Hygienic Micro Motion® Flowmeters Replace Magmeters and Improve Egg Processing Efficiencies

RESULTS

- Improved product consistency and reliability
- Improved quality
- Reduced rework
- Hygienic meter, cleanable and inspectable in place

A single Micro Motion flowmeter can switch from one ingredient to another with no adjustments.

WWW.micromotion.com

APPLICATION

Egg products are available to food industry users in three basic forms: liquid, frozen or dried. The most common forms of liquid eggs are whole egg, egg white and egg yolk.

Separation of egg yolk and white facilitates recombination of these two materials into various forms. Products that result from these recombinations are better suited for use in various food applications.

For example, processed egg products make possible the production of large quantities of uniform egg slices. These egg slices are possible thanks to hard-boiled egg tubes. Egg tubes, as they are commonly called, are the result of the separation and recombination of egg yolk and white into one long continuous egg. From one egg tube, a significant number of uniform egg slices can be produced with minimal end-slice waste.

Eggs are also processed into other products such as scrambled eggs. Scrambled eggs vary in character as a function of the ratio of yolk to white.

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For more information:
www.EmersonProcess.com/solutions/food_bev
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CHALLENGE

One egg processor who produces hard boiled and scrambled egg products was experiencing problems with material balance and product consistency. Their scrambled egg products are typically a blend of whole egg and egg white to achieve the desired, final product characteristics. The blending requires strict compliance to scaling guidelines.

After separating the egg from the shell, the whites and yolks are separated. The next step is to pasteurize the egg. Pasteurization of the product is a safeguard against contamination by the dangerous, pathogenic organism Salmonella. After pasteurization, the whole egg and egg white are blended together in the appropriate ratio to meet the user's specifications for the finished product.

This processor was using magnetic flowmeters to monitor and blend the whole egg and egg whites. Using magnetic flowmeters resulted in problems with material balance and inventory control. Eggs exhibit differences in their physical properties from one to another. In addition, egg whites consist of four distinguishable layers of varying densities. The volumetric measurement provided by the magnetic flowmeters did not provide a consistent product or reliable material balance due to this variation in mass-to-volume ratios.

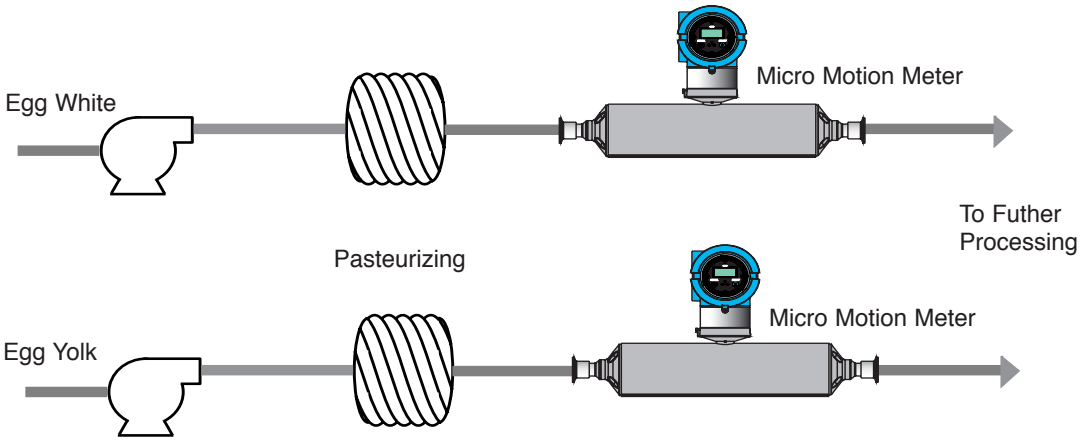
SOLUTION

The plant manager elected to replace the magnetic flowmeters with hygienic mass flowmeters in the scrambled egg blending system. Hygienic sensors were required due to the egg products' susceptibility to microbial spoilage. Any metering device used in this application has to meet the sanitary requirements for metering of egg products.

The Micro Motion® mass flowmeter measures mass directly, so the ratio blend is not affected by changes in the egg temperature, viscosity, operating pressure or density.

Additionally, since mass is being measured, it does not matter which ingredient is measured through each flowmeter and a single flowmeter can switch from one ingredient to another with no adjustments.

Since installing the Micro Motion mass flowmeters, the processor has not experienced problems with material balance and has gained significant improvements in product consistency and quality.



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