

High-Pressure Processing to Meet Consumer Demands

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Food safety today is a top priority for manufacturers, retailers and suppliers, as well as consumers. Consumers also are looking for fresher products with better taste and less additives. To meet these demands for quality, nutrition and safety, more companies are considering high-pressure processing (HPP).

What Is HPP?

HPP is a post-packaging intervention recognized and scientifically validated by the U.S. Department of Agriculture (USDA), Food & Drug Administration (FDA) and the general scientific community. The process subjects packaged products to water pressures of up to 87,000 PSI (600 MPa) in a large pressure chamber for an allotted time, depending on the product.

Although some compression takes place during the process, there is little to no impact on the product's taste or texture as the pressure is hydrostatic. As the pressure increases, there is a slight adiabatic temperature rise, which occurs for a short time. Once the pressure is released, the water temperature returns to its original state.

As an effective, uniform post-packaging kill step, high-pressure processing inactivates spoilage bacteria and pathogens, such as listeria, E. coli and salmonella,

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in a wide variety of food products, including ground beef, ground turkey and sliced meats. HPP retains food quality, maintains natural freshness and dramatically increases microbial shelf life. While HPP can be used to eliminate the risk of pathogens in certain products, it cannot be used to make shelf-stable versions of low-acid foods.

Implementing the Process

HPP carries significant up-front costs for in-house implementation. Aside from purchasing necessary equipment, companies also must have extensive knowledge of the scientific process.

Considering these hurdles, many manufacturers have started outsourcing HPP to toll processors. In addition to avoiding the HPP equipment costs, companies can have large quantities of product processed at once by a toll provider with multiple processing lines. Depending on volume, manufacturers can send product weekly, monthly or yearly, with the processor warehousing the excess product until processing occurs.

In addition, toll companies help streamline the entire production process by treating products with the HPP technique and facilitating pack-off (including labeling, packing, bar coding and palletizing) and distribution back to the manufacturer, distributor or directly to the end retailer. Using this type of implementation, companies can provide safe, quality products to consumers more efficiently.

Benefits to Consumers

HPP offers many benefits to manufacturers — food safety being the most significant. But the process also helps companies meet additional consumer demands, such as:

1. “Clean label” products. Without high temperatures, chemicals or other additives, HPP can actively prevent or eliminate pathogens and spoilage organisms. Therefore, companies can produce safe, “clean label” products, meeting consumer demand for more natural foods.
2. Longer shelf life. HPP has proven to extend shelf life in many products. In fact, it can double the shelf life of most ready-to-eat (RTE) meats, such as sliced roast beef, sliced chicken, sliced turkey and sliced ham. As a result, companies can reduce waste and maintain a regular supply of product for customers.
3. New product development. HPP also allows manufacturers to be more innovative. By utilizing the process, companies can combine products that previously couldn't be combined due to short shelf life, such as vegetables with marinated meat.

HPP has started to gain recognition as the most viable post-packaging step available for food manufacturers. While advantageous to manufacturers, HPP also has proven to be beneficial for consumers. The process causes minimal changes in

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the “fresh” characteristics of foods by eliminating thermal degradation and extending shelf life. By utilizing HPP, manufacturers are able to produce safe, fresh, preservative-free products to fulfill growing consumer demands.

For more information, please email Segel via justin_segel@amerpastco.com [1] or visit www.pressurefresh.com [2].

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