

NEW STERILIZATION RETORT CARRIERS LET SALT SLIDE RIGHT OFF

Injection molding specialist and plastics developer team up to rid food preparation equipment of brine residue following sterilization processing.

The segment of the food industry offering fully prepared and semi-prepared meals has to satisfy three basic obligations—good taste, convenience, and be sanitary. And, while some will argue that taste and convenience can be somewhat subjective measurements, sanitation and food purity are always critical. That's why with today's heat and serve meals, the boil in a pouch foods and the prepackaged microwaveable containers and bags, sterilization is one of the most important and last steps in their preparation. That's also why retort trays, the carriers used to hold the food containers during the sterilization operation, have become a major link in the process.

And a major kink. The problem has been in the fact that most retort trays are made of aluminum alloys, chosen for their lightweight, machining ease, and resistance to sanitizing solutions. The manufacturer of these metal trays is quite involved, requiring stamping, welding, machining as well as nut & bolt assembly. In addition, the sanitizing solution used in most cases is a salt-based brine that, despite a thorough pure-water rinse, tends to leave a salt residue on the aluminum carrier. The residue builds up and must be removed, requiring a secondary cleaning operation just for the trays. Also, the nuts and bolts are susceptible to loosening.

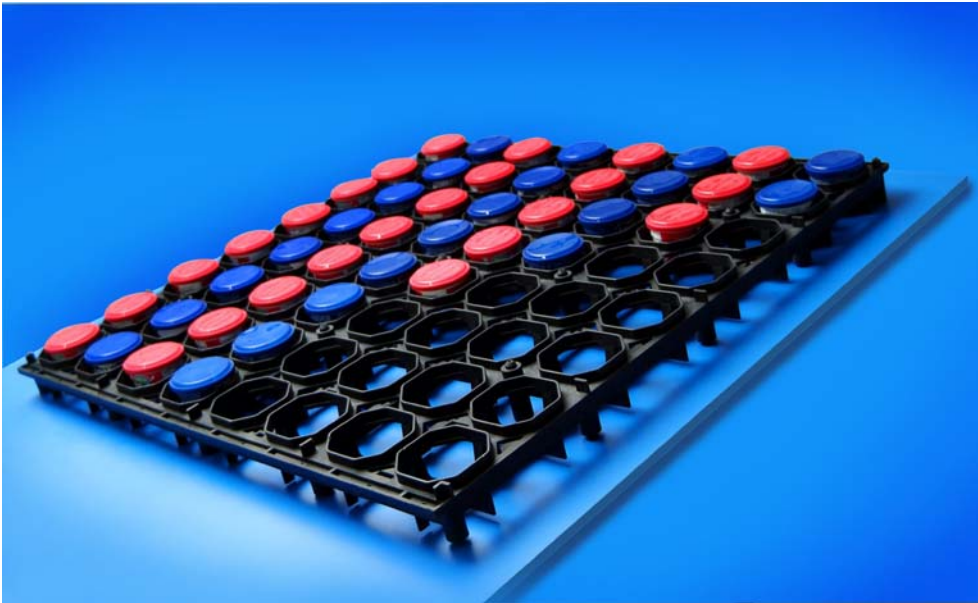
The cost of the aluminum construction, with fabricating operations and on-going maintenance needs, represents a substantial amount to pricing structures and can adversely affect profit margins.

Now, an answer to this food industry dilemma has been found as two leading companies in their respective fields have teamed up to develop a new retort tray construction made from...plastic! The project was headed up by Molded Materials, Inc., (MMI), Plymouth, MI-based specialists in the design, engineering and injection molding of protective dunnage trays and totes, ESD material handling units and low volume custom plastic molding services. For its part, MMI developed a basic tray design that would, with only minor size modifications, accommodate a wide variety of food packaging styles, shapes and sizes.

Once the fundamental tray design criteria was established, the next step was for MMI engineers to transfer the part design to a working mold configuration, making sure of its manufacturability, and then on to injection molding machines to produce finished products.

Yet, there remained one hold up...the material. That's where GE Plastics, MMI's partner in this project, entered the picture. The retort trays needed to be lightweight like their aluminum counterparts,

strong like the aluminum, but unlike the aluminum material it had to shed off the salt residue. The resulting material from GE Plastics is a PPX Grade of a NORYL Polycarbonate PTE blend.



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This material, according to Mark Marra, MMI application engineer, was formulated to produce special properties that would address several major issues within the food handling and processing markets. NORYL PPX offers low temperature toughness and high heat resistance plus durability, cleanability and non-stick performance. It offers higher temperature resistance and property retention over most polyolefins. It also provides good dimensional stability at extreme temperatures and improved chemical resistance and toughness, major issues in the retort tray market. The material also offers an improved balance of impact and stiffness for freezer to heated applications.

Besides eliminating the need for secondary cleaning procedures, the new plastic retort trays have resulted in cost savings of 30% as compared to the aluminum units. It has also been found that the plastic trays have a longer in-service life span, which, over time, will widen the cost differential between the two styles of trays.

The MMI/GE Plastics trays have demonstrated two additional advantages for the distribution, handling and retailing of the prepared food products. The plastic trays are capable of including Radio Frequency Identification (RFID) devices in their construction. The RFID tag and reader system is part of a universal electronic product code protocol now being established that will assist members of the supply chain, from manufacturer to retailers, in identifying, tracking, and inventorying goods.

With the use of the RFID tag, and the fact that the plastic retort trays are durable, one-piece construction, makes them ideal for use as a single handling container for warehousing, shipping, and temporary storage. The strength and attractiveness of the trays has also made their use in point-of-purchase retail displays possible, especially in 'end caps' where associated costs for handling and the disposal or recycling of conventional corrugated displays is eliminated or reduced.

Whatever the extent of their use...for just efficient sterilization procedures, or through multitasking for warehousing, shipping to the retail market, the new retort trays from Molded Materials are making a clean break from the traditional.