Color	brown	
Lovibond using half column		
yellow, not more than		70
red, not more than		40
Moisture, %, less than	0.2	0.1
CHEMICAL DATA		
Acid Number	150-160	170-180
Saponification Number	160-170	170-185
Rosin Acids Number	76-82	60-67
Iodine Number (Wijs)	150-180	140
Ash, %, less than	0.3	0.1
ANALYSIS		
Fatty Acids, %	45-55	55-60
Rosin Acids, %		
calculated as abietic	40-45	34-38
Sterols (higher alcohols, etc.), %	6-10	6-10

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REFERENCES (APPENDED)

For those interested further in the composition of tall oil the following references to the literature are appended:

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ABSTRACTS

Oils and Fats

Edited by
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PAPERS PRESENTED AT D. G. F. MEETING. PHYSICAL CHEMISTRY OF EMULSION FORMATION AND STABILITY. F. Seelich. *Fette u. Seifen 46,* 139-42 (1939). MOTION OF EMULSIONS AND EMULSIFIERS. H. Schmalfuss. *ibid.* 142-4. FAT CONTAINING SALVES FOR SKIN TREATMENT AND THERAPY. G. Hopf. *ibid.* 144-6. EMULSIFYING OIL IN TECHNICAL MARGARINE MANUFACTURE. L. Erlandsen. *ibid.* 147-50. VITAMIN F. F. Grandel. *ibid.* 150-2. MARINE ANIMALS AS SOURCES OF VITAMINS A AND D. F. Unger. *ibid.* 152-6. SOAP MACHINES. F. Tachman. *ibid.* 155-8. The papers are printed in full with illustrations.

SELECTIVE OXIDATION OF ANIMAL AND VEGETABLE FATS: A NEW CONSTANT. W. A. Alexander. *Analyst 64,* 157-164. (1939). Method: To 0.1 to 0.6 g. of oil, depending on I no. in a 150 cc. flask, add 2cc. CCl_4, warm to 60° C. in thermostat, add 10 cc. *N* $Na_2C_2O_7$ and leave in thermostat for 1 hr. A little water is added, then 25 cc. of 2.5 *N* $FeSO_4$ soln. and the contents titrated with 0.1 *N* $KMnO_4$. Run blank. The "oxidation equivalent" is defined as the cc. of 0.1 N $KMnO_4$ equiv. used by the oil times 0.3175 divided by the wt. of sample. This value when used in conjunction with I value can be used for detection of animal and vegetable fats. Data on several oils are tabulated.

THE WIJS METHOD FOR DETERMINING THE IODINE NUMBER. A PROPOSED MODIFICATION. Alfred Vossgord and Ernest Björsvik. *Z. anal. Chem. 115,* 195-204 (1939). — The method was subjected to critical examn. to det. the best conditions for carrying out the procedure; a sample of cod-liver oil was used at the start but 10 other kinds of oil were subsequently used to test the findings. The modified procedure can be used for I nos. between 8 and 190 with satisfactory agreement with nos. obtained by the unmodified procedure. The modified procedure is as follows: To the weighed sample (of wt. such that the halogen excess will lie between 65 and 400%) add 25 ml. of 0.2 N ICl soln. dissolved in a mixt. of 35% AcOH and 55% CCl_4 by vol. After 30 min. at about 20° add 10 ml. of 10% KI soln. and titrate excess I_2 with 0.1 N $Na_2S_2O_3$ in the usual manner. (*Chem. Abs.*)

CHEMISTRY OF FAT SPOILAGE. VI. THE ROLLS OF "MALTOLS" (2-METHYL-3-OXYPYRON) *Fette u. Seifen 46,* 127-31 (1939). —2-methyl-3- oxypyron, a constituent of barley, which has a function similar to "Inhibitols," was found to possess no antioxidant properties.

RANCIDITY OF FATS. BUTTER. A. Romeo and R. Catalano. *Riv. ital. Profumi Piante officin 20,* 71-3 (1938). The sample is treated with hydroxylamine-HCl (I) and the HCl liberated by oxime formation is titrated with 0.1 *N, KOH.* The rancidity is expressed as the I no., i.e., amt. of I in mg. required to react with all the oxo-compds. in 100 g. of fat sample. Olive oil. A. Romeo and V. Crupi. ibid. 233-4. Good results with the use of the above method on olive oil were obtained. (*Chem. Zentr.*).

HARDENING OF OIL AT LOWER PRESSURE WITH NICKEL-COPPER CATALYST. S. Ueno, G. Inagaski and H. Kisaki. *J. Soc. Chem. Ind. Japan 41,* Suppl. binding 298-9 (1938). Seven tables of results are shown from which it is concluded that: (1) the unreduced

catalyst is more active than the reduced catalyst. (2) Catalyst composed of equal parts of Ni and Cu is more active than that of 1 part Ni and 3 parts Cu. (3) From an economical and industrial standpoint a pressure between 5 and 10 atm. is preferable. (*Chem. Abs.*).

RANEY NICKEL. I. J. Bougault, E. Cattelain and P. Chabrier. *Bull. soc. chim.* (5), *5*, 1699-1712 (1938). —Raney Ni is a hydride or at least contains one of the hydrides of Ni. With it, a large no. of org. compds. can be hydrogenated, without using any addnl. H. In alloying it with Hg, an amalgam was formed that should be considered a triple compd. of Hg, Ni and H. Raney Ni can be used as a catalyst for hydrogenation, reduction, oxidation or isomerization. (*Chem. Abs.*).

RANEY NICKEL. J. Aubray. *Bull. soc. chim.* (5), *5*, 1333-8 (1938). —Expts. show that the high chem. activity of Raney Ni is due to absorbed or adsorbed H. Raney Ni has the same potential as platinized Pt and makes a reversible hydrogen electrode. (*Chem. Abs.*).

SELECTIVE OXIDATION OF ANIMAL AND VEGETABLE FATS: A NEW CONSTANT. W. A. Alexander. *Analyst 64*, 157-164. (1939). Method: To 0.1 to 0.6 g. of oil, depending on I no. in a 150 cc. flask, add 2 cc. CCl_4, warm to 60° C. in thermostat, add 10 cc. *N* $Na2Cr_2O_7$ and leave in thermostat for 1 hr. A little water is added, then 25 cc. of 2.5 *N* $FeSO_4$ soln. and the contents titrated with 0.1 *N* $KMnO_4$. Run blank. The "oxidation equivalent" is defined as the cc. of 0.1 N $KMnO_4$ equiv. used by the oil times 0.3175 divided by the wt. of sample. This value when used in conjunction with I value can be used for detection of animal and vegetable fats. Data on several oils are tabulated.

HYDROGENATED FATS FOR PHARMACEUTICAL PURPOSES. A. Katalkherman. *Sbornik Gosudarst. po Voprossan Parm. 1936*, 25-30; Chem. Zentr. *1937, I*, 3183. —Pharmaceutical fats must possess suitable hardness and not melt above 37°. In addn. to cacao fat, hard fats contg. paraffin are also to be considered. A suitable mixt. contains 30 parts hard fat m. 40°, 65 parts hard fat m. 34°, and 5 parts paraffin m. 51-5°. Hard fats for medicinal use must meet the following requirements. They must be white to light yellow in color, odorless, of a dense, friable homogeneous consistency, m. not below 35° nor above 37°. A 2-g. pellet must m. completely to give a clear liquid in 3-6 min. at 37-8°. When warmed to 40° the fat must be completely transparent and no ppt. must form within an hr. Other tests are described. (*Chem. Abs.*).

PHOSPHOLIPID CHANGES DURING THE PRODUCTION OF FATTY LIVERS IN GEESE. E. V. Flock, H. R. Hester and J. L. Bollman. *J. Biol. Chem. 128*, 153-7 (1939). When a rapid synthesis of fat from carbohydrate is produced in the goose by forced feeding of a high carbohydrate diet, the great increase in total lipids of the liver is found to be due chiefly to an increased amount of neutral fat. The phospholipids of the liver are greatly decreased in terms of per cent of total lipid but in terms of total amt. per 100 gm. of goose they are unchanged or slightly increased. Decreases in I nos. of the fatty acids of the lipids studied occur in the following order: phospholipids, neutral fat of the liver, and mesenteric fat.

FAT METABOLISM FOLLOWING LIVER INJURY, DECREASED IODINE NUMBER OF TISSUE FATTY ACIDS OF MALE RATS FOLLOWING CARBON TETRACHLORIDE ADMINISTRATION. I. C. Winter. *J. Biol. Chem. 128*, 283-7 (1939).

PREPARATION OF GLYCEROL AND OF AMIDES OF HIGH-MOLECULAR FAT ACIDS BY AMMONOLYSIS OF OILS AND FATS. A. I. Shatenshtein and E. A. Izrailevich. *J. Applied Chem. (U. S. S. R.) 11*, (in French 974) (1938). — Amides of fatty acids and glycerol were prepd. from linseed, sunflower, cottonseed, olive, castor and "salomas" oils and from pig, lamb, beef and fish fats, by treatment with liquid NH_3 in the presence of NH_4Cl (catalyst), at 50° for 8 hrs. or at 100° 2 and 4 hrs. The reaction proceeded faster with gaseous NH_3 (at a pressure of 60 atm.) at 100° than with a liquid NH_3 (Chem. Abs.).

PATENTS

OIL EXTRACTOR. E. Lawrence. *U. S. 2,154,339.* The continuous extractor is comprised of a vertical extractor supplied at the bottom with an extruding device for removing residue and at the top with a means of removing solvent and oil.

OIL EXTRACTOR. H. Rosenthal. *U. S. 2,152,664-7.* A complete solvent extn. process is described. It includes dehydrators, crimping and crushing means, extractor, solvent still and refining equipment.

REFINING APPARATUS. B. Clayton, W. B. Kerrick and H. M. Stadt and B. H. Thurman (to Refining, Inc.). *U. S. 2,150,797.* An app. is described in which continuous refining can be accomplished under pressure. The equipment includes proportioning devices, heating zones and centrifuges constructed in such a manner that treatment is done under pressure.

ADDITION AGENT FOR CAKE BATTER. Joseph S. Reichert, John M. Youel and Russell T. Mills (to Canadian Industries Ltd.). *Can. 377,682, Nov. 15, 1938.* A small amt. of an edible higher free fatty acid and a small amt. of triethanolamine, cholesterol, lanolin, the ethyl ester of glycine, soap or glyceryl monostearate are added to a cake batter to stabilize it during baking and render it less sensitive to oven conditions. (*Chem. Abs.*)

FATTY ACIDS. M. H. Ittner (to Colgate-Palmolive-Peet Co.). *Brit. 496,175.* A still is described.

FATTY ACID. Metallges. A.-G. *Ger. 672,225 Cl. 23d Gr. 1.* Combined hardening and splitting is carried out in one app.

BLEACH FOR FAT AND OIL. E. Wredbrauck and A. F. Weyland. Chemische Fabrik Bruckau. *Ger. 670,936. Cl. 23a Gr. 3.* Bleaching earths are improved by treatment with H_2SO_4.

REVIVIFICATION OF HYDROGENATION CATALYST. T. H. Durrans and B. Sully. *U. S. 2,150,270.* Nickel suspended in oil is treated with steam to convert the Ni to its oxide and this is reduced with H_2 while in the suspended state.

DRYING OIL COMPOSITIONS. W. R. Catlow, Jr. and H. F. Wakefield (to Bakelite Corp.). *U. S. 2,152,633.* An oil-resin compn. is heat treated and dispersed in an org. solvent.

TREATMENT OF TUNG OIL. W. J. Harper (to the Glidden Co.). *U. S. 2,152,642.* A smooth glossy rapid drying tung oil is obtained by heat treating in presence of Se, dissolving in hot alcohol, cooling to separate Se and separating the oil from the solvent.

POLYMERIZED FATTY OIL. Per K. Froligh and J. I. Wasson (to Standard Oil Devel. Co.). *U. S. 2,150,370.* Special polymers are prepared, from semi-drying oils, for adding to mineral lubricating oils.