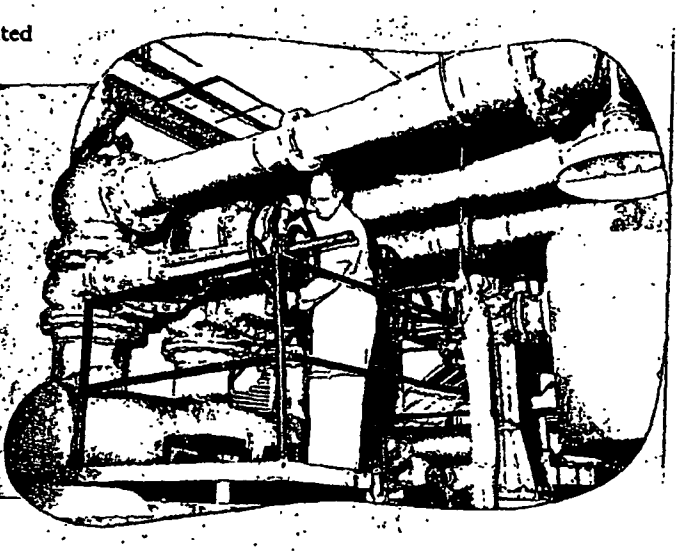
ejectors for deodorizing Margarine and Shortening

● The plant of Mrs. Tucker's Foods Inc., at Sherman, Texas, produces high-grade, uniform quality margarine and vegetable shortening under rigid standards of purity and quality. The motherly face of the company's trade-mark "Mrs. Tucker" is known throughout the Midwestern and Southwestern states where its Meadolake margarine and Mrs. Tucker's shortening are distributed.

There is a never-ending routine of testing, inspecting and process-controlling in this modern plant. From the time the crude vegetable oil, either cotton seed or soybean, flows from the tank cars, until the products are packaged, there is relentless watchfulness at every step of the process.

The oil arrives in tank cars. It is first treated with an alkali to neutralize any undesirable natural acids that may be present. These acids are removed in the form of crude soap. The color of the oil is then lightened by contact with a natural clay which absorbs the coloring matter. Hydrogenation then changes the liquid oil to a semisolid which is necessary to produce the finished product. Appropriate mixing is necessary after hardening in order to control firmness. Deodorization is the final step before packaging. This removes any objectionable flavor of the vegetable oils and leaves a bland product. At this point the fat is ready for chilling and packaging in the form of shortening or is mixed with milk solids and other ingredients for use as margarine. Both margarine and shortening are quickly chilled in refrigerating devices similar to ice cream freezers and then packaged in sanitary containers. Margarine is at least 80 per cent fat and about 20 per cent milk solids, salt, and other ingredients. Shortening is 100 per cent fat.

The purpose of deodorization is to remove objectionable odors, improve the keeping qualities of the oil, and lighten its natural color. Deodorization is made possible by the fact that neutral fat cannot be vaporized to any appreciable extent, but components of oil which impart flavor and odor can be changed into vapors under high temperature and low absolute pressure, and can be removed from the oils as gases. Steam flowing through the oil acts as a carrier to sweep vapors from the oil; it also absorbs part of the low absolute pressure, so that the absolute pressure of the oil vapor is lowered, preventing vapors returning to the liquid phase.



A battery of three Elliott boosters (or first ejector stages) which serve the deodorizers in the plant of Mrs. Tucker's Foods, Inc., Sherman, Texas. The boosters are connected to a manifold through shut-off valves. The second and third ejector stages may be seen at the lower right.

In the deodorization process the oil is heated to a high temperature to promote active vaporization of the components which cause unpleasant odors and flavors. Low absolute pressure works with high temperature in this process. The heating is accomplished by circulating the heated vapors of a chemical known as "Dowtherm" through closed coils that are in contact with the oil in the still.

Elliott three-stage ejectors maintain the low absolute pressure required for the deodorization process. These ejectors handle both the undesirable oil vapors flashed from the oil and the steam admitted to the deodorizer. These gases are handled at around 450 F without the slightest difficulty.

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