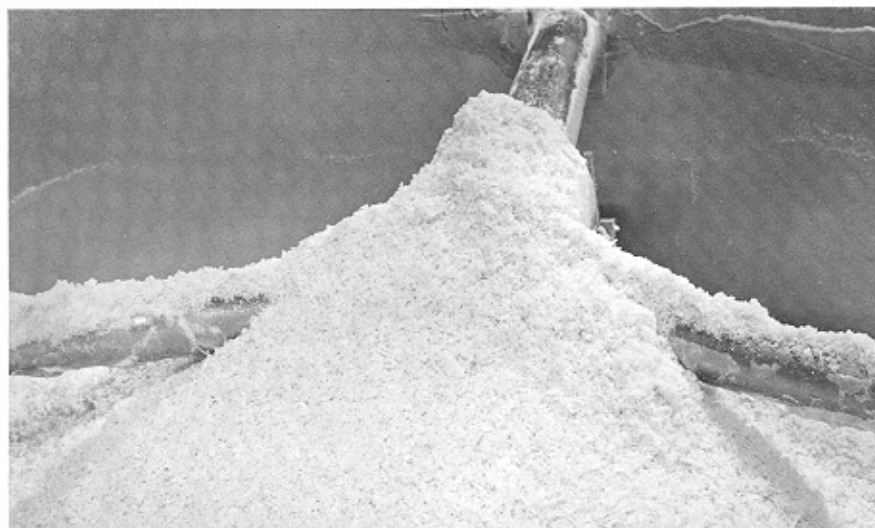


Field Report

Size reduction system cuts drying time by 50%



Shredded cheese ready for drying. Having a uniform "shred shape" greatly increases drying efficiency.

How best to increase plant production capacity while maintaining or, if possible, improving product quality is a 'happy problem' facing all successful food companies. Masson Cheese Corporation, in Bell, California, is no exception.

Masson's biggest business is bulk grated cheese sold to the HRI (Hotel, Restaurant and Institutions) market under the "Masson" brand name. The company's second largest and fastest growing market is the sale of grated cheese to food processors as an ingredient in other processed foods.

Two steps basic to the production of grated cheese are size reduction and drying of the cheese. Accordingly, the company's production group decided to concentrate on these areas to increase efficiency and increase production. The company's previous method of reducing cheese relied on a hammermill which crushed the blocks of cheese into very random size pieces which were then dried. However, after testing various sizes and shapes of cut cheese, it was found that a uniform "shred shape" greatly increased drying efficiency and therefore, reduced drying time significantly.

A second size reduction step comes in the process after drying the cheese, where it was reduced to its final size and shape. Here again, the company used a hammermill. Again, particle size and shape uniformity were almost impossible to achieve. A very wide range of particle sizes and a high percentage of "fines" were created, which tended to give the finished product an unacceptable "gritty" mouth feel. Plus, to produce the small particle a great deal of time in the hammermill was necessary. Increasing capacity in this size reduction operation be-

came another consideration.

After reviewing equipment on the market, Masson's production team found a shredder and a comminution machine that fit their processing requirements. The shredder, a Model CC designed and manufactured by Urschel Laboratories, Inc. (Valparaiso, Indiana U.S.A.) is equipped with the cutting parts necessary to produce a V-cut shred. This unit produced exactly the shape and size desired, with a high degree of uniformity and more than adequate capacity. When the shredding unit was placed in production, drying time was cut by 50%.

The size reduction machine for use in the finished sizing operation was a Model 1700 Comitrol® unit also designed and manufactured by Urschel Laboratories. Through its unique cutting design, which is based on centrifugal force, the Comitrol® machine finishes the dried cheese into a uniformly small particle size with no metal to metal contact and no heat rise. The Comitrol® is equipped with a 2-inch (50 mm) cutting head and six blade impeller set to turn at 6,840 RPM.

Masson's management believes that the finished cheese is actually of a higher quality due to the particle uniformity in the finished product. Capacity of this final size reduction process has been increased by 50%, now a 1,000 lb. (450 Kg.) batch can be uniformly reduced through the Comitrol® machine in 20 minutes.

The company's customers feel that the quality of Masson's grated cheese has definitely increased. Perhaps the biggest testimonial to this increased quality is the fact that Masson's grated cheese business has increased by 60% since the recent change over to the new process.

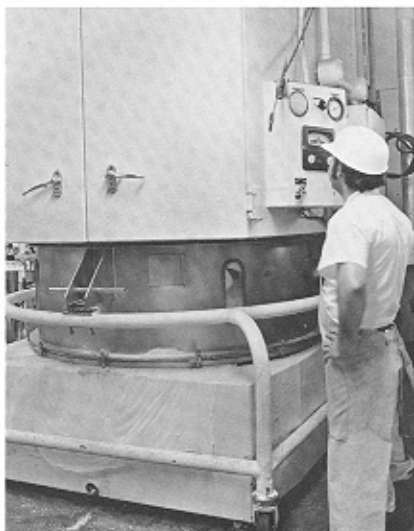
Here is the final production process



After cheese is prebroken (above), it drops directly into the Urschel shredder where it is cut into a uniform size and shape prior to drying.

developed by Masson Cheese:

1. Blocks of cheese are made using whole milk.
2. Ambient temperature blocks of cheese and wheels of Parmesan and Romano are fed into a pre-breaker which breaks the cheese into chunks approximately 1 to 2 inches in diameter (25-50 mm).
3. Chunks are discharged directly into the Urschel Model CC Shredder, where the cheese is cut into uniform shreds with a cross section of $\frac{1}{16}$ " (1.6 mm) and a length of 1-2" (25-50 mm).
4. Shredded cheese is air conveyed to the basket of a fluid bed dryer where hot air is forced into the cheese which causes agitation and rapid drying to take place. Because of the uniform shred shape and size drying time was reduced by 50%.
5. Dried cheese is air conveyed to a FMC vibratory feed unit which meters a consistent flow of product into the Urschel Comitrol® Model 1700 size reduction machine. Here the cheese is reduced uniformly to its final size with no metal to metal contact or heat rise.
6. Finished product is then conveyed by an air suction discharge to a holding hopper from where it is air conveyed to a Franklin Electric packing machine. Masson grated cheeses are sold in 1 lb. (0.5 Kg.), 5



A fluid bed dryer is used for the cheese at Masson Cheese Corp. Shredding the cheese prior to drying reduced drying time by 50%.



After cheese is dried, it is fed by a vibratory feeder into the Urschel Comitrol® machine for final size reduction. Uniform particle size is achieved by centrifugal force cutting action with no metal to metal contact or heat rise.

lb. (2.3 Kg.), 25 lb. (11.4 Kg.) and 50 lb. (22.7 Kg.) containers.

7. The finished packaged cheese is then stored awaiting shipment to customers.

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