

The "Cream Top" Type Bottle for Laboratory Sampling of Homogenized Milk

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THE increasing consumption of homogenized milk has made necessary the search for suitable methods for the determination of the efficacy of the process of homogenization. This process renders the size of the fat particles very small and also produces a milk without a visible cream line. Variations in the homogenization process affect the size of the fat particles, hence the necessity for some sort of uniformity in the process and the need for suitable means for determining the same.

The United States Public Health Service defines homogenized milk as "milk which has been treated in such manner as to insure break-up of the fat globules to such an extent that after 48 hours storage no visible cream separation occurs on the milk and the fat percentage of the top 100 c.c. of milk in a quart bottle, or of proportionate volumes in containers of other sizes, does not differ by more than 5 percent of itself from the fat percentage of the remaining milk as determined after thorough mixing."¹

In order to determine conformity with this definition it is necessary to:

(1) Draw off the top 100 ml. of the milk without any agitation of the lower layer.

(2) Analyze the upper and lower layers after the 48 hours of quiescent storage.

In our laboratory we have found it very convenient to use the "cream top" type of milk bottle for the purpose

of pouring off the top 100 ml. The milk which is brought into the laboratory for analysis (to determine degree of homogenization) is thoroughly mixed and then transferred to this type of bottle. It is then placed in the ice box and allowed to remain quiescent for 48 hours. At the end of this period the plunger is carefully placed in the bottle so that it forms an effective seal in the neck. (See illustration.) The bottle is then inverted and the upper portion of the milk is poured off. A volume approximating 100 ml. is ob-

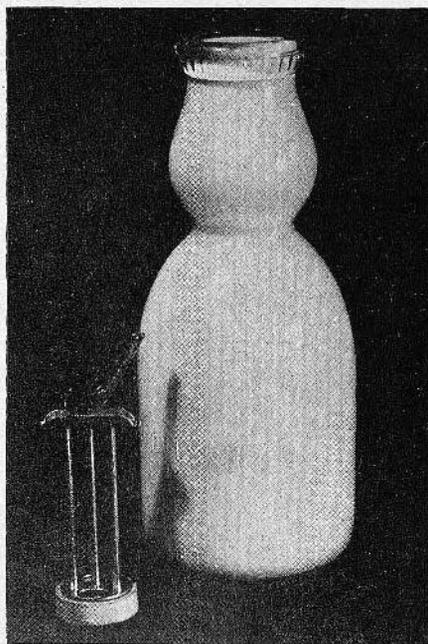


FIGURE 1

Cream-top Bottle of Milk with Plunger Apparatus

¹Public Health Bulletin No. 220 (1939 Edition Milk Ordinance and Code).

tained in this portion. It is to be noted, however, that the amount contained in this upper layer is dependent upon the make of the bottle used. There are many types of cream top bottles used, each however, maintaining a similar characteristic design. A representative sample of this upper layer is analyzed. Similarly a representative sample of the lower portion is analyzed.

In making the analysis for the fat content it has been our experience that the Babcock method when applied to

homogenized milk may cause an error of as much as 0.3 percent. This is due to the fact that a clear fat column is not obtained.

The New York City Department of Health Requirement for homogenized milk differs from that of the United States Public Health Service, in that the former is concerned with the upper 1/10 portion instead of the top 100 ml. The method described in this article is used in our laboratory in the sampling of homogenized milk just prior to analysis.

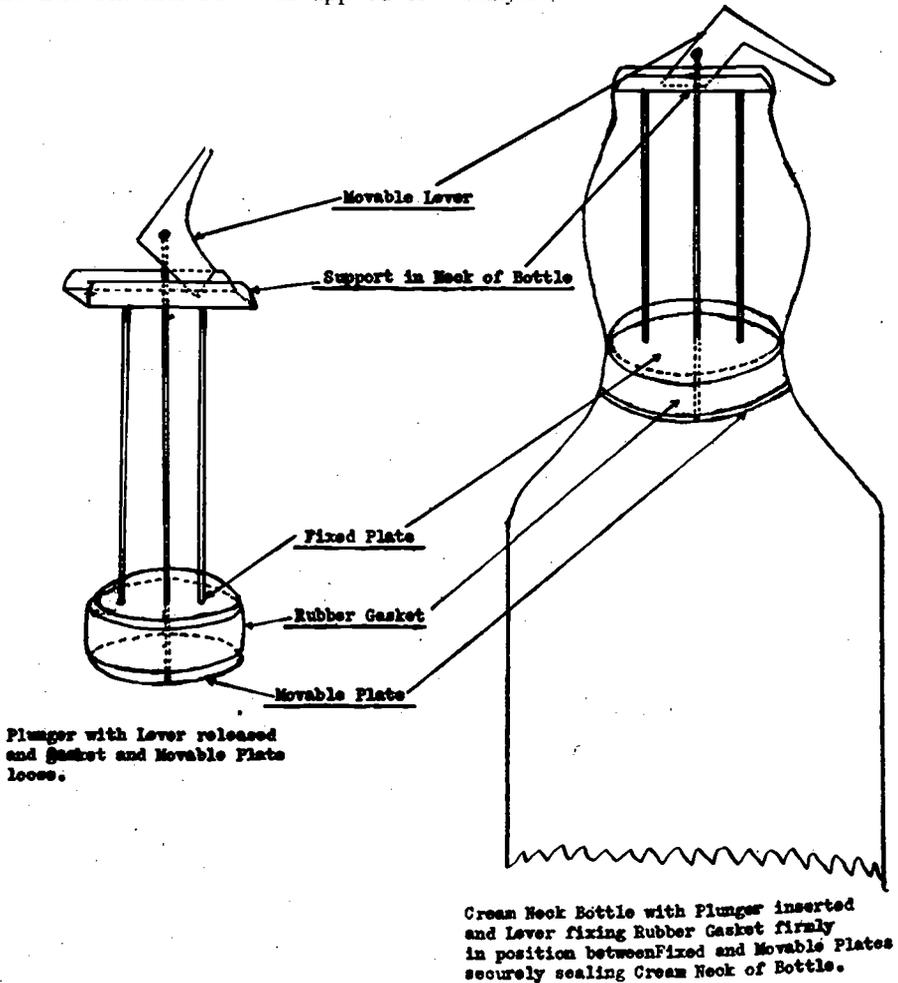


FIGURE 2

Plunger Apparatus and Adjustment in Milk Bottle