiting Professor at the Institute for Biochemistry and Technology – H.P. Kaufmann Institute – of the Federal Center for Lipid Research. This was made possible because he received a Senior U.S. Scientist Award from the Alexander von Humboldt Foundation.

W.O. Lundberg is an Emeritus Professor of Biochemistry and the retired Executive Director of the Hormel Institute of the University of Minnesota, where he was active in teaching and in conducting and administering research in lipidology from 1937 to 1974. He is a past president of the American Oil Chemists' Society and a past president of the International Society for Fat Research.

During his stay, Dr. Lundberg worked primarily on the autoxidation of unusual lipids. He authored and coauthored publications on the chemistry of chaulmoogra oils, cyclopentenyl fatty acids, essential fatty acids, and methods of lipid research. The Lundbergs traveled to Denmark, England, Finland, India, Spain, and Sweden. He gave invited lectures in the aforementioned countries and in Germany.

In the beginning of September, following the International Conference on the Biochemistry of Lipids in Cologne, the Lundbergs returned to Minnesota.

At about the same time, S.S. Radwan, a guest from Cairo, Egypt, will be returning home. For the last two years, he has studied lipid metabolism in heterotrophic and photoautotrophic plant cell cultures, and he has developed methods for the biosynthetic preparation of radioactively labeled phospholipids. S.S. Radwan, who is professor of botany at Ain Shams University, Cairo, and scientist at the Federal Center for Lipid Research, Münster, will continue to cooperate in work on the preparation of natural products by means of plant cell cultures.

Dr. M. Cetin, a guest scientist from Ankara, Turkey, and T. Fujikawa from Tokyo, Japan, who have worked at the Institute of General and Analytical Chemistry, also returned home in September.

Isomeric monounsaturated fatty acids

A group of scientists at the Federal Center for Lipid Research, Münster, is engaged in a long term project on the biochemical and nutritional aspects of isomeric monounsaturated fatty acids which commonly occur in partially hydrogenated dietary fats.

A simple method has been worked out for the preparation of fairly uniform mixtures of radioactively labeled positional isomers of *cis*- and *trans*-octadecenoic acids – Richter et al., Z. Naturforsch. 33c, 629 (1978). Partial hydrogenation of methyl [1-^{14}C]linolenate followed by argentation chromatography yields a fairly uniform mixture of positional isomers of methyl *trans* [1-^{14}C]octadecenoates, which on *trans-cis*-equilibration and argentation chromatography, affords the corresponding mixture of positional isomers of methyl *cis* [1-^{14}C]octadecenoates. Hydrolysis of the methyl esters yields the corresponding mixtures of *trans*- and *cis*-octadecenoic acids. Such "mixed substrates" have been used in studies concerned with lipid biosynthesis in plant cell cultures – Richter et al., Z. Naturforsch. 33c, 303 (1978); Weber et al., Planta 145, 479 (1979).

A study of the distribution of the double bond in octadecenoic acids of lipids in cell suspension cultures of parsley has revealed that the major isomer is oleic acid, whereas in seed lipids it is petroselinic acid.

Rats fed a partially hydrogenated soybean fat have been found to incorporate the individual positional isomers of dietary *cis*- and *trans*-octadecenoic acids into the various tissue lipids in a specific manner – Reichwald-Hacker et al., J. Nutr. 109, 565 (1979) Stereospecific analysis of the cardiac and hepatic glycerolipids revealed that the dietary *trans*-octadecenoic acids, irrespective of the position of their double bonds, are selectively incorporated into the 1,3-positions of triacylglycerols and the 1-position of diacylphosphoglycerides – Reichwald-Hacker et al., in preparation. Lipids of several tissues of rats fed unhydrogenated soybean oil contained none of the *trans*-octadecenoic acids but relatively large proportions of vaccenic acid, the *cis*-11 isomer of oleic acid – Reichwald-Hacker et al., J. Nutr. 109, 1051 (1979). The enzyme specificities observed earlier in vitro using individual octadecenoic acid derivatives as substrate do not seem to apply to whole organisms, in which a large number of isomers occur as competing substrates. In this respect, in vitro studies using "mixed substrates" might be useful for interpreting the data obtained in vivo.

New Publication

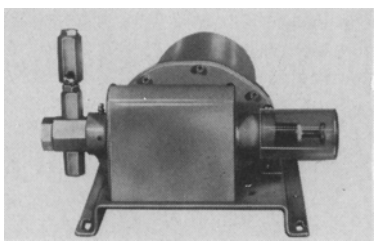
In May of this year, the Deutsche Gesellschaft für Fettwissenschaft (DGF) conducted a symposium on frying fats. The proceedings of this symposium have now been published as a special issue of the journal Fette. Seifen. Anstrichmittel. This special issue is available from DGF-Geschäftsstelle, Soester Str. 13, D-4400 Münster, Germany.

New Products

• A scraped surface heat exchanger made by Machinefabriek Terlet N.V. of The Netherlands is now available for export to the US, Canada and other countries. This exchanger is said to be effective for the treatment of products which can be pumped and cooled, pasteurized, sterilized, crystallized, boiled and/or heated. An insulating layer formed in the heat exchanger wall prevents product adhesion. Contact: Consulate General of The Netherlands, Commercial Division, One Rockefeller Plaza, New York, NY 10020 (tele: 212-C1 6-1429).

• Pope Scientific, Inc. announces a Wiped Film Concentrator/Evaporator which it says minimizes the spillage with vacuum concentration and distillation of heat sensitive, viscous or low thermal conductive materials. Special slotted wiper blades spread the distillate evenly over the entire evaporative surface in a thin film and propel it downward to limit heating time. Contact Pope Scientific, Inc. N90 W14337 Commerce Dr., Menomonee Falls, WI 53051.

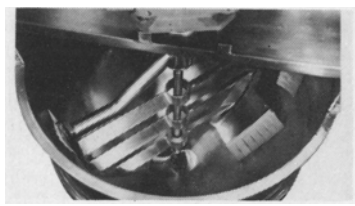
• Leybold-Heraeus' Vacuum Process Engineering Division has developed a two-stage, short-path distillation pilot plant, the KD 10. The modular components can be put together in any desired way to meet the user's demand, and thoroughput ratings lie between almost zero and 20 kg, according to a release by Leybold-Heraeus. Contact: Leybold-Heraeus GmbH, Vacuum Process Engineering Division, D-6450 Hanua/Main, P.O. Box 549, West Germany (tele: 06181-364-254).



• The Series 300 Piston Pump for water treatment is available from Neptume Chemical Pump. It features gear motor design and may be adjusted as it runs. The Series 300 may be top mounted on tanks or wall bracket mounted above chemical drums. Contact Mike Dowse, Sales Manager, Neptune Chemical Pump Co., P.O. Box 247, Lansdale, PA 19446 (tele: 215-699-9228).

• Mitsubishi Heavy Industries, Ltd. announces an oilless lubricant for the plastic working of metals. This expander cream is neutral and water soluble, low in COD and suspended matter, and is made by impasting a polyethylene oxide with water. Contact: Publicity Center, Mitsubishi Heavy Industries, Ltd., 5-1, Marunouchi 2-chome Chiyoda-ku, Tokyo, Japan [tele: 212-3111, telex: J 22443 (HISHIJU)].

• The Marvel line of compact refrigerators now includes an explosion-proof model for use in hazardous locations. This self-defrosting 6.5-cu.-ft. capacity unit is 115-volt, 60 cycle AC electrically powered, with a 1/10 hp. hermetically-sealed compressor. All spark-producing components are sealed in protected housings, giving the unit explosion-proof properties, Marvel claims. Contact: Marvel Division of Dayton-Walther Corp., P.O. Box 997, Richmond, IN 47374.



• The Groen Model NEM is a steam jacketed kettle that has an agitator with a high speed propeller in the center bottom for fast wetting out and mixing. This propeller works in conjunction with a fluted, counter-rotating, sweeper-type scraping agitator that directs the product into the propeller, resulting in a blending action while scraping the kettle sides. Contact: Maggie Hertel, Groen Division of Dover Corp., 1900 Pratt Blvd., Elk Grove Village, IL 60007 (tele: 312-439-2400).

• Durkee Industrial Foods Group/SCM Corp. is marketing a lipid coffee whitener system called Delta White. This product is a emulsified fluid vegetable oil containing lipid components required for the manufacture of a spray-dried coffee whitener. The emulsifier component is suspended in a stable dispersion using a special fluidization process, Durkee says. Contact: Durkee Industrial Foods Group/SCM Corp., 900 Union Commerce Bldg., Cleveland, OH 44115 (tele: 216-771-5121).

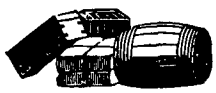
• The Micro Motion Flow Meter is built to measure the flow rate of liquids, mixtures, foams or slurries, including peanut butter, oil/sand mixtures and liquids containing gases. Viscous fluids do not alter the meter's accuracy and since it measures mass, rather than volume, gas or air pockes do not affect measurements, Micro Motion says. Contact: Micro Motion, Inc., 2700 29th St., Boulder, CO 80301 (tele: 303-499-6400).

• Corning Science Products introduces a compact, hand-held pH/temperature meter, the Model 4. The instrument has digital LCD readout and can be operated by 9-volt battery or by standard houshold current through the use of an adapter. Contact: Corning Glass Works, Science Products Division, Corning, NY 14830 (tele: 607-974-9000).

• The CSI-260 is a high-speed information acquisition and handling system developed by Columbia Scientific Industries Corp. Built to handle the increased capabilities of the new gas chromatograph/mass spectrometer systems, the CSI-260 will obtain and measure peaks at a rate of 1,000 per second, Columbia says. Contact: Jim Cotton, Columbia Scientific Industries Corp., P.O. Box 9908, Áustin, TX 78766 (tele: 800-531-5003).

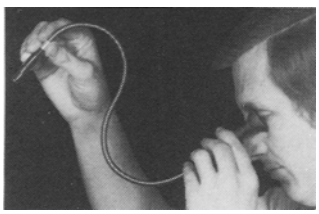
• Beckman Instruments, Inc. announces four High Performance Liquid Chromatograph (HPLC) systems that offer integrated liquid chromatographs and modular components. Research applications include pharmaceutical and food analysis. The four Beckman instruments are built to perform analyses in a nondestructive mode for conservation of samples. Contact: Beckman Instruments, Inc., 2500 Harbor Boulevard, Box 3100, Fullerton, CA 92634 (tele: 714-871-4848).

• Sample preparation costs are minimized when the Tecator system is used for calcium and phosphorus deter-



mination, according to the manufacturers. The same digest which is used for nitrogen or protein determination may be sampled for Ca and P, and Tecator adds that the system can perform official Kjeldahl tests when used in combination with their distilling unit. Contact: Tecator, Inc. 2200 Central Ave., Boulder, CO 80301 (tele: 303-443-9245).

• The C-E Invalco W-Series Turbine Flowmeters can be used for direct flow rate indication, totalizing, recording, telemetering or automatic flow control of liquids, according to Invalco. The flowmeters are available in sizes 3/4-inch to 6-inch with flow capacities from 1.3 to 3,000 gallons per minute (GPM). Contact: C-E Invalco, Combustion Engineering, Inc., P.O. Box 556, Tulsa, OK 74101 (tele: 918-932-5671).



• Edmund Scientific's Flexible Fiberscope has a 7X magnifying eye piece and 4,000 image transmitting glass fibers each 18 inches long. It is recommended for engineers and quality control inspectors for use in inaccessible, illuminated areas having a 3/8-inch-plus opening. Focusing ability is claimed to be from less than ½ inch to infinity. Contact: Edmunc Scientific Co., 7782 Edscorp Bldg., Barrington, NJ 08007 (tele: 609-547-3488).

• Hercules, Inc. is offering "Aquasorb," a sheeted, creped superabsorbent. Contact: Inquiry Section, Advertising Department, Hercules Incorporated, 910 Market St., Wilmington, DE 19899 (tele: 302-575-6837).

• Dynapar's PDC-1100/1150 Power Demand Controller features keyboard entry for easy control, microprocessor-based components and CRT total information display. The system is designed to save energy use on a priorities basis with minimal interference to normal activities within the facility. Dynapar says no engineer or computer programmer is necessary to operate the PDC-1100/1150. Contact: Dynapar, 1675 Delany Rd., Gurnee, IL 60031 (tele: 312-662-2666).

• In a 24-page brochure, the Climax Molybdenum Company describes its 18Cr-2Mo ferritic stainless steels, also known as "type 444" or UNS S44400. Included is information on standards and specifications, physical and mechanical properties, stress corrosion resistance, machinability and other applications. Order copies of "444," code No. M-352 free from Climax Molybdenum Co., Reader Service Department, P.O. Box 594, Canal Street Station, New York, NY 10013 (tele: 203-622-3590).

• The Magnetic Stirrer Driven Pump is available from Technilab Instruments, Inc., a subsidiary of Bel-Art Products. This liquid handling pump combines centrifugal and peristaltic pumps and operates by placing it on laboratory model magnetic stirrers. It is constructed of Acrylic, PVC and Teflon to facilitate handling corrosive solutions, Technilab says. Contact: Technilab Instruments, Inc., Subsidiary of Bel-Art Products, Pequannock, NJ 07440 (tele: 201-694-0500).

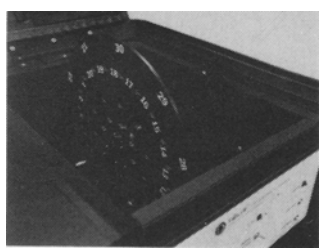
• An extensive line of capillary columns and other chromatographic accessories has been introduced by Analabs Division of Foxboro. Featured are stainless steel Wall Coated Open Tubular (WCOT) Capillary Columns that are used in the separation of complex mixtures. A price list and illustrated brochure is available by contacting Analabs, Inc., A Unit of Foxboro Analytical, 80 Republic Dr. North Haven, CT 06473 (tele: 203-288-8463).

• Gems Sensors Division of Transamerica Delaval Inc. is offering a Tank Level Indication Transmitter that interfaces directly with instrument control circuits. Called the XT Series, the unit should interface with any type of receiver display instrument including micro-processors, data loggers, recorders, meters, alarms and controllers. Contact: George Angelovich, Gems Sensors Division, Transamerica Delaval, Inc., Farmington, CT 06032 (tele: 203-677-1311).

• The Zeineh Soft Laser Scanning Densitometer is now being offered commercially by LKB Instruments, Inc. This instrument is designed with extreme resolving power (3-10 micron beam width), for matching electrofocusing and high resolution electrophoresis. Contact: LKB Instruments, Inc., 12221 Parklawn Dr., Rockville, MD 20852 (tele: 301-881-2510).

• An oil solids extractor that separates oil-in-water emulsions, oil dispersions and removes suspended solids through a bashwashable granular separation medium is available from C-E Natco, Tulsa-based division of Combustion Engineering, Inc. The C-E Natco OSX Oil/Solids Extractor is designed to filter the solids and coalesce oil emulsions in a single vessel. Contact: Jim Young, C-E Natco, P.O. Box 1710, Tulsa, OK 74101 (tele: 918-663-9100).

• Liquid Level Lectronics' 410 Series valve is a piston-balanced, three-way, two-position valve available in a 2-inch size with threaded, flaged or bevelled connections. It is recommended for use with high-pressure well test manifolds and operates with pressure differentials up to 1,500 psi, LLL reports. Contact: Liquid Level Lectronics, Inc., P.O. Drawer 788, Porter, TX 77365 (tele: 713-354-2163).

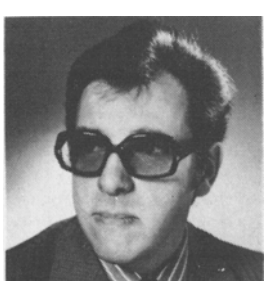


• An automatic sample handler designed to complement spectrometry with unattended analyses is available from Digilab Division of Bio-Rad Laboratories. The Digilab Autosampler Accessory automatically delivers samples to Digilab FT-IR spectrometers to permit uninterrupted overnight molecular analyses for up to 30 randomly assorted samples, Digilab says. Contact: Digilab Division, Bio-Rad Laboratories, 237 Putnam Ave., Cambridge, MA 02139 (617-868-4330). •

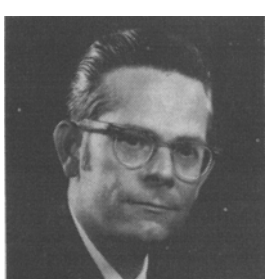
People & Places

PEOPLE

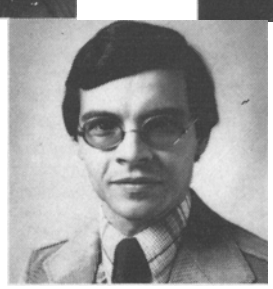
Richard E. Andrews has been elected vice president of administration and finance of Amerchol Corporation, an Affiliate of CPC International, and **Abraham Seldner** is now vice president of technical services .... **Robert A. Behrmann** has been chosen vice president of administration for Emery Industries, Inc. .... **Robert T. Betz** has been promoted to manager of Emery's business groups, replacing **William Siemens** who retired .... **Marcel Buehlmann** has been appointed vice president in charge of manufacturing for Lonza Inc., of Fair Lawn, NJ .... **Milton Harris** of Washington, DC, who initiated scientific research that led the development of the cold permanent wave, shrinkproof wool, and a worldwide revolution in shaving systems, has been named the 1980 recipient of the American Chemical Society's Priestly Medal, the highest honor in American Chemistry .... Capital City Products Company has announced the appointment of **Michael J. Hein** as vice president-general manager, Chemical Specialties Division .... **Robert B. Hutchison** has been elected vice president of research for Emery Industries .... **Mau J. Kuo** has been named a Monsanto Fellow in that company's program for recognizing significant technical contribution to a scientific discipline .... **Millard G. Moors** has been appointed director of sales and marketing, Flavor and Food Systems Division, of the PFW Business Center, Hercules, Inc .... **George H. Morrison**, professor of chemistry at Cornell University, has been named editor of *Analytical Chemistry*, a monthly publication of the American Chemical Society .... **Sidney Musher**, a member of AOCS since 1928, has become an emeritus member of AOCS; Musher is affiliated with PEF Israel, Endowment Funds, Inc., New York City .... **Robert J. Peterson** has joined the technical staff of Firmenich Inc. as creative research chemist .... Monsanto has elected **Howard A. Schneiderman**, currently dean of the School of Biological Sciences at the University of California (Irvine), as senior vice president-research and development .... **Richard W. Scott**, director of analytical research, coatings, for the Sherwin Williams Co., was named the recipient of the 1979 Henry A. Gardner Award by the American Society for Testing and Materials (ASTM).



M. Buehlmann



R.W. Scott



R.J. Peterson

PLACES

The Stepan Fragrance department has moved into its newly expanded million dollar addition at the **Stepan Flavor and Fragrance Center** in Sky Harbor Industrial Park, Northbrook, IL .... **Palmex Industries**, Sdn. Bhd., Penang, Malaysia has purchased its third EMI Physical Refining System to produce refined, bleached and deodorized palm oil .... **The Chemical Specialties Division of PVO International, Inc.**, has announced the completion of new facilities for processing vegetable oils, hard butters and specialty fats .... **Wurster & Sanger** Chemical Engineers of Chicago is supplying a second continuous deodorizing system to **Las Llaves S.A.** in Puerto Cabello, Venezuela, which includes facilities for fatty matter recovery and heat economization. ●

Obituaries

Henry C. Dormitzer

Former AOCS President Henry C. Dormitzer died Aug. 3, 1979, after being hospitalized for approximately a week. He had been a member of AOCS since 1926, serving as president during 1939. He became an emeritus member in 1959.

Mr. Dormitzer worked for Wilson and Co. in Chicago for approximately 51 years, retiring in 1957 at age 67. He had served on numerous AOCS committees and continued active in the organization after his retirement.

Mr. and Mrs. Dormitzer moved approximately four years ago from Chicago to the Dayton, Ohio, area to be near their son, who is in business there. ●

Patrick J. O'Doherty

AOCS has been informed of the death of Dr. Patrick J. O'Doherty, a member of AOCS for the past two years. Dr. O'Doherty was an AOCS Honored Student in 1974 when a doctoral candidate at the University of Toronto. He was an assistant professor of medicine at the University of British Columbia at the time of his death. ●

Leon Adler

AOCS has been informed of the death of Leon Adler, a member of the Society since 1943. Mr. Adler was a 1917 graduate of the University of Illinois and had worked for many years with The Dykem Co. in St. Louis, manufacturers of coloring for margarines. ●

Fred Seed

Fred M. Seed, president of Cargill from 1968 to 1975, died of cancer August 17 at his home in suburban Minneapolis. He was 69. Seed was president and chief operating officer from 1968 until his retirement in 1975. ●

AOCS invited to tour NRRC

The North Central Section of the AOCS has arranged a tour of the USDA's Northern Regional Research Center in Peoria, Illinois, for Wednesday, Nov. 14, 1979.

The tour will begin at 3 p.m. and is open to all AOCS members, not only North Central Section members. The North Central Section will arrange special buses from the Chicago area to Peoria. Persons wishing to attend should contact Neil Widlak at Kraft Inc. Research & Development, 801 N. Waukegan Rd., Glenview, IL (tele: 312-998-2120). Dinner reservations will be $13.

The tour will end between 4:30 and 5, to be followed by a cocktail hour and dinner at Vonachen's Old Place Restaurant. The program will end about 8 p.m.

Two NRRC staff members, T.L. Mounts and E.H. Pryde, will present talks during the evening program. Mounts will speak on "Chemical and Physical Effects of Processing Fats and Oils." Pryde will speak on "Non-Food Use of Soybean Oil." •

ASA honors NRRC's Dutton

Dr. Herbert J. Dutton, chief of the oilseed crops laboratory at the USDA's Northern Regional Research Center, has received the American Soybean Association's 1979 "ASA Utilization Research Award."

Dr. Dutton, an AOCS member since 1945, was cited for achievements in soy oil research druing his 35 years at the center in Peoria, Illinois. The award was presented during the ASA annual convention this past August.

Others receiving awards included: John G. Reed Jr., chairman of the board of the National Soybean Processors Association, "ASA Agribusiness Award;" Dr. Billy E. Caldwell, North Carolina State University, "ASA Production Research Award;" Dr. Erwin Rohr, chairman of the Unilever Oil Milling Division, Hamburg, Germany, "ASA Foreign Market Development–International Award" and "ASA Honorary Life Member Award." •

Shortening, oils total $3.8 billion

Shortening and cooking oil manufacturers produced goods worth $3.88 billion dollars during 1977 according to the Census of Manufactures taken for that year.

In 1972, such products' value totaled $2.07 billion in the census, which is conducted every five years. The figures are not adjusted to account for inflation. The consumer price index rose from 125.3 in 1972 to 181.5 in 1977.

The number of employees working in the nation's 108 plants totaled 12,700 in 1977, compared to 12,900 in 1972 and 15,000 in 1963. There were 9,000 production workers in 1977 and 1972; in 1967, the firms employed 10,500 production workers, the report said.

Most products showed quantity increases of from 2% to 6%. Production of hydrogenated oils other than baking or frying fat dropped from 1,410 million pounds to 309 million pounds; production of vegetable stearine rose from 49.9 million pounds to 105 million pounds. Value of production generally reflected the impact of inflation. •

Paint industry's use of fats, oils declines

The 1977 Census of Manufactures strikingly illustrates the rapid drop of use of oil-base paints. During 1977, manufacturers used approximately 90 million pounds of linseed oil, compared to 172 million pounds in 1972 when the previous census was conducted. Use of all other vegetable oils remained about the same in the 145 to 150 million pound range. Primarily because of inflation, the value of fats and oils used by the paint industry rose to about $75 million in 1977 from $48 million in 1972. •

the latest in Lipids

SEPTEMBER

PC and PE Molecular Species of Developing Rat Brain
Differential Alteration of Δ9 and Δ6 Desaturation by Brain
Lipid Oxidation and Chick Encephalopathy
Cardiopathogenicity of Triglycerides when Fed to Male Rats
Lipids of Morris Hepatoma 5123c, Liver and Blood Plasma
Monoene Isomers of Various Rat Tissues
Fatty Alcohols and the Origin of Fish Oil Fatty Acids
Fatty Acids of Marine Oil Wax Esters and Triglycerides
Gastric Lipolysis, Fat and Bile Acids in the Rat

Methods

Synthesis of Cholesteryl Esters
Synthesis of [1-^{13}C]-and dg-Arachidonic Acid

Communications

Protein Depletion and Fatty Acid Desaturases
Surface Area and Desaturation of Branched Eicosatrienoates

Section News

Northeast Symposium next month

Registrations are being accepted for the Northeast Section's 19th Annual Symposium, "Processing and Nutrition of Edible Fats and Oils." Fees for members are $30 for one day, $50 for both days; non-members, $40 and $60, respectively; students, $15 and $25, respectively. Registration fee includes coffee breaks and luncheon each day.

Checks should be mailed to Daniel Meshnick, Registration Chairman, NE AOCS Symposium, c/o PVO International, 416 Division St., Boonton, NJ 07005. Registration fees also may be paid at the door.

Speaking on Nov. 5 are: T.L. Mounts (Northern Regional Research Center), "Chemical/Physical Effects of Processing Fats and Oils;" Robert C. Hastert (Harshaw Chemical), "Hydrogenation;" William Bernholz (PVO International), "Utilization of By-Products;" John Riley (EPA), "Regulatory Trends in Waste Disposal;" Leonard Wood (The Gallup Organization), "Consumer and Business Trends in the Food Industry;" Richard B. Smittle (Silliker Labs), "Microbiological Control in Fats and Oils Industry;" and Harry Beasley (Glidden/Durkee Foods), "Processing and Nutrition."

The Nov. 6 speakers will be: Myron Brin (Hoffman-LaRoche), "Sources? Biochemistry of Fat Soluble Vitamins;" John E. Vanderveen (HEW), "Government Nutrition Committees;" Frank Belshaw (American Maize Products), "Consumer Education;" Betty Peterkin (Consumer & Food Economics Institute), "Dietary Goals;" with two additional presentations to be announced later. •

NORCAL to meet Oct. 26

"The Role of Exercise in Cholesterol Metabolism and Its Relationship to Coronary Heart Disease" will be the topic for the NORCAL Section of AOCS at a meeting on Friday, Oct. 26, at Neptune's Palace, Steam Schooner Room, Pier 39, San Francisco.

The speaker will be Dr. Peter Wood of the Stanford Heart Disease Prevention Program.

Cost will be $13.50 per person for a red snapper dinner, $16 per person for a prime rib dinner. Cocktail hour will begin at 6:30 p.m. with dinner at 7:30 p.m. •

Fats and oils nutrition handbook published

The USDA has published a handbook on nutrients in fats and oils food products.

Handbook No. 8-4 "Composition of Foods... Fats and Oils... Raw, Processed, Prepared" has been published in looseleaf form, containing nutrient information for 128 items. Each page present the nutrient profile for a single food item, including information on refuse, energy, proximate composition (water, protein, fats, carbohydrate and ash), seven minerals (calcium, iron, magnesium, phosphorus, potassium, sodium and zinc), 10 vitamins (ascorbic acid, thiamin, riboflavin, niacin, pantothenic acid, vitamin B6, folacin, vitamin B12, vitamin A, and total and alpha-tocopherol), individual fatty acids, total saturated, monosaturated and polyunsaturated fatty acids, cholesterol, total phytosterols, and 18 amino acids.

Copies of Agriculture Handbook No. 8-4 may be ordered by sending a check or money order (no cash) for $4.75 per copy to Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Copies also are available through the GPO bookstores in major cities. Questions on content or requests for errata sheet should be sent to the Consumer and Food Economics Institute, Room 325A Federal Building, Hyattsville, MD 20782. Information on machine-readable tapes of the data is available from the Consumer and Food Economics Institute, Survey Statistics Group, SEA, USDA, Room 310, Federal Building, Hyattsville, MD 20782. •

Pet food uses 670,000 tons of meal

The U.S. pet food industry used approximately 670,000 tons of soybean and cottonseed meal during 1977, according to the U.S. 1977 Census of Manufactures, an increase from the approximately 500,000 tons used in 1972.

Use of fats and oils in animal feeds totaled about 375 million pounds in 1977, compared to 220 million pounds in 1972.

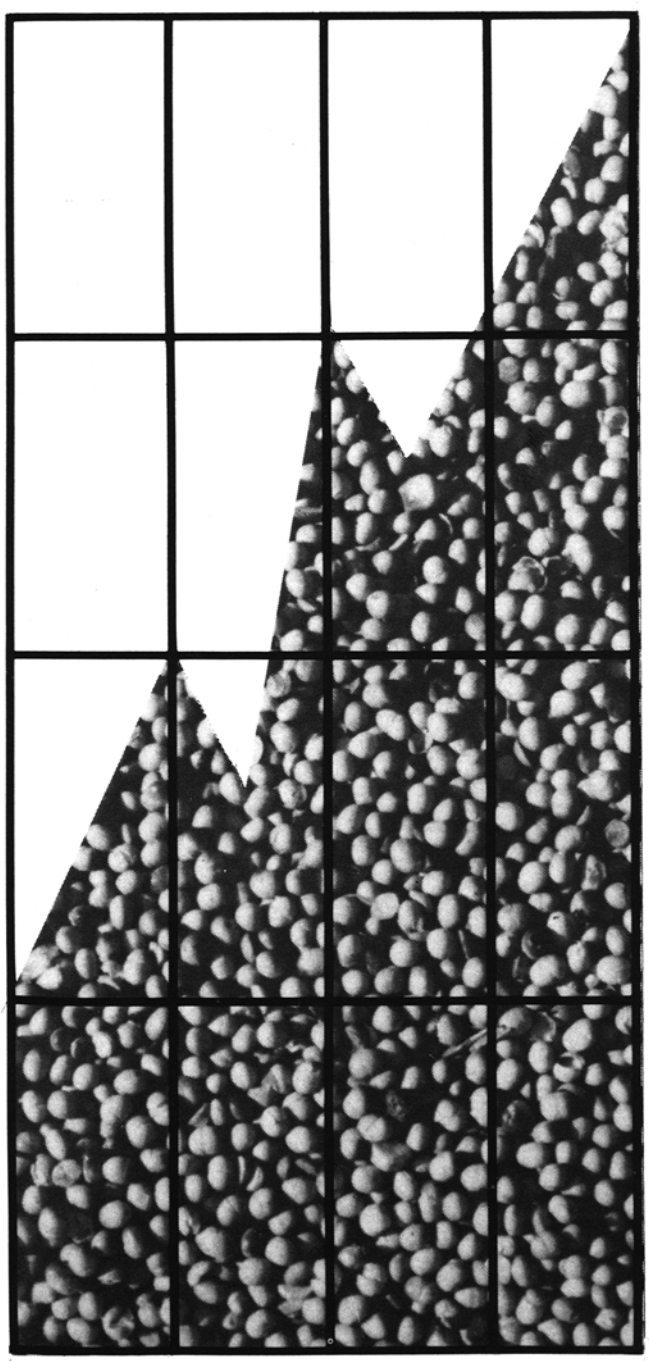
Total value of oilseed products used in pet food during 1977 was approximately $200 million, compared to less than $100 million in 1972. •

AOCS needs the following back copies of *Lipids:* Volume 12(1977) January and February.

The Society will pay $1.50 for each copy received in reusable condition. Send to AOCS, 508 South Sixth Street, Champaign, IL 61820.

1980s

OUTLOOK FOR SOY



While 1979's record U.S. soybean harvest may lead to a large carryover next season, three speakers at the American Soybean Association's annual convention gave some optimistic predictions for the mid-1980s to the nation's soybean growers.

Siegfried Mielke, editor of Oil World Weekly of Hamburg, Germany, forecast average annual oilseed production for the three-year period ending 1986 will be approximately 200 million metric tons, with soybeans remaining the dominant world oilseed.

USDA economist Alan Holz forecast that worldwide demand for high protein meals will grow about 4% a year from the 1976-78 average of 73 million metric tons to total around 100 million tons in 1985, with soymeal accounting for 85% of the gain. Edible oil demand will rise about 3% a year from 50 million metric tons to 64 million tons, Holz forecast, with soy oil supplying one-fourth the world demand.

T.E. Nichols Jr. of North Carolina State University said that U.S. soybean growers will need to plant 75 million to 82 million acres of soybeans with a harvest of 2.4 to 2.6 billion bushels to meet 1985 world demand. The 1979 crop is expected to total about 2.1 billion bushels.

The soybean growers were most interested, however, in predictions for the coming year. Mielke said improved 1980 South American soybean yields will help create a Sept. 1, 1980, carryover of 400 million bushels in the U.S. Other observers at the conference thought this was too high, with 250 million bushels being mentioned by one European attendee. The USDA estimate is 290 million bushels. Everyone said prices would soften next spring when South American soybeans and soybean products move into the market, with USDA expecting prices about 50 cents a bushel below the previous year.

During a four-continent television hookup, the attendees heard comments on the soy market situation from Europe, Japan and Brazil. Johannes Randag, president of the International Association of Seed Crushers, told the group from London that the European Economic Community will import about 14 million tons of soybeans during 1979, an amount equivalent to the combined crop of Illinois, Indiana and Kentucky. While soymeal appears secure in the European market, soy oil faces increasing competition from palm oil, coconut oil, olive oil, peanut oil, fish oil, sunflower oil and European-grown rapeseed oil, Randag said.

From Japan, Dr. Hiroshi Nakamura of Hohnen Oil Co. said Japan relies on the U.S. for 97% of its soybean imports, about 4.1 million tons during 1979. Canadian rapeseed is becoming increasingly popular in Japan, Dr. Nakamura said. "Canadian rapeseed oil is preferred to soybean oil in the consumer foods market because rapeseed oil is

more stable than soybean oil in terms of color and flavor reversion," he said. Rapeseed imports may total about one million tons in 1979, up 20% from 1978, Dr. Nakamura said.

From Rio De Janiero, Paulo Vianna estimated next year's Brazilian soybean harvest at 14.8 million metric tons, reflecting improved yields of 26 bushels an acre and an increase of 4 to 6% in acreage. Vianna, executive director of the Commission of Financing Production, said Brazil's crushing industry is operating about 50% of capacity. He said 1979 imports of Canadian rapeseed were intended entirely for re-export. Other observers have said the rapeseed oil could be blended with Brazilian soy oil to avoid certain Brazilian regulations affecting marketing of soy oil. Attendees noted that Brazilian production never seems to match forecasts, but even a crop of 13 to 14 million tons would be considerably above this year's drought-damaged 10 million ton harvest.

In his address, Mielke noted four factors that tend to stiffen competition for U.S. soybeans. First, research has improved yields and quality of competing oilseeds such as oil, palm, coconut, sunflower and rapeseed. Second, oilseeds have been providing better returns than other crops overseas, spurring increased plantings. Third, consumers' preference for high polyunsaturated fats can aid marketing of such oils as sunflowerseed. Fourth, government policies have encouraged oilseed production in Malaysia, Argentina and Brazil. Mielke noted currency devaluations in Brazil and Argentina appear to have been designed specificially to help exporters remain competitive.

Mielke said the first two seasons of the 1980s are likely to be dominated by the 1980 soybean carryover, which he estimates at a record 400 million bushels. Factors slowing liquidations could be: (1) increased demand for vegetable oils and oilmeals may be declining, owing to effects of increased energy costs on consumer income; (2) more lauric oils will be in the world market and palm oil will continue as a strong competitor to soy, and (3) the European Economic Commuity may limit tapioca imports to 5 to 6 million tons, causing a slower increase in use of soy meal to provide protein in feed rations.

Factors favoring liquidation listed by Mielke: (1) grain/oilseed price ratios will be less favorable to oilseeds worldwide, slowing expansion in plantings of sunflowerseed, rapeseed and soybeans; and (2) the market potential for sunflower and rape oils may peak next season with European crushers approaching sunflowerseed capacity. Mielke predicted sunflowerseed expansion of 2.5% annually for the next few years and rapeseed expansion at 1.7% or a little higher.

Permitting soybean prices to fall in accordance with supply-and-demand, Mielke said, will speed liquidation of the surplus, curb production of competing crops and stimulate demand.

He forecast a 10 to 15% drop in U.S. soybean acreage next season, or 7 to 10 million fewer acres in soybeans. American soybean output should then increase about 2.5% annually for the three years ending 1982/83, he said, while South American production will rise at 4.4% annually. U.S. output for the three years ending this fall has been 19%.

Mielke expects the second three-year period of the 1980s to be "more promising" for U.S. soybean growers because: (1) by 1983, all U.S. soybean surpluses will have been liquidated; (2) general world economic conditions will improve, reviving growth rates in demand for fats and oils; (3) increased petroleum prices will divert some potential Malaysian palm oil acreage into natural rubber, slowing the rates of increase in palm oil production for the three years ending 1985/86; (4) growth rates for sunflowerseed and rapeseed should remain below those for soybeans; (5) further acreage expansion in Brazil will be in northern and central states where rainfall is less reliable than the southern states that have been drought-plagued these past two years.

Nichols said European and Food and Agriculture Organization specialists expect consumption of fats and oils to increase at 3% a year and oil cakes and meal at 3.3% a year

TABLE I

World Production of 10 Major Oilseeds (3-year averages, million metric tons)

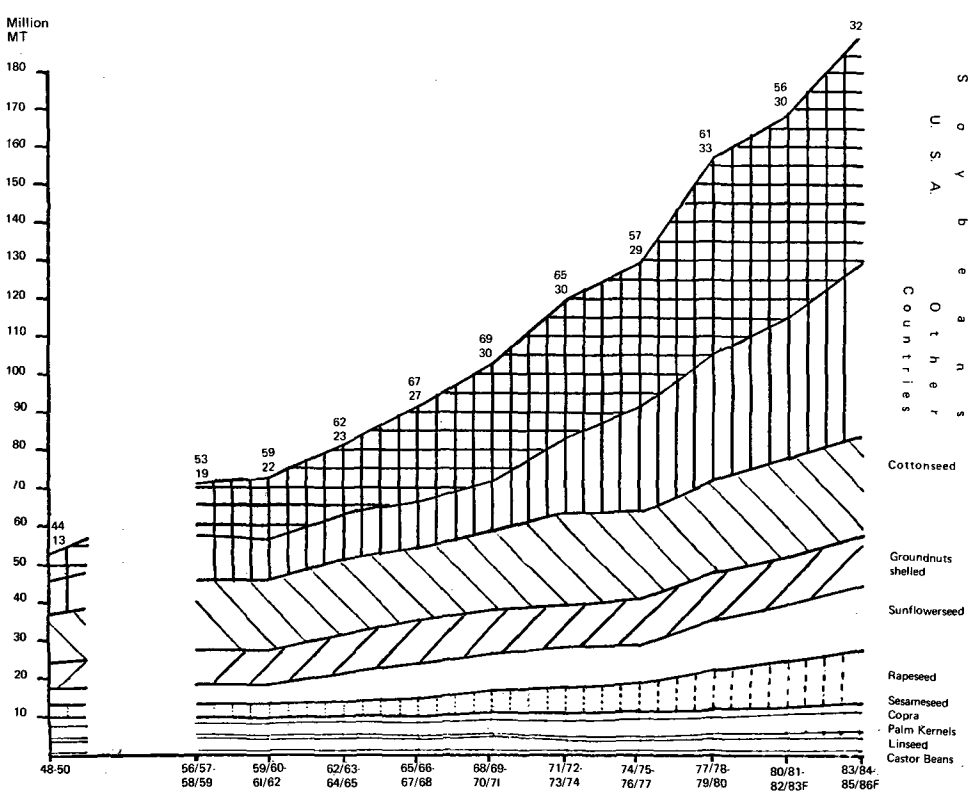


TABLE II

Twelve Major Oils: Potential World Production (a), Three-year Averages (Million Metric Tons)

	1948-1950	1956-1959	1965-1968	1974-1977	1977-1980*	1980-1983F	1983-1986F
Soybean oil	2.25	3.68	5.33	9.28	12.13	12.94	15.16
(USA) (b)	1.05	2.19	3.98	6.38	8.52	8.90	9.90
(USA % of total soybean oil)	46	59	75	69	70	68	65
Cottonseed oil	1.52	2.15	2.29	2.74	2.93	3.04	3.25
Groundnut oil	1.64	2.15	2.64	2.85	2.87	2.97	3.05
Sunflowerseed oil	1.18	1.69	2.96	3.55	4.64	5.38	5.90
Rapeseed oil	1.66	1.20	1.74	2.63	3.57	4.15	4.76
Sesame oil	0.61	0.50	0.54	0.63	0.64	0.68	0.68
Coconut oil	1.49	1.78	2.07	2.78	2.77	2.99	3.34
Palm kernel oil	0.39	0.45	0.35	0.51	0.56	0.63	0.68
Linseed oil	0.93	0.98	0.85	0.69	0.84	0.82	0.96
Castor oil	0.17	0.20	0.33	0.34	0.33	0.39	0.43
Total (d)	11.84	14.78	19.10	26.00	31.28	33.99	38.21
Palm oil (c,d)	0.55*	0.70	0.90	2.67	3.46	4.45	5.08
Grand total	12.39	15.48	20.00	28.67	34.74	38.44	43.29
±% vs. previous period			+12.4	+9.5	+21.2	+10.7	+12.6
Soybean oil, % of total	18	24	27	32	35	34	34
Soybean oil, from U.S. beans, total	8	14	20	22	25	23	23

*) Estimate. F) Forecast (a) Oil equivalent of the respective oilseed production after deducting estimated amounts used for seed, food and feed. (b) US soybean oil production plus soybean oil equivalent of US soybean exports includes any production from soybean stock reduction but excludes any production from soybean stock increase. (c) Actual output. (d) Commercial output.

through the mid-1980s, which should about equal production.

Soybeans' share of the world oilseed market will rise to 55% from 53%, he forecast, with other major oilseeds being cottonseed, sunflower, peanut and rapeseed, respectively.

South American soybean production should be 25 to 27 million tons by 1985, compared to 1979's 15 million tons, he said. Only about one-sixth of Brazil's arable land is presently under cultivation, but as soybean acreage expands to the north there. so will costs, Nichols said. Lack of a cold climate means some diseases, weeds and insect larvae will not be killed by winter frosts as they are in the U.S., Nichols said, and longer daylight hours mean slower yields. Most of Argentina's fertile land is cultivated, he said, with increased soybean acreage having to come at the expsnse of corn, an important Argentine crop. Soybean production could total 7.5 million tons by 1985, he said, depending on price ratios. Paraguay's 450,000-ton soybean crop in 1979 could drop to 5 to 10 million tons by 1985, but much land remains to be cleared. Transportation, credit and agronomy all need to be improved.

Non-American producer nations are unlikely to be soybean exporters by 1985, Nichols said. Chinese production has stagnated at 11 to 12 million tons a year recently with no indications of expansion in the 1980s. The USSR production of 400,000 to 800,000 tons in recent years is needed domestically.

Holz said he was "cautiously optimistic" for soy's growth potential during the 1980s, based principally on continued world population growth triggering increased demand.

Increased petroleum costs, he said, may mean more soybean oil will be used for industrial fatty acids, encourage growth of natural rubber in Malaysia, lead to a reduction in use of inorganic nitrogen (urea) in feeding, and raise nitrogen fertilizer costs to where more soybeans would be planted.

Holz and Nichols both said increased yields and good marketing will be required of U.S. soy growers during the 1980s.

The ASA meeting attracted approximately 1,500 registrants. The voting delegates approved several resolutions, including one calling for the government to require specific labeling of sources of fats and oils in consumer goods.

TABLE III

Ten Major Oilmeals: Potential World Production (a), Three-year Averages (Million Metric Tons)

	1948-1950	1956-1959	1965-1968	1974-1977	1977-1980*	1980-1983F	1983-1986F
Soybean meal	9.88	16.20	23.44	40.82	53.34	56.93	66.67
(USA) (b)	4.97	9.65	17.73	28.02	37.20	39.00	44.00
(USA % of total soyameal)	50	60	76	69	70	68.5	66
Cotton meal	5.03	7.12	7.58	9.09	9.72	10.07	10.75
Groundnut meal	2.27	2.98	3.67	3.95	3.98	4.13	4.23
Sunflower meal	1.72	2.36	3.81	4.32	5.69	6.56	7.19
Rapeseed meal	2.62	1.90	2.76	4.15	5.65	6.56	7.53
Sesame meal	0.72	0.60	0.64	0.75	0.77	0.81	0.81
Copra meal	0.88	1.05	1.22	1.63	1.63	1.76	1.97
Palm kernel meal	0.45	0.52	0.41	0.59	0.66	0.74	0.79
Linseed meal	1.79	1.90	1.65	1.34	1.63	1.58	1.85
Fish meal (c)	0.57(d)	1.67(e)	4.53	4.48	4.40	4.50	4.60
Total (e)	25.93	36.30	49.71	71.12	87.47	93.64	106.39
±% vs. previous period			+15.2	+8.4	+23.0	+7.1	+13.6
Soybean meal, % of total	38	45	47	57	61	61	63
Soybean meal, from U.S. beans, % of total	19	27	36	39	43	42	41

*)Estimate. F) Forecast. (a) Meal equivalent of the respective oilseed production, after deducting estimated amounts used for seed, food and feed. (b) U.S. soybean meal production plus meal equivalent of U.S. soybean exports includes any production from soybean stock reduction but excludes any production from soybean stock increase. (c) Actual output. (d) 1948. (e) 1958-59 average.

Oilseeds Production: World and Selected Countries, Regions, and Commodities

Commodity	Major regions and countries: North America		Western Europe	Eastern Europe	USSR	Centrally planned Asia	South Asia		Middle East and Africa			Latin America and Caribbean			Total for major regions and countries	Other countries and regions	World	World less United States	Major foreign competitors[d]
	Canada	United States				PRC	India	Pakistan	Egypt	Senegal	Sudan	Argentina	Brazil	Paraguay					
	Million metric tons														*Million metric tons*				
Cottonseed																			
1977-78	---	5.01	.39	.42	5.14	4.10	2.54	1.12	.89	---	.36	.47	.93	.18	21.55	4.94	26.49	21.48	4.30
1978-79[a]	---	3.80	.36	.40	4.93	4.26	2.80	.96	.84	---	.34	.41	1.03	.19	20.32	4.72	25.04	21.24	4.58
1979-80[b]																			
July est.	---	4.19-4.95	.32	.40	5.17	4.34	2.75	1.28	.84	---	.34	.41	1.03	.19	21.62	4.82	26.44	21.89	4.53
Peanuts																			
1977-78	---	1.69	.02	---	---	2.55	6.07	.07	.03	.68	1.02	.37	.32	.02	12.84	4.35	17.19	15.50	8.46
1978-79[a]	---	1.80	.02	---	---	2.55	6.20	.07	.03	1.10	.83	.57	.43	.02	13.62	4.39	18.01	16.21	9.13
1979-80[b]																			
July est.	---	1.74-1.93	.02	---	---	2.55	6.00	0.06	0.03	1.20	1.10	.58	.45	.02	13.84	4.78	18.62	16.79	9.33
Sunflowerseed																			
1977-78	.08	1.33[c]	.52	1.93	5.90	.07	---	---	.01	---	---	1.60	---	---	11.44	1.28	12.72	11.39	3.53
1978-79[a]	.11	1.84[c]	.59	1.98	5.31	.07	---	---	.01	---	---	1.30	---	---	11.21	1.09	12.30	10.46	3.28
1979-80[b]																			
July est.	.17	3.14-3.47	.72	2.10	5.50	.07	---	---	.01	---	---	1.50	---	---	13.37	1.23	14.60	11.30	3.60
Rapeseed																			
1977-78	1.94	---	1.27	1.30	.02	1.38	1.62	.24	---	---	---	---	---	---	7.77	.26	8.03	8.03	1.94
1978-79[a]	3.41	---	1.59	1.38	.02	2.03	2.00	.26	---	---	---	---	---	---	10.69	.30	10.99	10.99	3.41
1979-80[b]																			
July est.	4.46	---	1.45	1.08	.02	2.00	2.00	.26	---	---	---	---	---	---	11.27	.31	11.58	11.58	4.46
Soybean																			
1977-78	0.53	47.95	---	.40	.54	9.50	.15	---	---	---	---	2.70	9.95	.28	72.00	2.30	74.30	26.35	12.93
1978-79[a]	0.48	50.15	---	.51	.64	10.50	.20	---	---	---	---	3.80	11.00	.38	77.66	2.41	80.07	29.92	15.18
1979-80[b]	0.52	52.66	---	.53	.60	10.50	.25	---	---	---	---	4.50	13.50	.55	86.33	2.69	89.02	33.64	18.55
July est.		57.97	---																

[a]Estimated and preliminary.

[b]Projected based on trends and judgement. For the United States, relatively favorable and unfavorable production conditions are alternatively assumed, *not* U.S. Crop Reporting Board Forecasts.

[c]Assumes reported production for four States representing 94 percent of U.S. total in 1977-78 and 95 percent in 1978-79.

[d]Countries included: India, Sudan, Argentina, and Brazil for cottonseed; Eastern Europe and Argentina, sunflowerseed; and Canada, rapeseed; India, Senegal, Sudan, Argentina, and Brazil, peanuts; and Argentina, Brazil and Paraguay, Soybean.

---No production reported or less than 5,000 tons.

Technical News Feature

Odor Control in Edible Oil Processing

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ABSTRACT

The problems with odor around a typical edible oil deodorizer are discussed in detail, and a three-step solution to eliminate these problems is presented. The three steps are a distillate recovery system which recovers most of the fatty acid in the deodorizer vapor discharge as a valuable byproduct, a closed loop barometric cooling water system which keeps the fat-laden hotwell water out of the cooling tower by recirculating it back to the vacuum system after cooling with tower water in a heat exchanger, and a vapor scrubbing system to eliminate volatile organic compounds which are not removed in the previous two steps.

INTRODUCTION

Identifying the source of the odor and the low threshold of odor of many contaminants makes odor control one of the most difficult of all air pollution control problems. These problems can be solved, however, in certain applications where the source of the odors is well known. As an example, a chemical reactor may produce hydrogen sulfide as a byproduct. In this case, the nature of the odor-causing contaminant is well understood and the treatment equipment is specifically selected for that contaminant. The problem becomes more confused as the complexity of the odor-causing emission increases. In pulp digestion systems used in the paper industry, reduced sulfur compounds as well as hydrogen sulfide are produced. While the nature of these compounds will vary with the wood being digested and the process conditions, the odor emissions still fall into a known class of compounds, and quantitative methods can be applied to solve the odor problems.

As the number of contaminants and their nature diversifies, the measurement of these contaminants becomes impossible. Unfortunately, the emissions from a typical edible oil deodorization system would fall into this category. Deodorization is the last major refining step in the processing of most edible oils. Although various commercial schemes are available, all deodorization systems involve the basic principles of steam stripping the oil under high vacuum and temperatures to drive off various volatile compounds. These compounds, which include free fatty acids, aldehydes, and other trace components, all contribute to "off-flavor" oils. Even if methods could be developed to identify all of these components, the ones actually present and their concentration would change for each different oil, different source of the oilseeds, growing conditions of the seeds, and operating variations in caustic refining, bleaching, hydrogenation, or other processing steps which precede the oil deodorization.

The other problem is the low concentrations for threshold of odor of many of these compounds. Many can be detected at the very low parts per million and some even at parts per billion concentration levels. No analytical device has been developed to date which can quantify odor values. The best sensing device is still the nose; and noses can vary in their sensitivity.

The organic material discharging from an edible oil deodorizer can be divided into three component groups. The first group involves condensables, the components that will condense between the deodorization and their solidification temperatures; the second group includes those that are condensed and which solidify when cooled to a lower temperature by contact with the vacuum system condensing water; and the final category includes those which remain volatile even at this lower temperature. Control of the odor problems in the vicinity of the deodorization system caused by all three categories requires different approaches. Each group will be discussed below with particular emphasis on the third, noncondensable portion, which often proves the most difficult to control.

THE DISTILLATE RECOVERY SYSTEM

The condensable organic components, usually called distillate, have been recovered in distillate recovery systems for almost 20 years. In the case of soybean and other unsaturated oils, these distillate recovery systems not only reduce the contaminants in the deodorizer discharge but also provide a valuable byproduct for sale. As recently as February 1977, one company has advertised their need for this material and has even offered technical assistance in selecting the recovery method (1). A second user is also known to be actively seeking this material (W.R. Vicars, Tennessee Eastman Co., personal communication, May 1977).

The typical distillate recovery system is shown in Figure 1. It consists of a tower located between the deodorizer and the first water condensing stage of the vacuum system. In the tower, deodorizer effluent is cooled by direct contact with a stream of circulating distillate, which causes 90-95% of the condensable organic material to condense. The circulating distillate is then cooled to remove the heat of condensation before returning to the tower. Excess distillate is sent to storage so the level in the tower remains constant, and the temperature of the circulating distillate is

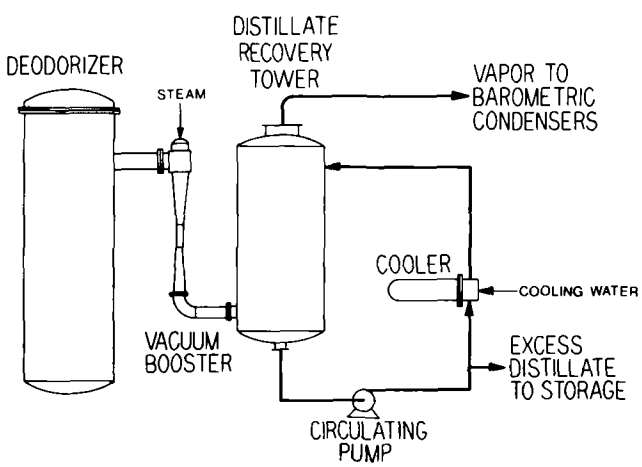


FIG. 1. Deodorizer distillate recovery system.

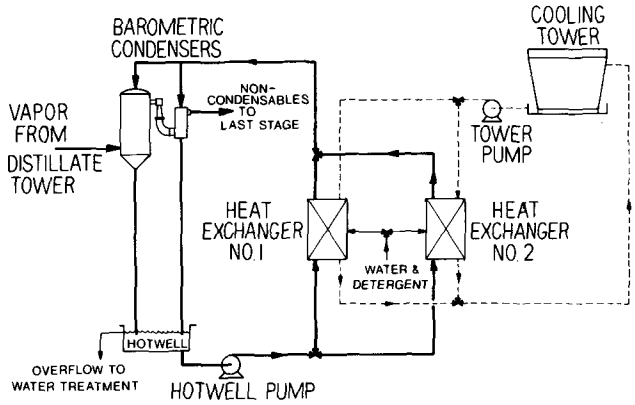


FIG. 2. Condenser water recycling system.

TABLE I

Typical Volatile Substances in Soybean Oil Deodorization[a] (Partial List)

Component	Odor description
Acetaldehyde	Fruit odor, pungent
Dimethyl sulfide	Disagreeable odor
Ethyl acetate	Fragrant
2-Butanone	Acetone-like
Diacetyl	Strong
Acetic acid	Pungent
N-Hexanal	Aldehyde-like
Acetoin	Aroma carrier
5-Methyl-2-hexanone	Pleasant
Butyric acid	Penetrating and obnoxious
2-Heptanone	---

[a]From Reference 2.

also carefully controlled to recover as much of the condensables as possible, to prevent any components of the circulating stream from solidifying, and to prevent condensation of the vacuum system steam.

THE CONDENSER WATER RECYCLING SYSTEM

The organic material exiting the distillate tower, because it will not condense at the tower operating conditions or is entrained in the exit vapor, flows to the first condensing stage of the vacuum system. The portion of this material that will condense and solidify when in contact with the condensing water has been one of the oil processors biggest headaches with deodorizing systems. Typically, many of these deodorizers have used closed circuit water systems where the hotwell water is reused in the vacuum system condensers after being cooled in a cooling tower. Although the discharge of the distillate tower contains only a small amount of organic material, it has tended to accumulate both in the hotwell and in the cooling tower causing both pollution and maintenance problems. Initially, high efficiency packed cooling towers were used in these systems; however, many of these had to be abandoned as the organic material would build up on the packing substantially reducing the tower efficiency and causing a serious odor problem around the tower. Therefore, many current installations use unfilled, higher cost towers in an attempt to solve this problem. Although these towers do reduce the maintenance required, there is still an odor problem as some of the components of the organic material become volatile when sprayed into the tower. Particularly in populated areas, or in those states which rigidly enforce odor emission standards, a method of eliminating this problem must be found.

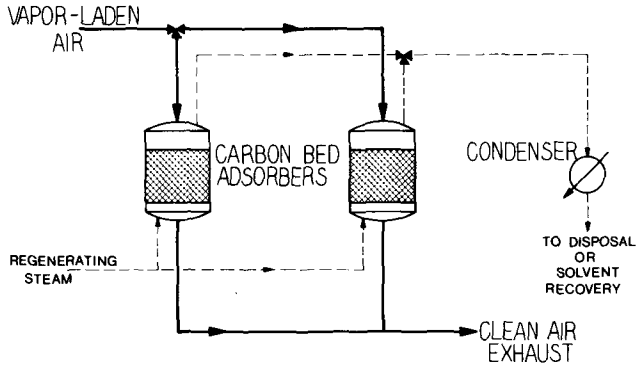


FIG. 3. Carbon bed adsorption.

Figure 2 shows a closed loop system, in which the tower operates only with clean water that has been introduced in several locations. In this system, the hotwell water is not pumped to the cooling tower but to a heat exchanger, where it is cooled with tower water before returning to the vacuum system. There is no direct contact between the water streams so the tower water remains clean, and high efficiency, lower cost packed towers can be used in new installations, or packing installed in existing towers for increased cooling capacity. In anticipation of heat exchanger fouling because of the dirty hotwell water, two units are provided. When fouling begins, the flows are switched to the clean exchanger and the dirty unit is cleaned by back flushing with hot water which may contain a detergent. The entire system, including the cleaning cycle, can be put on automatic control relieving the operator of any additional duties.

ODOR CONTROL OF NONCONDENSABLES

The distillate recovery and condensing water recycling systems remove most of the odor-causing compounds in the deodorizer effluent but do not effect volatile compounds which pass through these systems and into the atmosphere. In a typical deodorizer installation they exit in the final, noncondensing stage of the vacuum system which is usually discharged into the hotwell just below the water surface. Table I lists some of these components that have been identified for soybean oil deodorization. They are believed to be a significant contributor to the odor around the deodorizing system.

The three techniques that are used for odor control of noncondensable materials in industrial process applications are wet scrubbers, carbon bed systems, and thermal incineration. A typical carbon bed system is shown in Figure 3. It relies on the adsorption of the organic contaminant on the surface of activated carbon particles. Once the bed is loaded with organic material, it is regenerated by steam stripping the organics off of the bed. This process is particularly useful for solvent systems since the solvents can be condensed and recovered during the regeneration cycle.

Carbon beds have not been applied successfully to edible oil processing because of two major problems. The first problem is the heat load in the steam being discharged from the deodorizer vacuum system. A carbon bed system cannot accept high temperature gases since high temperatures reduce the bed's capacity for organic material. The final vacuum stage discharge would first have to be cooled to a temperature of ca. 38 C in a separate condensing system to allow the effective use of carbon adsorption.

Most carbon systems have two towers; one is on-stream while the second is being regenerated. It is during regeneration that the second problem develops in using carbon systems for odor control in edible oil processing. In most

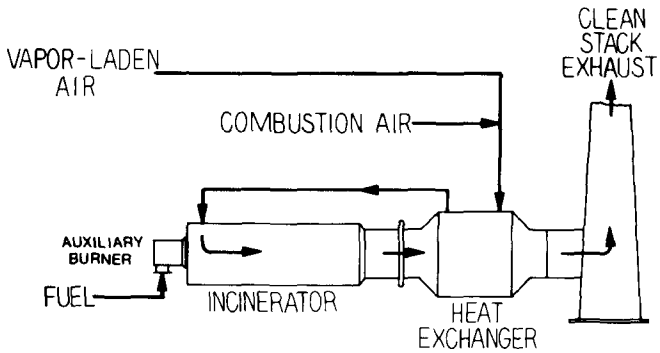


FIG. 4. Thermal incineration with heat recovery (3).

installations the regeneration of the bed is accomplished by steam stripping the organics from the carbon followed by condensing of the steam and organics. However, in this case, the odor-causing compounds are volatile, would not condense, and therefore further treatment would be required. For treating extremely large air volumes, such a system is possible. For example, carbon can be used to remove odor from large ventilation systems. The quantity of steam that is used for regeneration is much less than the air flow, and secondary treatment of the condensed regenerating stream is economical. This is a special case and does not apply to the smaller volumes treated in edible oil deodorization.

Thermal incineration is another technique which is used for odor control. Where all of the compounds can be incinerated and recovery is not warranted, this technique eliminates a discharge of any kind.

A thermal incineration system, shown in Figure 4, relies on natural gas or oil as a fuel. Typically, the exit gas from the process must be heated to 704-816 C and retained at that temperature for ca. .3 to .4 sec. Some of the energy can be recovered through a fuel gas to combustion air-exchanger on the discharge, but efficiency of such units is only ca. 50%. Thermal incineration is particularly suited to systems that involve ventilation flows containing a high percentage of organics. This reduces the fuel quantities required to a minimum as the organics are available to the system as fuel.

The cost and availability of energy make thermal incineration a very doubtful technique for control of odor compounds from the vacuum deodorization. Since incineration is an energy-consuming process, its use must be limited to systems where a high percentage of the fuel is available from the process itself. It is also a very sensitive process where misadjustment can partially oxidize the exit products rather than burn them completely. For example, partial oxidation of an aldehyde could convert it to an organic acid which may have a lower threshold of odor.

Wet scrubbers offer the best solution for eliminating noncondensable odor compounds coming from edible oil deodorization. A wet scrubber is a device where a liquid is used to contact the gas and absorb the soluble components or capture any solid particles. Scrubbers normally consist of two components; the first section is a contacting zone where the vapor or particle is captured, and the second section is a disengaging zone where the liquid is eliminated from the cleaned gas. Almost all scrubbers have these two sections in some arrangement. Scrubbers can also be used to cool the gas and are extremely flexible when installed as they can be adjusted as process conditions change.

The design of wet scrubbing systems involves the determination of the scrubbing liquid and selection of the proper sized unit to assure sufficient contact time between the liquid and gas for the required removal efficiency. As noted earlier, it is difficult to quantify the exit contaminants or determine the percentage removal required to control odor. The only assured way of eliminating the odor is by pilot testing or examination of similar commercial installations.

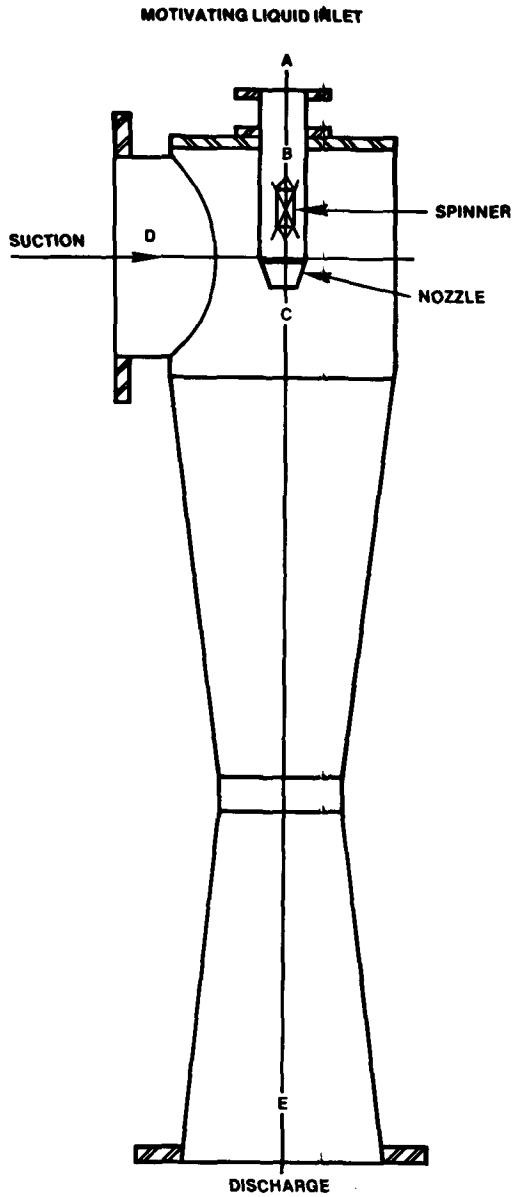


FIG. 5. Jet Venturi wet scrubber.

COMMERCIAL INSTALLATIONS OF WET SCRUBBERS

Two types of scrubbers have been used for odor control in edible oil deodorization systems, and these have been compared on the basis of actual results.

The Jet Venturi type fume scrubber (Fig. 5) has been employed in several commercial applications and consists of a spray nozzle which creates a hollow, cone-shaped liquid spray at the vapor inlet. The liquid and gas then enter the throat in a very turbulent state creating a further scrubbing action. For removing condensable fatty acids in a distillate recovery system, this type of scrubber has been very successful. Several installations were accomplished, and the results generally indicate a good removal of fatty acids and removal of some of the readily absorbed volatile components such as acetic acid. The odor at the discharge from the system was greatly reduced, but there was still a distinctive smell to the exit vapor. It appears that for low or moderately soluble

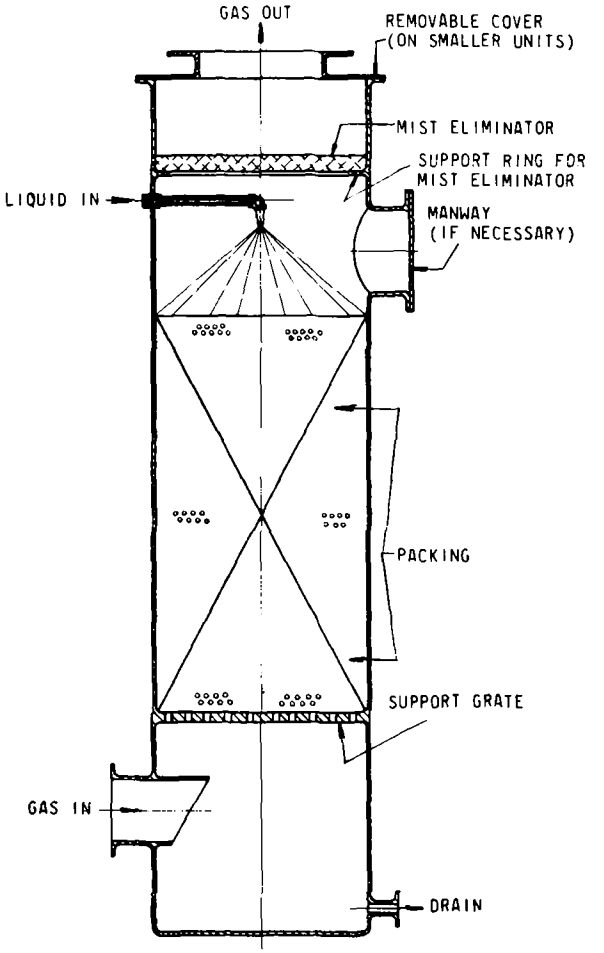


FIG. 6. Typical packed tower.

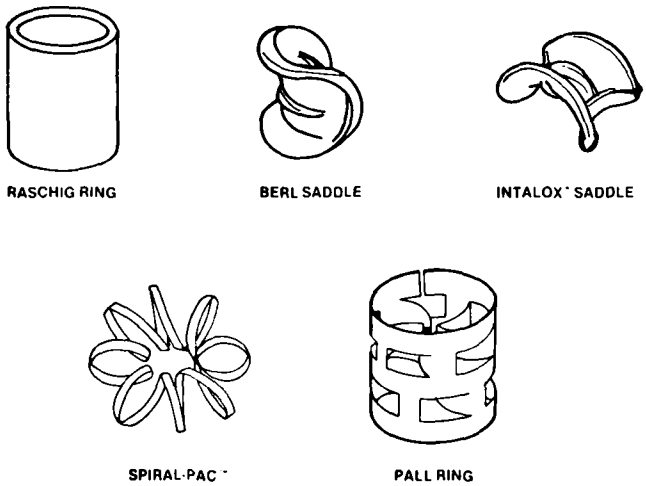


FIG. 7. Commercial types of tower packing.

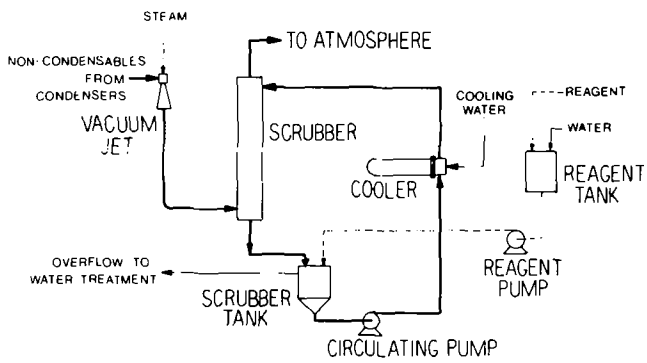


FIG. 8. Vapor scrubbing system.

organics there is insufficient contact time between the liquid and vapor to effect complete removal.

Packed towers provide this additional contact time and are particularly well suited to adsorption of small amounts of contaminants. In a typical packed tower (Fig. 6), the gas enters the bottom of the column and passes upward through a randomly filled bed of packing designed to provide a high surface area with high open space. The liquid is distributed over the surface of this packing and passes countercurrent to the gas. This allows the cleanest liquid to contact the most dilute gas and thus assures the highest possible efficiency. By increasing the height of the packed bed, the efficiency of the unit can be increased dramatically, however, pressure drop considerations limit most industrial applications to 3-10 feet of packing.

Figure 7 shows several common forms of packing. In the case of edible oil deodorization there is a potential for the presence of particles of fatty acid in the vapor, and, therefore, the spiral-pac packing is often used. Its open design allows the bed to handle a small amount of particulate without plugging.

Commercial installations of vapor scrubbing systems have shown that variations in the type of scrubbing solution used did effect the performance in most cases. Alkaline solutions, particularly caustic, are often used as the sodium hydroxide will neutralize acids to the sodium salts which, in many cases, have higher solubility in the scrubbing medium. Solutions containing oxidizing agents such as sodium or calcium hypochlorite or potassium permanginate are also used. The reaction in this case is a two-step operation. First, the contaminant must be absorbed into the solution; and second, it will be oxidized to a more soluble form or neutral form. For example, a ketone can be oxidized to an acid which would be more readily soluble. In some cases, the advantages of both types of scrubbing liquid are employed. For example, sodium hypochlorite stabilized in an alkaline solution is an excellent scrubbing liquid because both the oxidization and neutralization reactions take place with the gas contaminants.

Wet scrubbers have high liquid-to-gas ratios, so a recycle system is necessary where treatment chemicals are employed.

A recent installation of a packed column to handle the noncondensable odor-causing compounds from the final stage of a deodorizer vacuum system involved a unit installed by EMI Corporation at PVO International in Richmond, CA, shown schematically in Figure 8. The bottom of the packed column serves as a hotwell to condense inlet steam vapors and also provides some gas absorption as the gas bubbles up through the liquid. The remainder of the vapor then passes through the actual packed bed section where it is contacted by a countercurrent liquid stream. The liquid collects in a small storage tank, is pumped through a heat exchanger for cooling, and then is recirculated back to the tower. The result has been good odor control.

The system was initially installed using water as the scrubbing medium, although fiberglass construction was used to allow for the future modification to other scrubbing liquids. After operation for approximately one-half day, the solution in the recirculating loop became saturated with contaminants as evidenced by a strong odor. At that time, calcium hypochlorite was introduced into the recirculating loop and eliminated the odor completely. Also, there was no evidence of odor exiting the top of the packed tower and discharging to the atmosphere.

The unit employed had a very high residence time in the packed bed. The initial condensing of the steam in the

lower section increased the efficiency of the tower since the total vapor flow in the packed section was reduced, thereby, increasing the residence time.

To prevent buildup of the reaction products, fresh water was added continuously to the scrubber tank to force a small amount of the circulating solution to the water treatment system. Although the rate of this overflow stream was not measured, it is believed to be less than 5% of the total contribution of the deodorizing system to the water treatment load. Changing from calcium to sodium hypochlorite is also being considered, particularly if continued operation indicates that the calcium in the system causes sufficient increase in water hardness to effect the operation of the water treatment plant or to cause scaling in the tower or piping.

REFERENCES

1. General Mills advertisement, JAOCS 54:53A (1977).
2. Brandt, P.E., and B. Horndrup-Jensen, Ibid. 52:278 (1975).
3. Ross, R.P., CEP 68(8):59 (1972).

[Received June 8, 1977]

Acids in thousand pounds

Month June 1979
Issued August 23, 1979
NUMBER OF MANUFACTURERS REPORTING 16

	FINISHED GOODS INVENTORIES (F) ON 5/31	PRODUCTION (A)	RECEIPTS (B)	DISPOSITION: Captive Consumption (C)	DISPOSITION: Domestic Shipments (D)	DISPOSITION: Inter-Industry Shipments (Ds)	DISPOSITION: Shipment for Export (E)	TOTAL DISPOSITION	FINISHED GOODS INVENTORIES (F) ON 6/30
Saturated (SP – Single Pressed; DP – Double Pressed; TP – Triple Pressed)									
STEARIC ACID (40-50% Stearic Content) (1)	7,542	10,815	1,548	4,063	SP 582 DP 4,519 TP 3,083	68	100	12,407	7,498
HYDROGENATED ANIMAL & VEGETABLE ACIDS – 60 C maximum titer & minimum I.V. 5 (2a)	4,903	9,385	–	–	8,119	–	157	8,276	6,012
HYDROGENATED ANIMAL & VEGETABLE ACIDS – 57 C minimum titer & maximum I.V. under 5 (2b)	3,595	13,085	2,240	6,675	7,792	41	180	14,688	4,232
HYDROGENATED ANIMAL & VEGETABLE ACIDS – Minimum Stearic Content of 70% (2c)	1,471	2,419	58	886	1,743	58	19	2,706	1,242
HIGH PALMITIC (Over 60% palmitic I.V. maximum 12) (3)	799	655	152	311	421	–	–	732	888
HYDROGENATED FISH & MARINE MAMMAL fatty acids (4)	462	342	–	100	419	–	–	519	285
LAURIC-TYPE ACIDS (I.V. minimum 5 Sapon val. minimum 246– including coconut, palm kernel, babassu) (5)	5,217	7,364	56	2,713	3,132	2,252	14	8,111	4,526
FRACTIONATED FATTY ACIDS – C_{10} or lower, including capric (6a)	676	1,366	2	185	757	120	2	1,064	980
FRACTIONATED FATTY ACIDS – Lauric and/or myristic content of 55% or more (6b)	2,291	1,547	55	955	611	58	–	1,624	2,269
TOTAL–SATURATED FATTY ACIDS	26,948	46,978	4,111	15,888	31,178	2,589	472	56,127	27,916
Unsaturated (ND – Not distilled; SD – Single distilled; MD – Multiple distilled)									
OLEIC ACID (red oil) (7)	14,658	14,272	726	7,240	ND 977 SD 5,078 MD 2,945	158	983	16,882	12,774
ANIMAL FATTY ACIDS other than oleic (I.V. 36 to 80) (8)	2,204	11,112	294	1,928	7,328	439	2	9,697	3,913
VEGETABLE OR MARINE FATTY ACIDS (I.V. maximum 115) (9)	3	–	43	43	–	–	–	43	3
UNSATURATED FATTY ACIDS (I.V. 116 to 130) (10)	5,303	6,219	–	626	3,934	–	2,245	6,805	4,717
UNSATURATED FATTY ACIDS (I.V. over 130) (11)	1,958	2,134	–	–	1,753	–	298	2,051	2,041
TOTAL UNSATURATED FATTY ACIDS	24,126	33,737	1,063	9,837	21,516	597	3,528	35,478	23,448
TOTAL ALL FATTY ACIDS SATURATED & UNSATURATED	51,074	80,715	5,174	25,725	52,694	3,186	4,000	86,605	51,358

JUNE 1979

Tall Oil Fatty Acids & Statistics

IN THOUSAND POUNDS	2% & OVER ROSIN CONTENT JUNE	Percent change from MAY 1979	LESS THAN 2% ROSIN CONTENT JUNE	Percent change from MAY 1979
Stock on Hand JUNE 1, 1979	20,184	+ 13.0	9,800	+ 21.6
Production	19,507	+ 4.5	20,881	– 3.5
Purchases & Receipts	1,416	+ 373.6	–	0
Disposition Domestic	15,061	+ 21.1	16,382	– 3.8
Disposition Export	4,894	+ 16.2	1,446	– 48.4
Total Disposition	19,955	+ 19.9	17,828	– 10.4
Net Disposition*	18,548	+ 13.4	17,828	– 10.4
Total Stock JUNE 30, 1979	21,151	+ 4.8	12,854	++ 31.2

*Net – Less purchases & receipts.
Definition: Fatty acids fractionated from crude tall oil having a minimum of 90% fatty acids, not including rosin acids. Primary fractions containing less than 90% fatty acids are classified as distilled tall oils.

Committee Spotlights

Flavor Nomenclature and Standards Subcommittee

A report was given on the collaborative study run this past year that compared the flavor results of four samples each of three sets of oils which had been light and temperature abused. The evaluations were made by five GLC procedures from four laboratories and the flavor panels of eight laboratories. The results indicated that the GLC methods were all more precise than any of the individual panels or the combination of all flavor panels. Only one of the GLC procedures (H. Dupuy) properly ranked samples according to abuse, but the two procedures used by Best Foods confused only one of the 12 samples which the flavor panels did not rank as significantly different. The remaining two GLC procedures mis-ranked samples that the flavor panels found to be significantly different. However, the values calculated from correlation equations for even the poorer GLC systems provided data well within the precision of the flavor panels.

The data proved that to obtain flavor panel scores from the GLC results, separate correlation equations must be developed for each type of oil, each abuse, each degree of hydrogenation or blending or manner of storage of the samples. Thus, a flavor panel would be needed to establish a reference point in each study. Since this would be too restrictive, it is the committee's decision that the GLC systems will be divorced from the flavor panel evaluations, and a means of reporting "GLC Flavor Quality" will be established such as ppm of total flavor volatiles.

The work of the committee for this year will center around a detailed comparison of the six available GC procedures as to their cost, speed, precision, etc. A single or two-method recommendation for future study should be ready for next year's meeting.

The compilation of the GLC method parameters once narrowed to a single or dual procedure will establish the collaborative study program for 1980. Since all participating laboratories would then have to assay by the proposed procedure, this procedure will have to use readily available equipment.

A similar evaluation is planned of the flavor panel score and characterization terminology so a method can be drawn as an AOCS procedure for flavor panels.

The following list is the current membership of the Subcommittee:

A.E. Waltking, Chairman
H.P. Dupuy
E.G. Hammond
G.A. Jacobson
E.R. Lowrey
D.B. Min
C.B. Pihl
T.H. Smouse
F.M. Vallise
F. Zwoboda
S.S. Chang
B. Eder
G. Hoffmann
R.G. Krishnamurthy
R.G. Manning
T.L. Mounts
J. Porkorny
D. Sullivan
K.A. Warner
J. Covey
R.G. Gallant
H. Jackson
S. Lin
W.A. May
J.T. Olejko
S.W. Schuller
A. Uzzan
V.C. Witte

SD&C Meetings

AOCS NATIONAL MEETINGS

Annual Meeting, 1980: April 27-May 1 – New York, NY, New York Hilton Hotel.
Annual Meeting, 1981: May 17-21, Fairmont Hotel, New Orleans, LA.
Annual Meeting, 1982: May 2-6, Sheraton Centre, Toronto, Ontario, Canada.
Annual Meeting, 1983: May 8-12, Chicago Marriott, Chicago, IL.

AOCS SHORT COURSES

AOCS Short Course on Soaps and Detergents, September 14-14-17, 1980, Hershey, PA.

1979

Dec. 6, 1979 – Ladies' Evening, "A Photographic Christmas Carol," Society of Cosmetic Chemists, Royal Society of Arts, 6-8 John Adam St., London WC2A 6AJ. Contact: M. Callingham, 56 Kingsway, London WC2B 6DX, UK.
Dec. 1979 – Chemical Specialties Manufacturers Association Incorporated, 66th Annual Meeting, Washington, DC. Contact: Chemical Specialties Manufacturers Association, 1001 Connecticut Ave., NW, Washington, DC 20036.

1980

Jan. 10, 1979 – "Detection and Estimation of Nitrosamines in Cosmetics and Toiletries," the Society of Cosmetic Chemists, Royal Society of Arts, 6-8 John Adam St., London WC2A 6AJ. Contact: M. Callingham, 56 Kingsway, London WC2B 6DX, UK.
Jan. 30-Feb. 3, 1980 – The Soap and Detergent Association Industry Convention, Boca Raton Hotel & Club, Boca Raton, FL. Contact: 475 Park Avenue South, New York, NY 10016, after October 6.
Feb. 7, 1980 – Joint Lecture with the British Society of Perfumers, "Significance of Perfume Compounds in Product Concept for Toilet Soaps," the Society of Cosmetic Chemists, Royal Society of Arts, 6-8 John Adam St., London WC2A 6AJ. Contact: M. Callingham, 56 Kingsway, London WC2B 6DX, UK.
Feb. 15, 1980 – Society of Cosmetic Chemists' Annual Dinner and Dance, London Hilton Hotel, Park Lane, London W1. Contact: M. Callingham, 56 Kingsway, London WC2B 6DX, UK.
Mar. 6, 1979 – Medal Lecture, the Society of Cosmetic Chemists, Royal Society of Arts, 6-8 John Adam St., London WC2A 6AJ. Contact: M. Callingham, 56 Kingsway, London WC2B 6DX UK.
Apr. 10, 1980 – "X-Ray Technique in Cosmetic Science," Northern Lecture, the Society of Cosmetic Chemists, Post House Hotel, Sandiacre, Nottingham, England. Contact: M. Callingham, 56 Kingsway, London WC2B 6DX, UK.
Apr. 10-11, 1980 – Detergents in Depth, 4th Diennial Symposium, sponsored by The Soap and Detergent Association, 475 Park Ave., South, New York, NY 10016.
Apr. 14-16, 1980 – Symposium: "Recent Advances in Cosmetic Science," the Society of Cosmetic Chemists, Assembly Rooms, Bath, England. Contact: M. Callingham, 56 Kingsway, London WC2B 6DX, UK.
Sept. 22-26, 1980 – 11th Congress of International Federation of Societies of Cosmetic Chemists, Venice, Italy. Contact: IFSCC, P. Salzedo, 56 Kingsway, London WC2B 6DX, England.

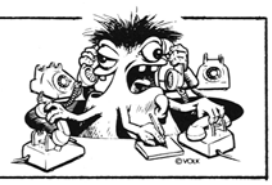
1981

Jan 28-Feb. 1, 1981 – The Soap and Detergent Association Industry Convention, Boca Raton Hotel & Club, Boca Raton, FL.

1982

Jan. 27-31, 1982 – The Soap and Detergent Association Industry Convention, Boca Raton Hotel & Club, Boca Raton, FL. ●

SD&C Industry News



Fed regs topic for cosmetic meeting

Dr. David Taber will speak on the impact of potential FDA regulations to an Oct. 9 meeting of the Midwest Chapter of the Society of Cosmetic Chemists.

Taber, founder of a consulting firm, will speak on the proposed "good manufacturing practices" that are expected to be proposed for the cosmetic industry and how industry may respond.

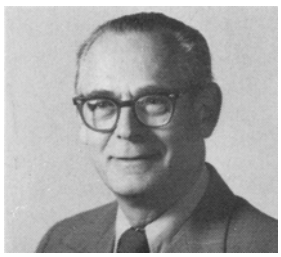
Registrations should be made through Jack Herkel or Bill Ullrich at Alpine Aromatics International, 2625 Butterfield Road, Oak Brook, IL (telephone: 312-290-8444). Cost for the dinner meeting will be $11. A site had not yet been selected at press time. ●

SDA to sponsor award for top technical publication

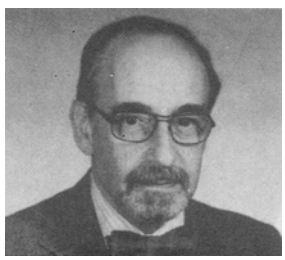
The Soap and Detergent Association of the U.S. will present an award during the ISF/AOCS World Congress next spring for the best technical paper appearing in the Soap, Detergent and Cosmetic Section of the Journal of the American Oil Chemists' Society during 1979.

The award will consist of a suitably engraved plaque, presented by a representative of the SDA during the meeting to be held April 27-May 1, 1980, at the New York Hilton at Rockefeller Center. The recipient will be chosen based on criteria to be developed under direction of AOCS' Director of Publications, Dr. A.R. Baldwin. ●

"Detergents Eight-O"

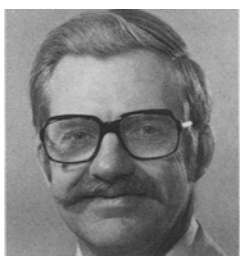


I.R. Schmolka



A. Cahn

H. Stupel



T. Matson

H. Brown

G. Wentler

J. Bohrer

A seven-person committee will be responsible for the AOCS 1980 short course on Soaps and Detergents to be held Sept. 14-17, 1980, at the Hotel Hershey in Hershey, Pennsylvania.

"Detergents Eight-O-Meeting the Needs of the 80s" is the title for the short course.

General chairman is Dr. Irving R. Schmolka, research associate at BASF Wyandotte Corporation in Wyandotte, MI. Dr. Schmolka, a member of the AOCS for more than two decades, has been active in previous AOCS short course committees.

Serving as session chairman will be four more veteran AOCS members:

- Dr. Arno Cahn, director of development of the Household Products Division, Lever Brothers, Edgewater, NJ. Dr. Cahn was a speaker at the 1977 World Conference on Soaps and Detergents, as well as a member of the program/steering committee for that meeting.
- Dr. Helmut Stupel, consultant for detergent products, Shell Chemical Co., Houston, TX. Dr. Stupel was a session chairman for the Montreux conference and a member of the program/steering committee. He was one of the first persons named to consultant status at Shell, the highest technical post attainable at the firm.
- Ted Matson, group leader for surfactants, at Continental Oil Co. in Ponca City, Oklahoma. Matson also serving as a session chairman in Montreux and was on the program/steering committee.
- Herman Brown, vice president for marketing with Finetex, Inc. of Elmwood Park, NJ. Brown has previously been a speaker for AOCS short courses.

Rounding out the committee are Dr. George Wentler of Procter & Gamble and James Bohrer of Colgate-Palmolive Co. Wentler is serving as publicity chairman. He is with P&G's package soap and detergent division at the Ivorydale Technical Center in Cincinnati, OH. Bohrer, who will be house chairman, is a senior research chemist with Colgate in Piscataway, NJ. ●

Australian Soap and Detergent establishments grow

The Australian Bureau of Statistics latest figures on the soap and detergent industry in that nation indicate the number of manufacturing establishments increased to 130 in 1976-77 from 123 in 1975-76, according to a newsletter of the Australian Chemical Specialty Manufacturers Association.

The industry employs 5,801 persons, the report said, with the value added by manufacturing amounting to about $150 million (US $166 million). At the 1977 World Conference on Soaps and Detergents, Albright & Wilson's Peter Strasser estimated 1976-77 soap production at 57,700 tons and synthetic-based detergent production at 200,500 tons. ●

CBS' Ray Brady to address SDA

Ray Brady, CBS News business commentator, will be the speaker at the opening breakfast session of the Soap and Detergent Association's 53rd Industry Convention to be held Jan. 31-Feb. 3, 1980, at the Boca Raton Hotel & Club in Boca Raton, Florida.

Brady's topic will be "The Outlook for the Economy." Speaker at the Saturday morning breakfast will be Richard Scammon, director of the Elections Research Center in Washington, DC, on "The 1980 Political Scene."

Friday's general program session will feature: James H. DeNike, vice-president oil products, Shelly Oil Company, "An Update on the U.S. Energy Situation;" Sender Hoffman, senior vice-president of Yankelovich, Skelly & White, "The Social Climate of the 1980s;" and Dr. Murray L. Weidenbaum, director of the Center for the Study of American Business, Washington (St. Louis) University, "Over-Regulation and Business Response."

Concurrent program sessions Saturday will include: Robert L. Huddleston, environmental group research leader at Conoco, "LAS Biodegradability: Fate of the Aromatic Ring – Part 2;" Emile F. Harp, vice-president and director of engineering, Armak Company, "Impact of RCRA on Industry;" Kirby Hendee and Thomas Duffy, SDA legislative representatives for Wisconsin and Illinois, respectively, "How Business Can Work With State Legislatures;" and Charles Kline, president of Charles Kline & Co., "The Twin Faces of Cleaners: Consumer and Industrial."

Advance registration and housing forms are available from The Soap and Detergent Association, 475 Park Avenue South, New York, NY 10016. ●