

# The Use of Malt Sugar in Mayonnaise\*

*Increased Vitamin Content and Greater Life of Mayonnaise Result from Incorporation of the Malt Product*

By W. M. BROWNELL



I AM requested by your esteemed President to prepare a short paper on malt products and their relation to the mayonnaise industry, and take pleasure in trying to comply with that wish, as any endeavor to contribute to the work your Association is engaged in is bound to result to the advantage of all.

Speaking of malt products, it can be safely said that everybody takes some malt almost daily in one form or another; in his bread, or cake, or crackers, in his candy, in his breakfast cereal, in his mayonnaise, in his cough medicine or in his tonic. The importance of malt products as a food is, therefore, apparent. The wide field of usefulness for malt, while not yet a matter of common knowledge, is becoming more generally understood and the consumption of malt and its products, in a variety of ways, is increasing daily. The grains of barley, while undergoing the process of malting, are transformed completely and the barley acquires, thereby, a greater nutritive value, and through the presence of the enzymes is able to contribute to the manufacture of malt sugar.

Malt sugar can be said to be a complete, rich and easily assimilable food and malt sugar powder is used either by itself, in mild or in combination with cod liver oil to overcome undernourishment. Malt is a good source for supplying vitamins B and C, but it contains also vitamin A and these vitamins accompany the malt sugar products in which malt is used. Malt Sugar is produced by enzymic action of malt on cereal starches of various kinds, including the starch contained in the malt itself. The leading food authorities throughout the world recognize malt sugar as a health food of the highest type. Malt Sugar is used on almost all prepared foods for infant feeding. It is the major ingredient in malted milk. Malt Sugar, as a food, has nutritive substance of great value owing to its high maltose content and to the presence in it of the various vitamins of the original grain. In the living organism of the human body the malt sugar is

transformed into assimilable sugar more rapidly than is cane sugar. Malt Sugar is very easily digested and not being so sweet as cane sugar it can be taken in much larger quantities than cane sugar.

To emphasize the additional qualities possessed by malt sugar products, various calorific values are here alluded to, from which it can be seen that the presence of malt sugar increases the caloric value considerably.

### *Calorific values per pound*

Mayonnaise .....	3000
Malt Extract Powder .....	2010
Malt Sugar Powder .....	1990
Malto-Dextrin Powder .....	1790
Sugar .....	1750
Skin Milk Powder .....	1640
Roast Beef .....	1620
White Bread .....	1190
Roast Leg Lamb .....	900
Ice Cream .....	900
Boiled Potatoes .....	440
Fresh Milk .....	325
Fresh Cod Fish.....	325

Since the first of the year exhaustive experiments have been conducted on mayonnaise made with and without malt sugar, and with and without cane sugar, using formulas varying in percentages of oil, egg, sugar, malt sugar and vinegar. The beating time was also varied from 7 to 28 minutes. Samples taken from these batches, together with samples of mayonnaise purchased in the open market, were then subjected to various tests, including the heat test, freezing test, shaker test, wagon test (hauling on one- and five-ton trucks). With few exceptions, it was found that the mayonnaise containing malt sugar held up far better than mayonnaise which did not contain it.

A basic formula was then adopted of:

- 79.5% Vegetable Oil
- 6.1% Whole Eggs or Yolk (containing malt sugar with salt added)
- 4.1% White Malt Sugar Powder
- 9.2% White Distilled Vinegar (50 grain)
- 0.6% Mustard
- 0.5% Salt, highest grade

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\*Presented before the Mayonnaise Products Manufacturers' Association Convention, Atlantic City

### Census Report (Continued)

#### EXPORTS OF FOREIGN FATS AND OILS, QUARTER ENDED DEC. 31, 1929

KIND	Pounds	KIND	Pounds
Fish oils .....	165,479	Palm & palm-kernel oil .....	524,414
Other animal oils & fats, inedible .....	53,698	Peanut oil .....	70,159
Olive oil, edible .....	28,008	Soya-bean oil .....	
Tung oil .....	1,373,541	Other expressed oils & fats .....	79,497
Coconut oil .....	535,213	Vegetable wax .....	120,974

#### EXPORTS OF DOMESTIC FATS AND OILS, QUARTER ENDED DEC. 31, 1929

KIND	Pounds	KIND	Pounds
Oleo oil .....	15,078,270	Other animal greases & fats .....	9,964,925
Oleo stock .....	1,710,426	Cottonseed oil, crude .....	8,061,989
Tallow .....	974,324	Cottonseed oil, refined .....	1,468,214
Lard .....	234,008,375	Corn oil .....	63,369
Lard neutral .....	3,775,640	Vegetable oil lard compounds .....	1,602,853
Lard compounds, containing animal fats .....	945,967	Other edible vegetable oils and fats .....	1,368,357
Oleo & lard stearin .....	817,056	Coconut oil .....	8,960,866
Neat's-foot oil .....	457,730	Linseed oil .....	661,579
Other animal oils, inedible .....	234,490	Soya-bean oil .....	1,208,597
Fish oils .....	354,342	Vegetable soap stock .....	2,397,846
Grease stearin .....	174,469	Other expressed oils and fats, inedible .....	1,828,222
Oleic acid, or red oil .....	719,820	Glycerin .....	258,316
Stearic acid .....	271,919		

### Malt Sugar

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Total beating time 8 minutes.

Total weight, 4116 grams to 8232 grams, made on a 30 quart machine. By means of a cork, with the proper size hole in it, the flow of the oil was regulated so that it flowed out in 8 minutes. This makes for a uniform product and eliminates guesswork.

During recent months a new product has been put on the market, which consists of a special white malt sugar powder with the highest grade salt added for use in liquid or frozen eggs. Experiments were conducted and it was found that best results are obtained by using the following formula:

85% Whole Eggs or Yolks

15% White Malt Sugar (with salt added)

By using whole eggs treated with malt sugar and salt a mayonnaise of high consistency and good color was produced.

Davidson Commission Co., Chicago, oil and fat brokers, recently issued a twelve-page pamphlet listing the high and low prices for fats, oils and allied products for the years 1919 through 1929.

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