

In-Container Sterilization In Minutes



Shaka Background

The Shaka™ process is a major and timely breakthrough in food technology. For the first time, in-container sterilization can be completed in a few minutes to allow the production of fresher, better tasting long shelf life ambient foods. Food quality is comparable with pasteurized foods and with aseptic processed foods over a wide range of products.

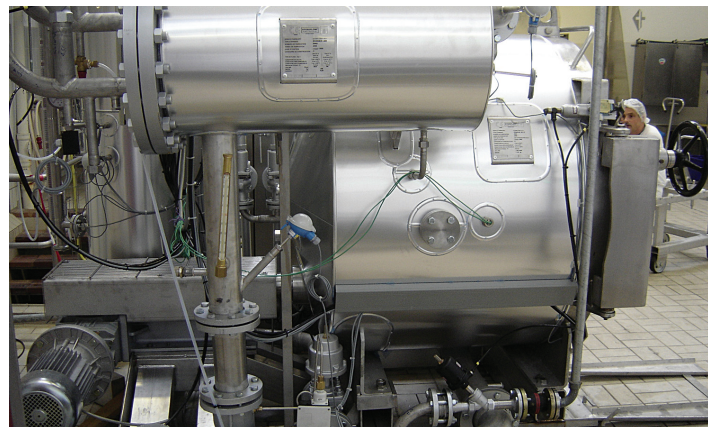
Process and capital costs are lower than for most other sterilization processes.

Other retorting processes are much slower and subject the food to a long exposure to heat, producing discoloration and that over-cooked note found in many canned and bottled foods.

Today's consumers demand more. They are looking for fresher, more nutritious and more natural tasting and looking foods, with better color, texture and mouth feel. Strong growth in premium categories indicates that consumers seek enhanced quality.



Steriflow - Shaka™ Retort and Control Panel



Steriflow - Shaka™ Retort Side View



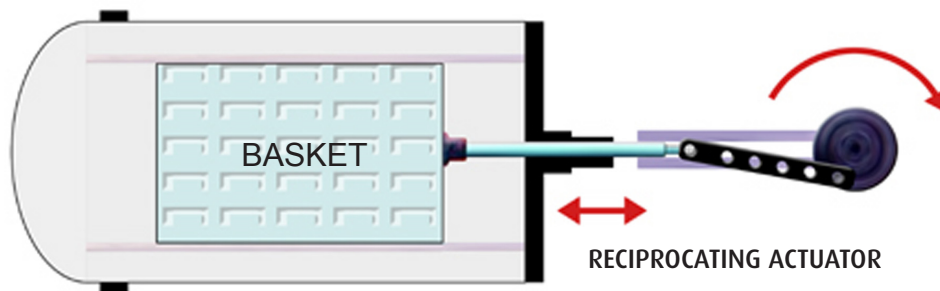
The Shaka Process

The Shaka™ process is a major and timely breakthrough in food technology. For the first time, in-container sterilization can be completed in a few minutes to allow the production of fresher, better tasting long shelf life ambient foods. Food quality is comparable with pasteurized foods and with aseptic processed foods over a wide range of products.

The process sterilizes food up to twenty times faster than conventional static retorting processes, with commensurate improvement in food quality.

For most retail cans and pouches of soups, sauces and similar food products, only about three minutes are needed for sterilization and about ten minutes for overall cycle times allowing about six batches per hour! Products containing particulates may take slightly longer. The Shaka process is not suitable for solid pack products such as ham or tuna, or for products requiring extended cooking.

SCHEMATIC RETORT – PLAN VIEW



Retail Food Products

The Shaka™ process can be used to improve the quality of existing long shelf life ambient packaged foods. With appropriate recipes, it can be used to create superior products comparable in quality to good pasteurized and chilled products, at ambient sector costs.

The Shaka™ process cycle times are very short. The process is suitable for most reasonably fluid food products, including those containing particulates.

Soups, sauces, vegetables, baby foods, pasta-in-sauce, ready meals, pet foods and other categories have all shown significant quality improvements when sterilized using the Shaka™ process.

Retail Food Products Cycle Times

Here are some typical times for come-up, sterilization and cooling, for products packed in 400gm (73mm x 110mm) retail cans. Note the dramatic time differences between the processes.

Leek and potato soup – process times in minutes				
	Come up	To Fo 6 (▲)	Cool	Total – from steam on until end of cooling to 40°C
Static	5.0	80	55	140
Rotary	7.0	29	14	50
Shaka™	2.0	2.5	3.0	7.5

The Shaka™ processed soup tasted fresh and retained its light green color. The rotary showed some discoloration and the static was noticeably discolored due to over-cooking.

Béchamel Sauce – process times in minutes				
	Come up	To Fo 6 (▲)	Cool	Total – from steam on until end of cooling to 40°C
Static	5.0	85	60	150
Rotary	6.0	36	36	78
Shaka™	2.0	3.5	5.8	11.3

The Shaka™ processed soup tasted fresh and retained its delicate coloring. The rotary showed distinct discoloration and the static was more discolored due to over-cooking note.

Here are some typical times for come-up, sterilization and cooling, for low acid conduction and convection food products packed in retail (400gm, 73mm x 110mm) cans. Note the remarkable speed of the Shaka™ process. The short cycle minimizes heat degradation.

Static Process		Indicative times in minutes:secs		
	Come up	To Fo 6 (▲)	Cool	Total – from steam on until end of cooling to 40°C
Béchamel	5:00	85:00	60:00	150:00
Shaka™ Process – Conduction Products (Low Acid)				
	Come up	To Fo 6 (▲)	Cool	Total – from steam on, to 130°C, until end of cooling at 40°C
White Sauce	2:20	1:45	4:00	8:05
Carbonara	2:45	3:10	3:40	9:35
Veg. Soup	2:20	2:15	3:30	8:05
Fish Soup	2:20	2:50	3:45	8:55
Shaka™ Process – Convection Products (Low Acid)				
	Come up	To Fo 6 (▲)	Cool	Total – from steam on, to 130°C, until end of cooling at 40°C
Veg. Soup	2:15	0:55	1:35	4:45
Peas in Brine	2:15	1:30	2:15	6:00
Sliced Carrots	2:20	2:10	2:30	7:00

The Shaka™ products tasted fresh, with well-developed flavors and little or no discoloration. The Shaka™ processed soup was bright, with the vegetables retaining their distinctive colors. The peas and carrots also retained their color and texture.

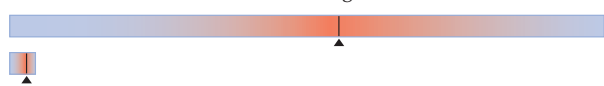
Food Service Products

Products for the food service market are normally supplied in containers much larger than retail products. In conventional processes, these containers require extended sterilization times and product quality can be compromised.

The Shaka™ process, by contrast, is very fast, even for food in large containers . With quality raw materials, it can be used both to improve current food products and to make premium and gourmet ambient products for the food service market.

The Shaka™ process dramatically reduces times for the sterilization and cooling of conduction products such as vegetable soups packed in large food service cans. Note the difference in speed compared with static retort processing for large (4250 gm or 1 gallon) food service cans.

Conduction Product (e.g. vegetable soup) – process times in minutes				
	Come up	To Fo 6 (▲)	Cool	Total – from steam on until end of cooling to 40°C
Static	2.0	225	195	422
Shaka™	2.0	10	6.0	18



Packaging

The Shaka™ process can be used successfully for fluid foods packed in a variety of containers including metal cans, glass jars, pouches and suitable plastic containers.

With packaging such as cans and pouches, which are highly heat conductive, the Shaka™ process can save up to 95% of sterilization and overall cycle times compared to traditional static retorting processes.

With less conductive glass jars, the Shaka™ process can save about 85% of sterilization and overall cycle times. Plastic packs also perform well, subject to precise temperature and pressure control.

Glass jars, pouches and plastic containers are processed with overpressure. All the containers used so far have withstood shaking in the retort.

About PTI

PTI Packaging Systems is an end-to-end packaging solutions provider, specializing in premade pouch, and cup & tray filling/sealing and sterilization applications. Through its diverse distribution, representation and OEM activities, you can rely on focused consultancy services, “gold standard” technology solutions, and unparalleled engineering support. From product development, through market launch, and next generation lightweighting, count on PTI Packaging Systems to offer you packaging solutions with a focus on your bottom line.