every aspect of ganglioside diseases from the clinical, pathological, and genetic components of various disorders to the observed and theoretical effects of enzyme deficiencies. 277 pp. $22.50. 1975.

Immobilized Biochemicals and Affinity Chromatography. Edited by R. Bruce Dunlap. Vol. 42 in *Advances in Experimental Medicine and Biology.* This work discusses the potential of this new process in the purification of enzymes and proteins, in the employment of immobilized enzymes as useful catalysts, and in the study of three-dimensional configurations of proteins and enzymes. Approx. 360 pp. $22.50. 1974.

Immobilized Enzymes in Food and Microbial Processes. Edited by Alfred C. Olson. Reporting on current trends in the rapidly expanding field of enzyme engineering, this innovative volume explores the latest theoretical and practical advances in research on immobilized enzymes in food and microbial processes. The proceedings of an A.C.S. symposium held in Chicago, August 26, 1973. Approx. 260 pp. $18.50. 1974.

Immobilized Enzyme Technology: Research and Applications. Edited by Howard H. Weetall and Shuichi Suzuki. The potential value of immobilized enzymes in analytical, medical, and industrial processes is stimulating wide interest in scientific communities throughout the world. This volume presents up-to-date reports on research and development of immobilized enzyme technology in both Japan and the US. In addition, this important book reviews the fundamental theory of immobilized enzymes and chemical engineering aspects of enzyme engineering.

Journal: Chemistry and Technology of Fuelds and Oils. Translated from Russian journal, *Khimiya i Tekhnologiya Topliv i Masel.* Published bi-monthly. Subscription rate: $235.00.

Methods in Membrane Biology. Vol. 4. *Biophysical Approaches.* Edited by Edward D. Korn. The fourth volume in this series examines the determination of the molecular arrangements of membrane lipids and proteins and the study of the dynamics of their interrelationships by means of two physical methods—fluorescence spectroscopy and differential scanning calorimetry. Approx. 330 pp. $22.50. 1975.

Methods in Membrane Biology: Transport. Vol. 5. Examining transport in membranes, Vol. 5 reviews the functions and forms of this vital phenomenon and analyzes the theoretical bases and experimental practicality of various methods of measurement. The different advantages of using intact cells or isolated membrane vesicles in transport studies are fully discussed. Approx. 200 pp. $19.50. 1975.

Permeability of Plastic Films and Coatings to Gases, Vapors, and Liquids. Edited by Harold B. Hopfenberg. This volume deals with the solution, diffusion and permeation of gases, vapors and liquids in a wide variety of synthetic polymer films. The proceedings of the Borden Award Symposium of the Division of Organic Coatings and Plastic Chemistry of the American Chemical Society, honoring Professor Vivian T. Stannett, held in Los Angeles, April, 1974. 482 pp. $37.50. 1974.

The Practice of NMR Spectroscopy. Edited by Nugent F. Chamberlain. Of interest to biochemists, molecular biologists, pharmaceutical scientists, pharmacological scientists, medical research workers, neurochemists, neuropharmacologists, geochemists, pollution research workers and others. 424 pp. $29.50. 1974.

The Prostaglandins. Edited by Peter Ramwell. Vol. 2. Recent research on the chemistry of prostaglandins is generally challenging, new problems to biochemists. Critically examining the most recent developments in the field, Vol. 2 provides a review of the literature to date and a systematic and interdisciplinary approach to this growing field. 350 pp. $29.50. 1974. ■

Polyethylene in Fats and Oils

Laboratory General Information Method
Revision 4, Proposed Procedure

Definition: This method determines polyethylene present in Fats and Oils by a gravimetric procedure. A fat-chloroform solution is filtered to remove polyethylene and other chloroform insoluble matter. Polyethylene then is dissolved in hot tetrachloroethylene, filtered, and precipitated by addition of cold methanol. The resulting precipitate is isolated and weighed as polyethylene.

Scope: Applicable to fats and oils.

A. Apparatus:
1. Two (2) beakers; 600 ml and 400 ml.
2. One (1) California Modified Buchner funnel, size 7.0 cm internal diameter (ID) (Labconco, 8811 Prospect Road, Kansas City, MO); 1 porcelain Buchner funnel, size #1, 56 mm ID.
3. Two (2) vacuum filtering flasks, 1 liter and 500 ml.
4. Metal retaining rings: Size #1—7.0 cm outer diameter (OD) x 5 cm length x 3.0 mm wall thickness; and Size #2—5.4 cm OD x 4.0 cm length x 2.0 mm wall thickness (G & G Mfg. Co., 7006 SW 14th Ave., Des Moines, IA 50315).
5. Filter paper: Glass Fibre, 7.0 cm and 5.5 cm; Reeve Angel #934-AH or Whatman Type GFA, predried at 150 C, Store Indessic; Whatman #4—5.5 cm or equivalent.
6. Three (3) wash bottles, Guth Universal, 500 ml, hand operated with Kool-Grip neck; or equivalent.
7. Filter aid, official diatomaceous earth of AOCS.
8. Hot plate
9. Drying oven, 105 C.
10. Cold water bath, 10 C maximum.

B. Reagents:

Chloroform, reagent grade
Tetrachloroethylene, reagent grade
Methanol, reagent grade

C. Procedure:
1. Warm, or cool sample to 40 C ± 2 C and agitate thoroughly until a uniform homogeneous mixture is obtained. This should be followed for each individual sampling.
2. Immediately weigh 100 ± 0.5 gm of sample to be analyzed into a 600 ml beaker. (See note #1 for weighing instruction.)
3. Add 300 ml chloroform. Stir until fat is completely dissolved. Add 2.0 ± 0.1 gm filter aid; mix until completely dispersed. DO NOT HEAT.
4. Attach the California Modified Buchner funnel to a 1 liter filtering flask. Place 2 pieces of 7.0 cm fiber glass paper and size 1 retainer ring in the funnel. Pre-wet filter paper with chloroform prior to filtration. Apply gentle suction and pour the mixture rapidly into the funnel, taking care to keep it from going dry.
5. Wash beaker, retainer ring, and paper thoroughly with ca. 50 ml chloroform from the wash bottle. Pull air through filter for 2 min (minimum) to dry. Discard filtrate.
6. Bring 75 ml tetrachloroethylene to a brisk boil on a hot plate in a 400 ml beaker. Using gloves or tongs, remove from hot plate and transfer filter paper from step #4 to beaker; stir for 2 min with a glass rod.
7. Attach porcelain Buchner funnel, to which a 2 in. length of rubber tubing has been attached to the stem to prevent filtrate from being drawn into the

side delivery tube on a clean 500 ml filtering flask (see note #2). Place a disk on 5.5 cm Whatman #4 filter paper, 2 discs of 5.5 cm glass fibre paper, and size #2 retainer ring in the funnel, in that order.

8. Replace the 400 ml beaker from Step #5 onto hot plate and bring to a gentle boil.
9. Pre-wet with Tetrachloroethylene filter paper prior to filtration and apply gentle suction to the flask; then rapidly pour the hot tetrachloroethylene solution thru the filter. Using a wash bottle, rinse beaker, retainer ring, and paper 4 times with 10-15 ml portions of near boiling tetrachloroethylene (see note #3). Disconnect funnel from the filtering flask.
10. To contents of the filtering flask add 175 ml precooled methanol (maximum 10 C). Swirl to disperse thoroughly; let stand for 10 min in cold water bath to completely precipitate the polyethylene.
11. Weigh accurately 2 pieces of 7.0 cm moisture free fiber glass paper; and place them, along with the size #1 retainer ring, in the California Modified Buchner funnel. Place funnel on a 1 liter filtering flask, and with gentle suction, filter the solution from Step #9. Using a wash bottle, wash flask, retainer ring, and paper 4 times with 20 ml portions of methanol.
12. Pull air through the fiber glass paper for 2 min. Carefully remove paper from the funnel; dry in an oven at 150 C to constant wt. Ten (10) min drying time should be sufficient. Cool in a dessicator; reweigh paper and contents.

D. Calculation:

Calculate the ppm polyethylene in the sample as follows:

PPM Polyethylene analyzed =

1. $$\frac{\text{Wt of precipitate in gm} \times 10^6}{\text{Wt of sample in gm}}$$

or

2. Wt of precipitate in gm x 10,000 x dilution factor.

E. Accuracy:

Probable accuracy is ± 20 ppm from 50-500 ppm (see note 7).

F. Notes:

1. When samples high in polyethylene (PE) are anticipated or found experimentally by prior analysis, the sample should be diluted with a polyethylene free vegetable salad oil according to the following schedule:

	Sample wt/gm		
PPM PE expected	Fat	Salad oil	Dilution factor
0-750	100	0	1.0
751-1500	50	50	2.0
>1501	25	75	4.0

2. The filtering flask (500 ml) used in steps 7 thru 10 should be cleaned thoroughly of any residual polyethylene film after each completed analysis. A strong, hot, caustic solution is adequate for this purpose.
3. Step 9 requires complete and thorough washing. Tetrachloroethylene must be kept near the boiling point at all times.
4. Methanol used in steps 10 and 11 should be precooled below 10 C by refrigeration or cold water bath to insure complete and rapid precipitation.
5. Fiber glass paper is very rapid and extremely retentive, but it is also very delicate and must be handled with great care at all times.

BACK COPIES NEEDED

AOCS needs the following back copies of the *Journal of the American Oil Chemists' Society*: Volume 51(1974), July and Volume 52(1975), February. The Society will pay $1.50 for each copy received in reusable condition. Send to AOCS, 508 South Sixth Street, Champaign, Illinois 61820.

6. Adequate ventilation should be used at all times to avoid exposure to solvent vapors.
7. The probable accuracy is thought to be due to the inherently non-uniform nature of materials samples. It represents approximate agreement that is attainable. This method is not intended to replace "house" methods now in use; it is presented for general information only. It is recommended that the analyst familiarize self with procedure on trial samples to be able to recognize or anticipate difficulties. ■

THE LATEST IN Lipids

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Call for Nominations

1976

Honored Student Awards

Nominations are solicited and will be accepted until November 17, 1975, for the 1976 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 $75.00 to permit attendance at a national meeting of the AOCS. In 1976, these meetings will be held April 21-24 in New Orleans and September 26-29 in Chicago. Students will be awarded travel to the nearer meeting to allow as many awards as possible from the available funds.

Nomination forms may be obtained from AOCS Headquarters, 508 S. Sixth St., Champaign, IL 61801. Completed nominations should be returned before November 17, 1975, to: Dr. James G. Hamilton, HSA Committee Chairman, Department of Biochemical Nutrition, Hoffman La Roche, Inc., Nutley, NJ 07110. ■

CALL FOR PAPERS

AOCS 67th Annual Spring Meeting

The Technical Program Committee has issued a call for papers to be presented at the AOCS 67th Annual Spring Meeting, April 21-24, 1976, at the New Orleans Marriott, New Orleans, Louisiana. Papers on lipids, fats and oils, and all related areas are welcome.

Submit three (3) copies of a 100-300 word abstract with title, authors, and speaker to Dr. Robert L. Ory, Head Protein Properties, Oilseed Crops Laboratory, Southern Regional Research Laboratory, P.O. Box 19687, New Orleans, LA 70179.

The deadline for submitting abstracts is December 1, 1975. ■