ABSTRACTS

Oils and Fats

Edited by
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Oxygen number—a new constant for investigating fats and similar substances. A. S. GINZBERG and G. K. FOMINA. *J. Applied Chem.* (U. S. S. R.) **5**, 221-34 (1932).—The oxygen no. is defined as the no. of mg. of O (in $KMnO_4$) required to titrate the fat. It is similar to, but not identical with, the I no.
V. KALICHEVSKY.

Nickel carbonyl in fat hardening. W. NORMANN. *Chem. Umschau Fette, Öle, Wachse Harse* **39**, 126 (1932).—In the presence of CO and Ni, $Ni(CO)_4$ is formed in oil at 30-200°, although at the latter temp. the $Ni_2(CO)_4$ is said to decompose. Decompn. is easily recognized by the formation of a Ni mirror on the glass wall. When H is made from water-gas, the CO impurity may accumulate in the converter up to 30%.
P. ESCHER.

Chain reactions in the paint and varnish industry. H. N. STEPHENS. *Ind. Eng. Chem.* **24**, 918-20 (1932).—A theoretical discussion in which the following ideas are presented. The action of catalysts (driers) on the oxidation of drying oils is not due to any direct catalytic speeding up of the oxidation process, but to the driers in some way removing natural antioxidants. This hypothesis is supported by the fact that the max. oxidation rate of such oils is little affected by addn. of antioxidants or driers and also by the fact that super-purification of simple compds. greatly speeds up their oxidation. Energy released by the oxidation of drying oils promotes their polymerization by furnishing the necessary activating energy. If this idea is accepted, then it is theoretically rather unlikely that an antioxidant could be found which would suppress destructive oxidation without also repressing constructive polymerization in paint films.
J. W. PERRY.

The solvent extraction of castor-oil seeds. MARGARET C. SWISHER and GEO. W. FIERO. *J. Am. Pharm. Assoc.* **21**, 579-82 (1932).—The present method of prepn. of castor oil consists in pressing the seeds and extg. the cake. Seeds that contain 45% of oil yield 30-40% of No. 1 oil by this method. Extn. of the press cake yields 9.5-15% more of No. 3 oil. Various solvents have been suggested. S. and F. found that petroleum benzine gave a yield of 6.5% (14% efficiency), C_6H_6 13.3% (28% efficiency), Et_2O 15.4% (34% efficiency), $(CH_3)_2CO$ 22.8% (50% efficiency), toluene 23.0% (51% efficiency) and EtOH 42% (93% efficiency). A mixt. of EtOH and MeOH removed a max. of oil with a min. of gums and ricin, and was sufficiently cheap and volatile for practical purposes. The oils obtained had some color, a bad odor and an acrid taste. These were removed by passing steam through, followed by treatment with clay and charcoal. The characteristic odor and taste of castor oil were removed by the treatment. Compared with U. S. P. oil, the acid no. was lowered somewhat and the I no. raised.
L. E. WARREN.

Development of oil in the seed and the flax fiber crop and the variations in its character with maturity. M. F. BARKER. *J. Soc. Chem. Ind.* **51**, 218-22T (1932).—The practice in northern Ireland of retting flax straw as soon as pulled is not opposed to the saving of the seed. When the flax crop is ready to pull for fiber purposes, about 3 weeks after full flowering, the seeds in the capsules are developed enough to provide good oil-bearing seed. Provided the after-ripening processes of the seed are allowed to proceed fully, it is immaterial whether the capsules are completely detached, as by rippling from the green plant; whether they are removed with the bough by cutting the head from the beet or whether they are allowed to remain naturally attached to the entire plant. Capsules saved from flax grown as a fiber crop after-ripened for 2 mo. and dried artificially yield seed contg. 33-35% oil of com. value having a pale color and an I no. of 175. Capsules taken at the stage when the flax is pulled for fiber production and allowed to after-ripen on the detached bough or capsules which are entirely detached, as by rippling, yield seed of good germination value and suitable in every way for sowing.
E. SCHERUBEL.

Composition of palm oil. A. HEIDUSCHKA and A. ENDLER. *Pharm. Zentralhalle* **73**, 481-3 (1932).—The sample of palm oil examd. had the following consts.: acid no. 24.33, acid degree 43.37, sapon. no. 191.18, ester no. 166.85, I no. 52.16, R.-M. no. 0.76, Polenske no. 0.54, Hehner no. 94.77, Ac no. 7.73, unsaponifiable 1.46, n_{40} 49.8, elaidin test +. The fatty acids of this sample (Lagos) amounted to 51.68 unsatd. and 47.65% satd. acids. The unsatd. acids contained 95.98 oleic and 4.02% linoleic acids, the satd. 97.9 palmitic and 2.1% stearic acids. On fractional crystn. the fat was sepd. into several different portions. In the 1st portion tripalmitin was identified; in the last triolein was identified. The coloring matter of the oil was extd. from the soap with petr. ether, purified, dried and the I no. detd. The high value (200.2) found points to a highly unsatd. compd. and would naturally affect the I values of the unsatd. acids.
W. O. E.

A simple differentiation of crude and commercially refined rape-seed oil. A. ROSA. *Seifen-Fachblatt* **2**, 285-6 (1930); *Chem. Zentr.* **1931**, II, 1949.—If rape-seed oil is boiled with distd. H_2O and placed at 80° in a separatory funnel, the bottom layer becomes cloudy in the case of crude oil, but is clear with refined oil. With crude oil two zones are formed, the lower flocculent and yellow, the upper a clear brown.
E. M. SYMMES.

Refining vegetable oils (such as olive oil) to be used as solvents for injection medicines. HEISAKU HATAKEYAMA and HOTORI WATANABE. U. S. 1,867,665, July 19. After a preliminary refining, traces of fatty acid remaining are esterified with an aromatic alc. such as benzyl alc.

Castor oil conversion products. JOHANNES SCHEIBER. Ger. 555,496, Dec. 17, 1929. Castor oil is heated at 200-250° in the presence of a substance which retards thickening or gelatinization, until a product having an Ac no. of about 30 or less is obtained. The added substance may be a fatty oil such as linseed oil, naphthenic acid, a natural or synthetic resin, a polyhydric alc., an alk. earth hydroxide, S or Se or a compd. thereof, a halogen, or a primary aromatic amine. The products resemble China wood oil, and are useful in the *manuf. of paints*, etc. Examples are given.

Purifying fats, fatty oils, etc. I. G. FARBENIND. A.-G. Brit. 358,358, Dec. 4, 1930. In distg. readily volatilizable substances from difficult volatilizable fats, oils, etc., by introducing liquids such as water, benzine, C_6H_6, toluene, ethylene glycol or formamide beneath the surface of the material while the latter is heated to above the b. p. of the introduced substance, the latter is introduced in the form of a capillary stream at a velocity of at least 40 cm. per sec., and soins. of gases such as SO_2, NH_3, CO_2 or H or salts such as Na_2CO_3, $NaHCO_3$, $NaHSO_4$, Na borate or phosphate or other substance such as β-naphthalene sulfonic acid, formaldehyde, boric acid or H_2O_2 also may be used. Various details and examples are given and app. is described.

Solvent and emulsifying agent. FRIEDRICH STEINFELS A.-G. SEIFENFABRIK ZÜRICH. Swiss 149,083, May 31, 1930. A solvent or emulsifying agent for fats, oils, etc., suitable also for use as a foundation for soft soaps, insecticides, polishes, etc., is prepd. by treating org. solvents with aliphatic hydrotropes, with at least 6 C atoms, and soap. The hydrotropes may also contain OH or NH_2 groups. Thus $(C_2H_4OHNH_2)_3$ and tetraline are added to oleic-K soap.

Refining oils. LUDWIG ROSENSTEIN. Can. 324-480, July 26, 1932. Crude oils of vegetable or animal origin in the liquid state are contacted with liquid NH_3. The impurities are absorbed by the NH_3, which is then mechanically sepd. from the oil. The NH_3 is recovered by evapn. for reuse.

Refining oils. METALLGESELLSCHAFT A.-G. Fr. 725,160, Sept. 21, 1931. In neutralizing oils by lyes, the soapy mash obtained is treated with water or a dil. salt soln., and the greater part of the soapy soln. is sepd. The mixt. remaining is sepd. into 3 layers by means of a soln. of acid salts, *e. g.*, $NaHSO_4$, the layers consisting of neutral oil of low content of fatty acid, mud and acidulated or salt-contg. water.

Sulfurized fatty-oil emulsions. IMPERIAL CHEMICAL INDUSTRIES, LTD., H. M. BUNBURY and R. B. F. F. CLARKE. Brit. 358,037, May 2, 1930. Emulsions such as those prepd. as described in Brit. 343,533. (*C. A.* **25**, 4428) are freed from impurities such as grit and scum by dilu. (suitably with water) and settling, decantation, flocculation with weak acid such as HOAc or formic acid, and redispersion with alkali.

Olive oil. I. Production and methods of testing. ERLING MATHIESEN. *Tids Hermetikkind* **18**, No. 3, 4-10 (1932).—A review. **II. Tests on imported olive oil from the 1929-30 and 1930-31 harvests.** GULBRAND LUNDE and ERLING MATHIESEN. *Ibid* 11-6.—Of 46 samples of olive oil from the 1929-30 and 1930-31 crops none was adulterated with foreign oils, but the quality varied very much. Some oils contained large quantities of solid fats, some were pressed at very high pressures, and some contained refined olive oil.
E. M. SYMMES.

PEPPERMINT OIL EXPORTS from United States during the first six months of 1932 amounted to approximately 120,000 pounds valued at $198,000 as compared with 99,500 pounds worth $206,000 in the first half of 1931. The United Kingdom was the leading market in the current period having taken 68,300 pounds, followed by Germany, 21,000 pounds; Canada 8,000 pounds; Australia 8,000 pounds; Argentina 2,000 pounds; and Mexico 1,500 pounds.

ESSENTIAL OILS PRODUCED IN SYRIA —There is but one firm producing essential oils in Syria which engages in the cultivation of cassia and purchases roses, jasmine, and other raw material as it is needed from local growers. The oils and pomade are not sold locally but shipped to the French headquarters of the producing firm. It is understood that local conditions are well suited to the growth of essential oil yielding botanicals but that the industry has not progressed owing to uncertainty of market and price for the finished product. (Consul C. T. Steger, Beirut.)

THE CHEMICAL ENGINEERING CATALOG for 1932 has just been mailed. It is a pleasure in this year of retrenchment to find this splendid catalog unclipped by the low curve of promotion and advertising effort.

This is the seventeenth annual edition, and the Committees of "The American Institute of Chemical Engineers," "The American Chemical Society" and "The American Section of the Society of Chemical Industry" are to be congratulated on the scope and appearance of the catalog.

It contains: Information as to names and addresses of manufacturers, and sources of supply of chemical machinery, scientific apparatus, chemicals, raw materials and supplies, power plant equipment, etc. Market information, prices, past and present, uses of chemicals, statistics of production, exports and imports, and miscellaneous information concerning the location, personnel and products of all branches of the chemical field. The information bureau of the catalog is to be addressed as follows: "Information Bureau," The Chemical Catalog Company, Inc., 419 Fourth Ave., New York, N. Y.

Essential Oil Plant Erected in Australia

It is reported that an essential oil manufacturing plant has been erected in Australia for the extraction of citrol or tea-tree oil, a relatively new commercial product, said to possess important germicidal properties. Its industrial application has already been effected in the production of soaps and disinfectants. Extended cultivation of the tree yielding this oil is contemplated.