

Can You Take the Heat?

Retortable plastic packaging opens up options for manufacturers

Retort processing, which has been around forever, tends to conjure up images of canned soup or stew. But advances in plastic packaging have opened up new directions for this stalwart technology.

“Effectively, a retort is a giant pressure cooker that sterilizes a hermetically sealed package and its contents together, inactivating enzymes and killing microorganisms, which could spoil the product or make the consumer ill,” explains Carol Zweep, manager of Packaging Services at the Guelph Food Technology Centre (GFTC) in Guelph, Ont. “Different food products and different container shapes and sizes will require specific temperature levels and holding times to ensure food safety. Heating can also cook the product, but long exposure can also degrade levels of nutrients, such as vitamin C, thiamine and lycopene.”

Until recently, retortable packaging meant glass bottles or metal cans, since no other material could stand up to the rigours required by retorting. Now, however, a wide range of plastic packaging is available, offering food processors many more options. Some of these include:

- TetraPak’s Tetra Recart, a paper-foil-based laminate rugged enough to withstand high temperatures. It’s used for chili as well as a wide variety of vegetables, including potato cubes, pumpkin, carrots, corn, peas and beans.
- Retorted plastic bottles. The nutrition drink Ensure is packaged in a retorted multilayer barrier polypropylene bottle with a two-piece plastic and metal closure.
- Flexible pouches. These pouches, like those used for BumbleBee’s gourmet tuna, are typically made from an outer polyester layer, aluminium foil barrier layer, sometimes a nylon layer for added strength, and a polypropylene inner heat seal layer.
- Sipping containers. Campbell’s Soup at Hand is pack-

aged in a multilayer retorted microwaveable container.

- Retortable trays with peelable lids, such as Heater Meals, are self-contained, shelf-stable meals with the added advantage of being self-heating.

As with any other packaging choice, there are trade-offs to choosing retortable packaging. “Retortable plastic packaging tends to be more expensive, not principally because of the packaging material, but more because of the need to inspect carefully for quality,” says Zweep. “The Canadian Food Inspection Agency has a procedure specifically for testing the integrity of seals in retortable packages, including physical testing, which the GFTC is equipped to carry out. Packages that do not stand up to these tests can lead to dangerous food safety incidents, so manufacturers really have to be thorough in their QC testing.”

On the other hand, the advantages of retortable plastic can be considerable. For manufacturers, lighter-weight plastic packaging is less expensive to ship, and eliminates the danger of breakage and subsequent liability. In the marketplace, this packaging can help differentiate products from the competition. Consumers also benefit from the lighter weight, the reduced danger of breakage and injury, the convenience of easy-open packages, and, in the case of silicon-oxide-coated options, microwaveability. But possibly the biggest advantage to consumers is freshness. “Since plastic packaging is thinner, heat transfer is faster and it takes less time to retort the product,” says Zweep. “This means that more of the texture and delicate nutritional components can survive the process, and processors can better meet consumers’ demands for safe, fresher products.”



Retortable plastic packaging, such as these products from Campbell’s, BumbleBee and Hormel, offer producers greater flexibility, food safety and marketability.

Cliona Reeves is Communications manager at the Guelph Food Technology Centre (www.gftc.ca).