

IMMERSAFLOWTM

BUILDING A BETTER RETORT PROCESS

Since the beginnings of using retort processing to provide shelf stable food and beverage products, food scientists have struggled with the problem of load resistance, understanding fluid dynamics, and the differential temperature between the geometric center and perimeter of the product load.

Load resistance is where the process media takes the path of least resistance around the product load and commonly referred to as the “umbrella effect.” Sterilizer designers have traditionally tried to solve this problem by increasing flow, adding more spray nozzles, or upsizing steam inlets. Unfortunately, these solutions are incapable of providing any significant solution if the process media cannot get to the geometric center or validated cold spot.

So how can we go about solving this age-old problem?

The patented ImmersaFlowTM retort technology is one of the most promising technologies to be introduced to the in-container food industry in many years. ImmersaFlowTM is a new batch retort process providing precise control of process media fluid dynamics and path of least resistance, resolving the umbrella effect. No more waiting for gravity to work, or the need for increased process utilities to achieve homogeneous temperature profiles.

This innovative technology utilizes a closed loop column of process water, channeled through a plenum and closed wall baskets. In essence, ImmersaFlowTM creates an immersion process within the basket.

Outside of the basket, the retort shell is primarily empty, minimizing water usage and reducing the amount of heat required for the process.

Operations:

- Shorter Come Up Times allow more cycles per day.
- More efficient cycles use less retorts and smaller sterilization footprints.

Product Quality:

- Come Up Time reduction along with tight temperature uniformity throughout the entire basket produce homogeneous sterilized product, resulting in the highest possible sensory value.
- No need to over process the load perimeter to process the geometric center.
- Uniformity in cooking and cooling provide the ultimate tool for advance process calculation models which rely on close temperature grouping.

Energy Efficiency:

- Faster time to process temperature in heating and homogeneous cooling profiles substantially reduces the energy consumption footprint allowing for a lower container cost per unit.

Efficiency on all levels is the key to successful thermal processing and ImmersaFlowTM delivers the solution. By having control of the process media, ImmersaFlowTM has realized 4-6 minute come up times, with as little as a 2°F spread between the geometric center and perimeter of the load. Faster, tighter Come Up Time (CUT) to process temperature allows for more throughput, a more consistent product heating profile, and an overall reduction in energy consumption.

