
Curing Small Units of American Cheese in Liquid Paraffin¹

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INTEREST in a suitable method of curing and packaging American cheese in small retail size units has been gradually increasing in recent years, particularly following the advent of process cheese into the market just prior to the World War. Process cheese rather quickly gained a foothold in the market, probably for one reason because of the ease and success with which it could be placed in small retail-size units at the factory. This advantage of process cheese coincided with the trend toward retail packaging of other foods and was a feature which evidently appealed to both the retail grocer and his customer.

The success of the retail package of process cheese led to numerous attempts to place natural cheese also in a suitable retail form. The difficulties which have presented themselves in the solution of this problem have been such that no methods have been so successful and practical as to have attained the status of successful general application in the industry. Some cheese manufacturers make a small-style natural cheese which is marketed with a degree of success but which either is subject to excessive loss of weight during curing or becomes unsightly due to mold growth. Others have cured the cheese in large units and cut the cheese into suitable sizes and shapes after curing. This presents the problem of utilization of rind and waste material from cutting to weight. Further, it leaves a cheese surface which is frequently open and one to which it is difficult to apply successfully a coating or wrapper.

The method of curing cheese in oil permits the aging of the cheese in small units without excessive loss of weight and without the growth of

¹ U. S. Patent No. 1974847, entitled "Process for Curing Cheese," issued September 25, 1934, to E. F. Goss and B. W. Hammer and assigned to Iowa State College Alumni Patent Board. Journal Paper No. J417 of the Iowa Agricultural Experiment Station, Ames, Iowa, Project 385.

unsightly mold on the surface of the package. This method of curing cheese is suggested as having commercial possibilities for the curing of small-style retail units of natural cheese.

In 11 comparisons of American cheese in two-and-a-half-pound prints in a paraffin wax coating and cheese cured in mineral oil the flavor score of the latter was superior in four instances, inferior in two, and the same in five. There was a tendency for the flavor in the case of the oil-cured cheese to develop more rapidly; but at the same time the quality of the flavor seemed to undergo earlier deterioration, which suggests that the flavor results were more satisfactory on the short-cured product, especially in the case of high-moisture cheese. Earlier development of cheese flavor is likely caused by the greater bacterial and enzymatic activity in the presence of the greater percentage of moisture retained in the oil-cured cheese. This earlier development of flavor would permit a shorter curing period for the oil-cured cheese as compared with similar original cheese stored under such conditions as would permit considerable reduction of moisture content during aging. This shortening of the time required for curing would constitute a distinct commercial advantage.

In 11 comparisons of the body of paraffin-wax-cured cheese with oil-cured cheese the results indicated an improved score of the latter in seven instances and no difference in four. The oil-cured cheese exhibited a characteristic softness of body which was not present in the wax-cured cheese. This softness is frequently considered by the average consumer to be an indication of richness. In the case of oil-cured cheese this soft, mellow body is desirable or satisfactory in a mild or medium-cured cheese but also is conducive to earlier development of pastiness than in a normally dryer cheese or one which has become dryer through loss of moisture during the curing period.

Loss of weight during curing contributes a considerable amount to the cost of curing cheese. Not only does the drying of the cheese retard the curing agents so that a longer period of time is needed for body breakdown, but the loss of cheese weight is an added expense. Oil-cured cheese loses little weight during the time required to develop a cured cheese flavor. Moisture tests on oil-cured cheese in two-and-a-half-pound prints showed moisture loss during curing to be almost entirely eliminated. Moisture loss after one- and two-month periods was not sufficient to be definitely measurable, and cheese held for 12 months in an average of four trials in no case lost more than 1.6 percent moisture, while the two-and-a-half-pound paraffined prints held for the same period in the curing room lost an average of 10.3 percent.

Since small units of cheese cured in paraffin oil seem to possess certain desirable characteristics which are difficult to secure with conventional methods of curing, this method is suggested as being worthy of further study.