REPORT OF THE OIL CHARACTERISTICS COMMITTEE

THIS new committee, conceived and started by Mr. H. P. Trevithick, has for its purpose the compilation of data on the characteristics of fatty oils, with a view toward the drafting of tables of values for pure oils and fats for use as approved standards or sources of information.

It comprises the following members: Messrs. Hutchins of the Southern Cotton Oil Co., Jamieson of the U. S. Department of Agriculture, McLeod of Canada Packers, Ltd., Mitchell of Swift & Co., Stillman of Procter & Gamble, Tolman of Wilson & Co., Vollertsen of Armour & Co., and Lauro of the New York Produce Exchange. The personnel itself indicates the scope and quality of the undertaking.

The committee intends to collect available data on a few oils from time to time and then analyze as completely as possible a few type samples. As enough accumulates at any time it will be published as a report of the committee.

Progress has been achieved in ascertaining from each member the number of tests he can undertake, in the discussion of methods and procedure, and in the accompanying report on Rice Bran Oil, which is the first complete analysis by the committee, indicating the type of work to be done on each oil under investigation.

M. F. LAURO
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W. D. HUTCHINS
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W. G. MacLEOD
H. S. MITCHELL
R. C. STILLMAN
L. M. TOLMAN
J. J. VOLLERTSEN.

Rice Bran Oil

Obtained from rice bran (plant, Oryza sativa) by pressing. This sample is a composite of samples from three shipments from Japan and the purity is vouched for.

CRUDE OIL:

Free fatty acidity (oleic)	3.80%
Color (Lovibond 5¼ inch column)	150 yellow—8 blue—16 red
Refining lye used	9.2% of 16 Baumé
Refining loss	13.5%
Color of refined oil	150 yellow—2 blue—12 red
Color of bleached oil (6% standard XL)	70 yellow—3 blue—9.8 red

REFINED OIL:

Specific gravity @ 25/25 C.	0.9178 (coefficient of expansion 0.000634° per C.)
Index of refraction @ 40 C.	1.4659 (Butyro—60.05)
Free fatty acidity (oleic)	0.06%
Saponification value	187.1
Acetyl value (André-Cook)	8.3
Unsaponifiable matter (FAC)	2.9%
Unsaponifiable matter (Kerr-Sorber)	3.1%
Iodine value of matter (Kerr-Sorber) (Rosenmund-Kuhnhenn)	108.9
Hehner number (insoluble acids AOAC)	95.25%
Soluble acids (as butyric AOAC)	0.15%
Reichert-Meissl number (AOCS)	0.11%
Polenske number (AOCS)	0.05
Viscosity (Saybolt Universal) @ 212 F.	67 seconds
Viscosity (Saybolt Universal) @ 100 F.	265 seconds
Smoke test (AOCS)	330 F.
Flash point (AOCS—Cleveland open cup)	585 F.
Fire point (AOCS—Cleveland open cup)	630 F.
Titer of fatty acids	26.9 C.
Sap. value of fatty acids	194.6
Neutralization or acid value of fatty acids	193.3
Ether insoluble bromides of fatty acids	Trace (Steele-Washburn method)
Solid fatty acids (AOCS)	18.3%
Liquid fatty acids (by difference)	81.7%
Iodine value (Wijs) of oil	106.1
Iodine value (Wijs) of mixed fatty acids	112.3
Iodine value (Wijs) of solid fatty acids	13.4
Thiocyanogen value (AOCS) of oil	69.7
Thiocyanogen value of mixed fatty acids	74.4
Thiocyanogen value of solid fatty acids	10.0

Calculated Composition:	Glycerides	Fatty Acids
Linoleic	42.0%	41.9%
Oleic	38.7	40.6
Saturated	16.4	17.5
Unsaponifiable	2.9	..%

Analysis by H. S. Mitchell and M. F. Lauro.

REPORT OF THE JOURNAL COMMITTEE

This Committee believes that during the past few years our Journal OIL AND SOAP, has been considerably improved, particularly with respect to the quality of scientific material that has been presented. The Journal has also been on a profitable basis for some time and there is now reason to believe that the quantity of its editorial material can be expanded. Every effort should be put forth by all members of the Society to assist the Journal in continuing this progress.

We feel that one of the best ways to promote the Journal's betterment is by encouraging the submission of more papers, particularly papers independent of the regular meetings of the Society. The Journal in the past has taken a large portion of its editorial material from the two regular meetings. While this material is important, its volume is usually too small to adequately support the Journal's columns. When volume is lower, there

is of course very little room for rejection of material of questionable merit.

This Committee urges that all members of the Society assist in maintaining the standard of the Journal by reporting the results of their work and by asking their friends and acquaintances to do likewise. We are convinced that there is much good, unpublished work that needs only to be written down.

T. C. LAW
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H. P. TREVITHICK
J. J. VOLLERTSEN
L. M. TOLMAN
A. F. SANCHEZ
H. L. ROSCHEN
W. H. IRWIN, Chairman

ABSTRACTS

Oils and Fats

Edited by
M. M. PISKUR and RUTH LINDAHL

Physico-chemical investigation incidental to the study of chocolate fat bloom. Part I. W. Clayton, S. Back, R. I. Johnson, and J. F. Morse. *J. Soc. Chem. Ind.* **56,** 196-99T (1937).—A discussion of some properties of chocolate.

Modern oil deacidifying. Kurt Schneider. *Allgem. Oel- u. Fett-Ztg.* **34,** 252-5 (1937).—Two com. processes (Bamag-Meguin A.-G. and Wecker processes) for deacidifying fats and oils are described. (*Chem. Abs.*)

Contribution to the methods of identification and determination of traces of nickel in hydrogenated fats. Alfred Torricelli. *Mitt. Lebensm. Hyg.* **28,** 36-50 (1937).—The method recommended by T. consists essentially of the different shades of red produced when a drop of a soln. contg. small amts. of Ni is brought in contact with filter paper impregnated with a 1% alc. (95%) soln. of dimethylglyoxime. Instructions are given in detail for the prepn. of the paper. The fat under examn. is treated with HCl, filtered and washed well with hot H_2O and the Fe pptd. with pyridine; after centrifuging, the resulting liquor, which should be clear, is evapd. to dryness, ignited, taken up with a little HCl and brought to vol. By comparing the shade produced on the filter paper with those of known amts. of Ni, the amt. of the latter can be detd. (*Chem. Abs.*)

The binary systems of some fatty acids. M. Kulka and R. B. Sandin. *J. Amer. Chem. Soc.* **59,** 1347-1349 (1937).—The eutectic temperature for myristic and palmitic acids was found to be 45.2°, at a composition of 0.725 mole of myristic and 0.275 mole of palmitic acid. The eutectic temperature for capric and lauric acids was found to be 19.6°, at a composition of 0.725 mole of capric acid and 0.275 mole of lauric acid.

The field of the fats. XXXV. Diene syntheses in the field of the fats. 4. Iodimetric determination of the diene number. Diene numbers of various fats and their utilization. H. P. Kaufmann, J. Baltes, and H. Büter. *Ber.* **70B,** 903-11 (1937).—The alkalimetric detn. of diene nos. requires a sepn. of the water-insol. addn. product (I) with maleic anhydride (II) from the nonreacting fat components, and as the I forms an emulsion when pptd. from the acetone soln. with water it can be filtered off only after having been allowed to stand for some time. At the same time there is a possibility of reaction with atm. O. These disadvantages could be avoided if the excess of II (or the acid formed from it) could be detd., as soon as the reaction is completed, in the presence of the I and accompanying substances. It has been found that, in the absence of the lower fat acids, the excess of II can be detd. iodimetrically in aq. mediums. II in contact with water gives the free maleic acid which reacts with KI-KIO_3 according to the equation $3\ (:CHCO_2H)_2 + 5KI + KIO_3 = 3(:CHCO_2K)_2 + 3I_2 + 3H_2O$; if an excess of $Na_2S_2O_3$ is added the reaction is quant. Method is given. It has since been found that many other fats also have diene nos. while, on the other hand, there are some oils with diene nos. practically zero, as shown by the following list: Merck triolein 0, palm-kernel oil 0, cacoa butter 0, peanut oil 4.8-5.3, crude rapeseed oil 11.8-12.3, poppyseed oil 13.0-3.3, almond oil 8.0-8.4, cherry kernel oil, crude cottonseed oil 4.7-5.0, freshly extd. soja oil 9.9-10.3, crude soja oil 8.5-8.9, freshly extd. linseed oil 8.1-8.2, crude linseed oil 7.4-7.7, D. A. B. VI linseed oil 7.7-8.04, wood oil I 67.3-7.8, wood oil II 69.1-9.8. Hence fats which, as far as is known, contain no conjugated unsatd. acids have diene nos. Side reactions of II, such as esterifications, are excluded in the absence of water. It must be concluded, therefore, that fats which have diene nos. contain double bonds which can react with II. The free acids of fats which have diene nos. but contain no known acids with conjugated systems show no diene nos. when isolated from the fats; either the unsaponifiable portion is responsible for the diene nos. or in the sapon. process (which was effected in the cold) the diene fat acids are altered. This question is to be investigated further. Unsaponifiable isolated under the mildest possible conditions gave diene nos. of an order of magnitude which could not explain the diene nos. of the fats themselves. In the partial sapon. with cold alc. KOH of a linseed oil of diene no. 7.9, the diene no. of the half-sapond. product was only 1.3-1.7. It may be concluded, therefore, that many fats contain unsatd., very labile substances which are as yet unknown. (*Chem. Abs.*)

Dienometry and the diene numbers of fats. Remarks on the M. A. number of B. A. Ellis and R. A. Jones. H. P. Kaufmann. *Ber.* **70B,** 900-2 (1937).—The paper contains nothing new in principle, and using a new name (maleic anhydride, or M. A., no.) for what is essentially K.'s "diene no." will only lead to confusion. (*Chem. Abs.*)

Homology and isomerism in long-chain compounds. A thermochemical study of the n-Alkyl Esters derived from the monoethylenic monocarboxylic acids in C_{18}. L. J. P. Keffler. *J. Phys. Chem.* **41,** 715-21 (1937).—The heat of transformation of each of the oleates into the corresponding elaidate was