

GERMAN RESEARCH IN FATS

INDUSTRIALIZATION and increase of population have made Germany dependent upon the import of oil seeds and fats. Only about a half of the former yearly fat requirement, which amounted to about 1,200,000 tons of edible fats and to about 400,000 tons of industrial fats, could be covered by our own production. The research was therefore first concentrated on the practical problems: production of high oil content seeds, breeding of slaughter-cattle rich in fats, and raising of milk yield of dairy-cattle by agricultural research on one side and by economizing of fats through industrial procedures on the other. The last was carried on with particular success.



H. P. Kaufmann

Wilhelm Normann refined the inedible whale oil by hydrogenation. The synthesis of fat was solved through preparation of fatty acids by oxidation of paraffins. This was carried out in several establishments on a large industrial scale. These synthetic glycerides did not fully satisfy nutritional requirements, but they found a versatile use in the industrial field. Today the most important raw material, the so-called "Gatsch" (crude scale wax) obtainable from the synthesis of motor fuel, is lacking due to the shutting down or dismantling of the plants. The same also applies to the sulfonation of hydrocarbons (Mersolat—a sodium alkanesulfonate detergent) even though the alkylated arylsulfonates from Nekal-Typ (Marlinol, etc.) have provided a source. The high molecular weight alcohols, which originally were from natural sources or obtained through high pressure hydrogenation of fats or fatty acids, are available through synthesis. These alcohol sulfates and other synthetic detergent materials relieved the fat market. Research in the field of varnishes attained the same success through the use of cellulose derivatives, artificial resins, etc.

During the last two years the import of foreign seeds and fats, mainly through the expensive help of the U. S. A., has removed the scarcity of fats in Germany. The supply of edible fats for the German population is at present sufficient, and the natural fatty raw materials are again available to industry. Most synthetic products, however, have maintained their practical importance.

Progress in the technical field has given strong impetus to basic research, the necessity for which has always been recognized in Germany. The Scientific Central Office for Oils and Fats, known through the publication of *Deutsche Einheitsmethoden* (1st edition, 1927), arose from the War Board for Fats and Oils after the first World War. It was transformed into the "Deutsche Gesellschaft für Fettforschung" (German Association for Fat Research). This organization strove to coordinate into a common effort the work of all groups interested in fats and fat products, including not only chemists and technicians but also biologists, doctors, and agriculturists. The idea proved to be very fruitful. The DGF with its 1,500 members was one of Germany's strongest scientific associations and represented the German interests at the International Fat Commission. After having been given the leadership of this commission in Rome in 1938, it strove with success for international cooperation and planned the International Fat Congress in Berlin in October, 1939. The preparations were almost concluded and about 2,000 participants had accepted invitations to come when World War II broke out. The DGF sensed painfully the estrangement of the nations and the breaking down of the relations with many foreign friends.

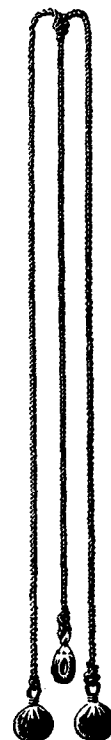
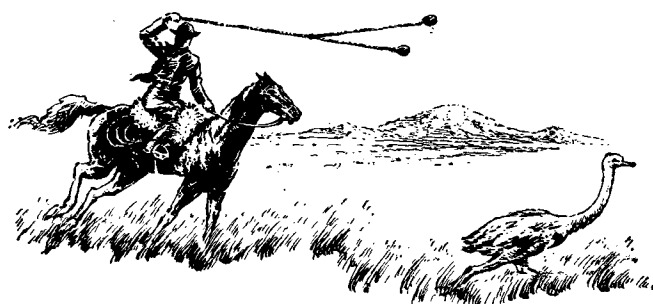
The war years have seriously hindered German fat research. Necessary help, apparatus, and chemicals were lacking; gas, water and electric current fell off until finally most of the laboratories and unfortunately the libraries too were destroyed by fire and bombs. Those countries which were less damaged by the war are now about ten years ahead of us in fat research. We recognize without envy the achievements abroad, especially those of the chemists and technicians of the U. S. A.

Notwithstanding all the difficulties of the present times and the dark political future, the German fat research men have undertaken energetically the reconstruction work. The DGF, with its 15 years of experience, has again resumed its work, which is mutually helpful to all. Ten different executive committees are coordinating work on structural chemistry, analysis and biology of fats, edible fats, soaps and synthetic detergents, protective coatings, cosmetics and medicinals as well as apparatus and machines. A new edition of "Einheitsmethoden der DGF" is planned. The section "Seifen und Seifenerzeugnisse" appeared recently. A lecture session which took place in Münster in the autumn of the past year was a great success; this year it was held in Munich October 2 to 6. The journal *Fette und Seifen*, which was formerly also widely distributed abroad, has again appeared. The Springer Publishing House is printing "Handbuch der Analyse der Fette und Fettprodukte" in place of the well-known books by D. Holde and A. Grün. The Deutsche Institut für Fettforschung was started this year in Münster. Even though it has only modest equipment at its disposal it is striving to find a junction with the research abroad. Today as in the former years the German fat research groups are ready to cooperate peacefully with those in all countries around the world.

H. P. KAUFMANN

President, Deutsche Gesellschaft für Fettwissenschaft e.V.

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EMULSION technologists, like the cowboys of the pampas, need exactly the right tools to make the most of their skill. The gaucho uses his *bolas* to entangle the legs of the swift ostrich. The chemist needs exactly the right emulsifier to mix oil and water or to perform some other function such as wetting or dispersing, penetrating or cleaning. With dozens of emulsifiers to choose from, picking the ideal is not always simple.

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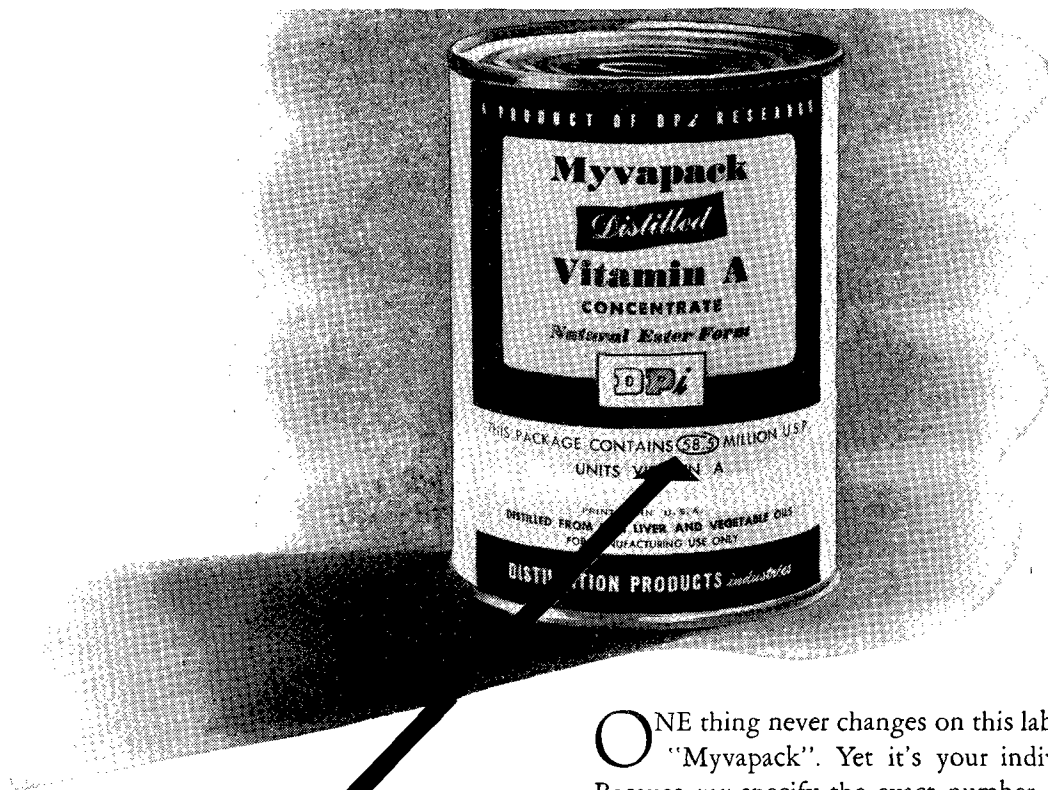
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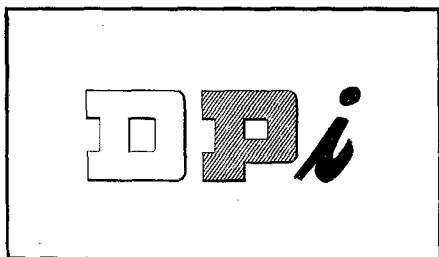
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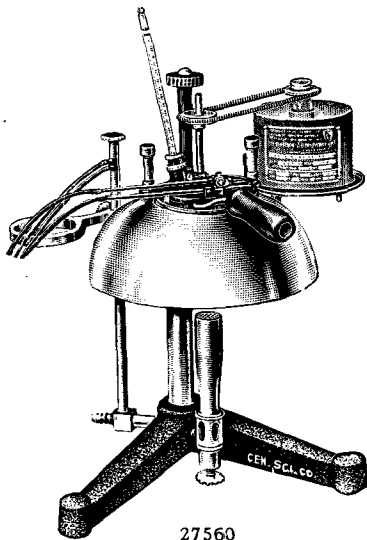
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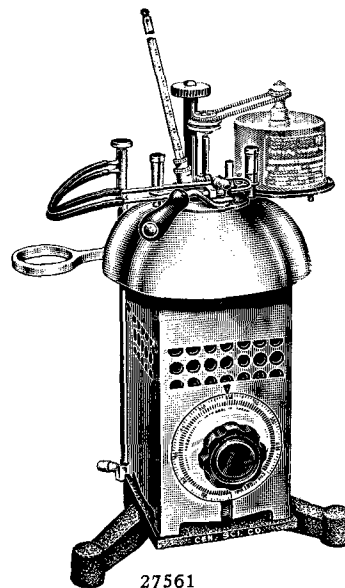
No. 27560, for determining flash points below 175° F. is supplied with Meker-type gas burner, oil cup, drive pulley, belt, flexible shaft, motor support rod and thermometers. Price\$100.00

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No. 27561, for determining flash points up to 230° F. is furnished with electric heater (750 watts) for use on 115 volts, 50/60 cycles A. C., oil cup, stand, support rod and thermometers. Price\$160.00

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*Journal of the American Oil Chemists' Society, July, 1949.



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SUGGESTIONS FOR INCREASING PRODUCT QUALITY AND LOWERING COSTS WITH GIRDLER EQUIPMENT AND SERVICES

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HERE'S the most versatile deodorizer on the market . . . It's the *Votator* Semi-Continuous Deodorizer that enables you to put refining operations on a continuous basis and to switch from one stock to another without the slightest intermixing of oils. Shortening stocks, margarine stocks, salad oils and cooking oils can follow one another through the apparatus with complete safety. Each tray drains free of oil each time it is discharged. No time or product is lost in starting and stopping.

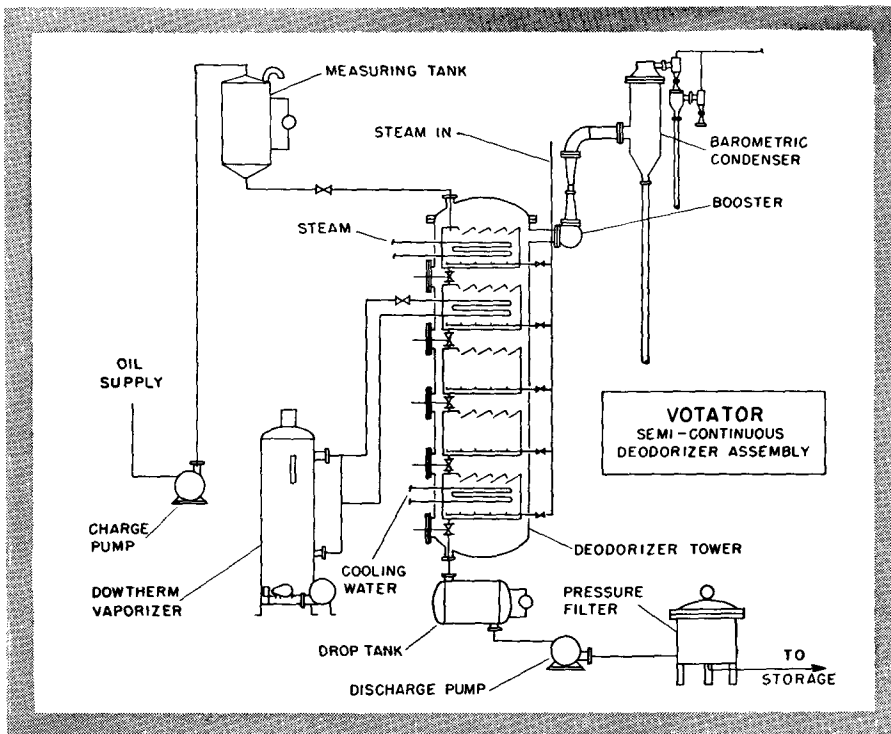
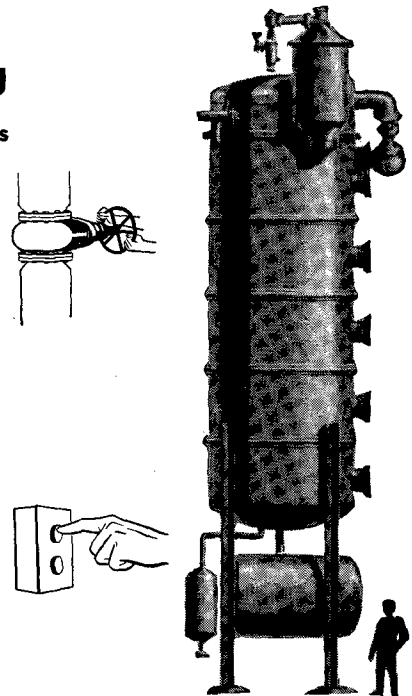
This rugged deodorizer is built for continuous, sustained operation. You can keep it operating at top capacity. It will repay you with tremendous output. It demands little attention.

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The *Votator* Semi-Continuous Deodorizer requires only a fraction of the stripping and vacuum steam consumed by ordinary batch methods. Savings of from 70 to 90 per cent in steam requirements are typical. This means lower fuel and water bills . . . less demand from overloaded steam plants . . . and makes possible expanded operations where the steam supply is limited.

Automatic Operation

The *Votator* Semi-Continuous Deodorizer is started by a push-button. A central control panel mechanically regulates time, pressure and temperature . . . the starting and stopping of



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pumps . . . the closing and throttling of valves. Only part-time attendance is required.

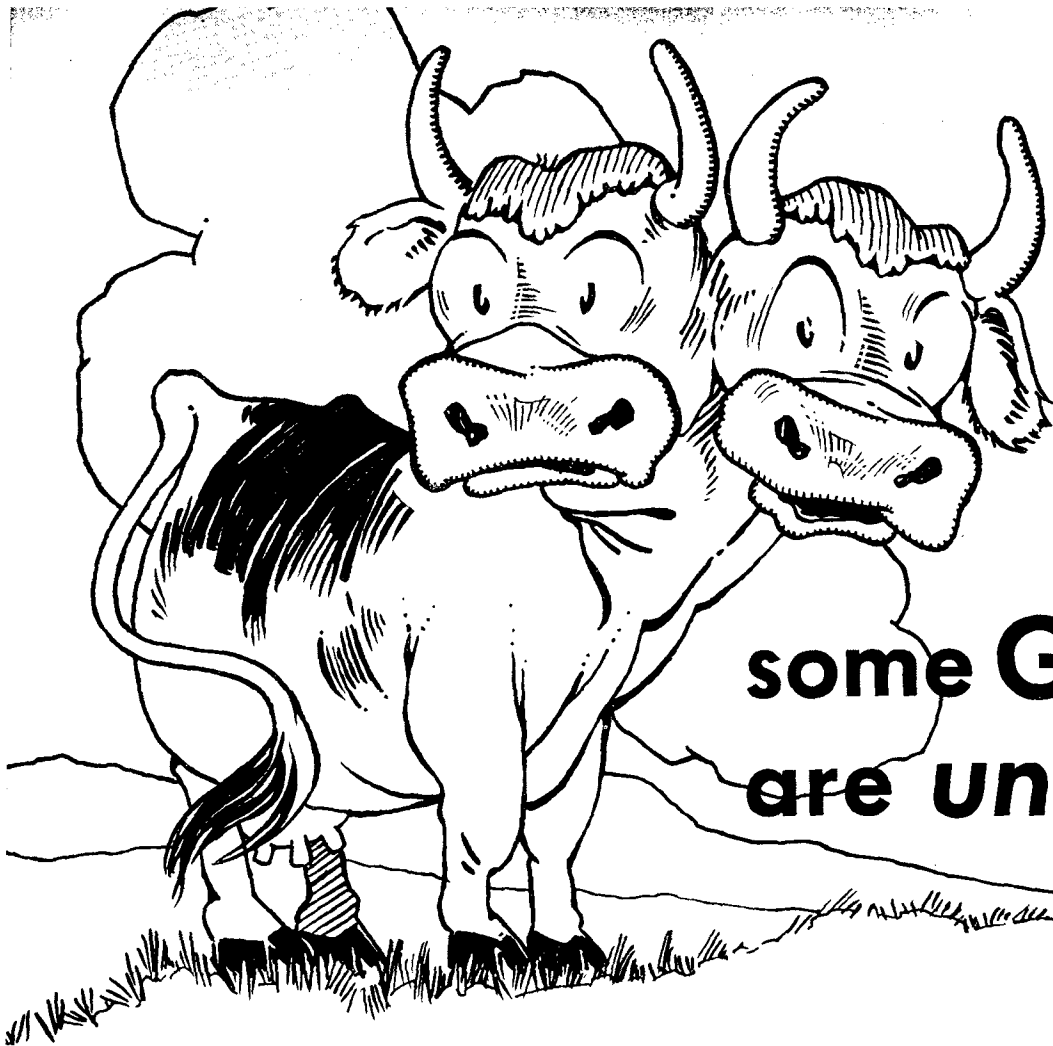
Limits Peak Heat To One Hour

Oil processed with this Girdler equipment is under high vacuum throughout the deodorizing cycle. Peak temperature is attained rapidly and is limited to one hour. No air can leak into the oil while it is hot. Construction of the deodorizer permits the hot oil to touch no metal other than commercially pure nickel. This insures product stability.

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For example, when you saponify Spermafol you get a soap containing thoroughly dispersed molecules of free fatty alcohols. The alcohols are good lubricants; and since they are extremely soluble in petroleum and other solvents, they tend to act as strong coupling agents for the soap.

Then, too, Spermafol is more alkali resistant than normal glycerides... will not easily hydrolyze or form fatty acids.

You can use Spermafol in making lubricants, textile sizes and other textile chemicals, leather chemicals, wax compounds, metal drawing compounds, and flax-type packings and gaskets. Specifications for Spermafol 45 and 52 are listed at left. Write for further information about their use in your products.

	SPERMAFOL 45	SPERMAFOL 52
Melting Point	44 to 46° C	48 to 52° C
Free Fatty Acids (as Oleic)	2.0% max.	2.0% max.
Acid Number	4.0 max.	4.0 max.
Iodine Number	20 to 30	7.0 max.
Saponification Number	133 to 145	135 to 145
Unsaponifiable (higher Alcohols)	33 to 38%	33 to 38%
Specific Gravity @ 100/25° C.	0.825	0.823
Flash Point	491° F	482° F
Fire Point	545° F	545° F
Color	White	White



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De Laval engineers, in designing a vegetable oil refinery, go far beyond the realms of ordinary supervision. They begin with a survey of the plant, they prepare complete working drawings, they anticipate and follow through every detail. They **completely** engineer the entire refinery so that it will function automatically—with one man control.

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