The Standardization of Oil for Mayonnaise

Growing Industry Requires Supreme Quality in Raw Materials

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FROM the commercial point of view, the production of mayonnaise is a comparatively new thing, so that it has only been within very recent years that there has arisen the demand for an edible oil particularly suited for this purpose. Originally mayonnaise was made in France from olive oil, the natural oil of that country, and when it was first produced in the United States, imported oils were used almost exclusively. It was soon found out, however, that olive oil was not an entirely satisfactory mayonnaise oil as its flavor was too decided for the average American taste, and the rapidity with which it would turn rancid upon standing constituted a serious drawback. Good American oils are now, however, replacing the imported ones, and the higher the quality of the domestic oils, the greater the possibilities are for complete substitution. This is an age of standardization, and when there is a marked growth in any new product, there is always an accompanying specialization in the raw materials that make up that product, for it is only after experience has demonstrated the need of a definite quality of oil for mayonnaise, that such an oil can be refined and produced.

Mayonnaise Manufacture Difficult in Practice

There is probably no product so simple in theory that is as difficult to make in actual practice as is mayonnaise. This is due to several reasons, but principally to the fact that although the process of manufacture is a simple mechanical one, so much depends upon the quality of the raw materials that it is necessary to exercise every possible precaution in their selection. As a true mayonnaise contains upwards of fifty per cent of oil, possibly more depends upon the oil, than upon any other one ingredient, and it is because of this that a new standard has arisen for mayonnaise oil. Heretofore it has been common parlance to use such terms as "Salad" Oil and "Butter" Oil, and with the use of these terms certain grades and specifications have been accepted. Now with the coming use of the words "Mayonnaise" Oil, a new and even higher standard must be understood, agreed upon and maintained.

Oil Must Meet Rigid Specifications

In setting the standard for a "Mayonnaise" Oil it is necessary to consider the specific conditions under which that oil is to be used. Agitation in the presence of air and moisture is believed by some authorities to be the primary cause of rancidity, while Wagner, Walker and Oestermann (J. S. C. I. 1913,32,759) found that fats kept in an atmosphere of nitrogen but exposed to the light became rancid, and thereby concluded that light must be the determining factor. Since, therefore, the oil of mayonnaise, must of necessity be subjected to these very conditions,

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namely, agitation, light, air and moisture, it is evident that it must, at the start of the manufacturing process, be perfecly free from even slight traces of rancidity. The flavor of the oil, not only alone, but when it is combined with spices and vinegar, brings up another important point for consideration, for a finely flavored salad or cooking oil is not necessarily desirable for mayonnaise. Its color, its behavior when combined with other ingredients, its "blending"possibilities, and its tendency to change its physical or chemical properties upon standing, are all specific problems that are of interest to the manufacturer of mayonnaise, and it is for these reasons, that many years of actual manufacturing experience has demonstrated the need of drawing up the following specifications as a standard.

STANDARDS AND SPECIFICATIONS FOR A REFINED DEODORIZED "MAYONNAISE" OIL

Article 1 Shall comply with the rules and regulations of the New York Produce Exchange, except as herein amended.

Article 2 Shall be unadulterated and free from substances unnatural to it except when placed therein by any Government authority, but such modification must be stated in the contract and the nature of the admixture specified. An exception to the above shall allow a toleration of one-quarter of one per cent contamination by a vegetable oil of similar character.

Article 3 Shall not be darker than the combined glasses of 35 Yellow 7.6 Red, nor lighter than the combined glasses of 35 Yellow 5.5 Red of the Lovibond Color Scale.

Color is an arbitrary factor and one which is to a certain extent governed by personal preference. On general principles, however, a mayonnaise that has a golden yellow color is more to be desired than one of a lighter shade, and since an unadulterated mayonnaise derives most of its color from the oil, a relatively dark oil is best for this purpose.

Article 4 Shall be brilliant, free from water and settlings and sweet in odor and flavor

Flavor and odor are of first importance, for many people are what could be termed "oil-sensitive," and are therefore particularly critical of even slight variations in taste and smell. A good oil for mayonnaise is one that is as bland and tasteless as is possible, for the flavor of mayonnaise is obtained through added spice and not through any flavor of the oil itself.

Article 5 Shall stand limpid (clear and brilliant) for five hours at the following temperatures.

	For Winter Cottonseed Oil—32° F. For Corn Oil 22°—27° F. For Sesame Oil—21°—25° F.		
Article 6	Shall not contain more than 0.1 of one percent free fatty acid, calculated as oleic acid, with the standard set for 0.05 of one percent. Here again experience has shown that the lower the acidity the better the oil is for the production of mayonnaise, for although there seems to be little or no relationship between the acid content and the degree of rancidity, a high acidity has a marked effect upon the flavor and general quality of the finished product.	Article 7	Shall give a negative Kreis Test undiluted. The extreme sensitiveness of the Kreis Test is not a drawback to the mayonnaise Chemist, as it enables him to detect the presence of incipient rancidity before it has become evident to the senses. Neither need it be looked upon as an unfair specification by the oil refiner as within the last twenty-two months over 1,200 samples of oil analyzed in the author's laboratory were found to give a negative Kreis reaction, thereby proving that it is not a standard which a refiner is unable to meet.

Emery Candle Company Establishes Fellowship

The Emery Candle Company announces that it has established a fellowship at The Mellon Institute of Industrial Research, University of Pittsburgh, Pittsburgh, Pa., under the direction of Dr. Robert N. Wenzel of Palo Alto, California, who will conduct research in tallows and greases, looking toward the betterment of distillation and saponification processes.

Dr. Wenzel was formerly a professor of chemistry at Leland Stanford University, and has had practical research experience.