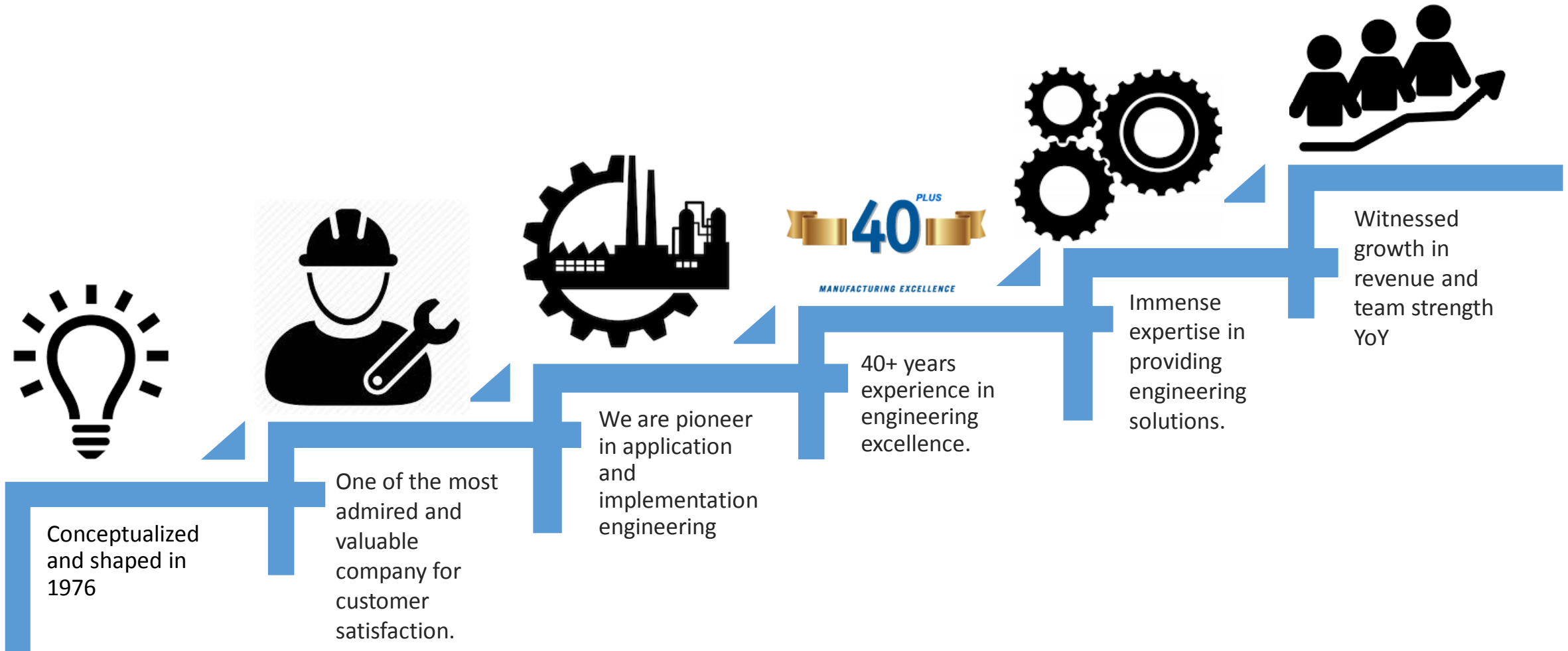


KERONE

Complete Engineering Solutions...

Who are we...



We are accredited by...

Member of AIMCAL



Member of IHEA



Strategic Partners of
Emitech Italy



IRQAO Certified For
Quality



Recognized and Rated by
CRISIL



CRISIL Verified



Member of A.M.P.E.R.E.
(Europe)



ASCB(E) Certification for
Best practice



ISO 9001:2008 | ISO 9001:2015 | OHSAS 18001 | EMS 14001

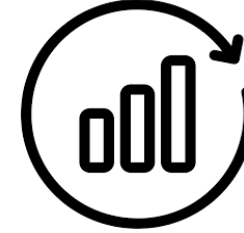
Why We...



**Highly Customized
Product**



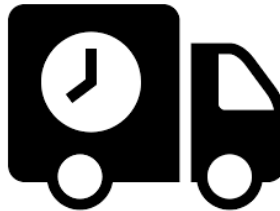
**Adherence
to Standards**



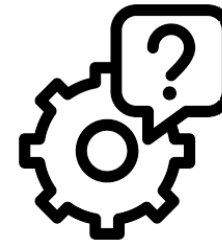
**Cost Effective
Solutions**



**Sound
Infrastructure**



**Timely
Delivery**



**Great After
Sale Support**

What is Thermal Processing...

Heating of food by means of heat exchanger or microwaves.

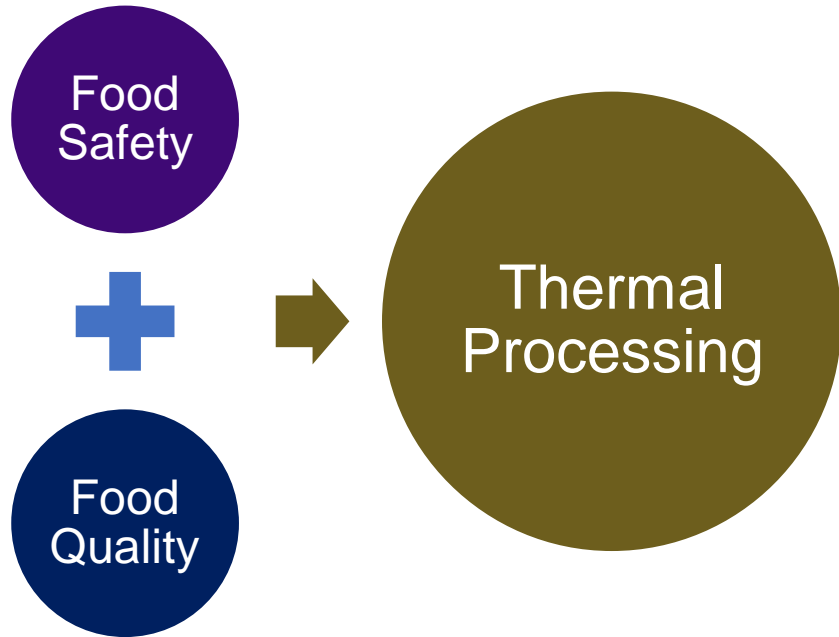
Thermal processing is a commercial technique used to sterilize food through the use of high temperatures

Heated at a temperature high enough to destroy microbes and enzymes

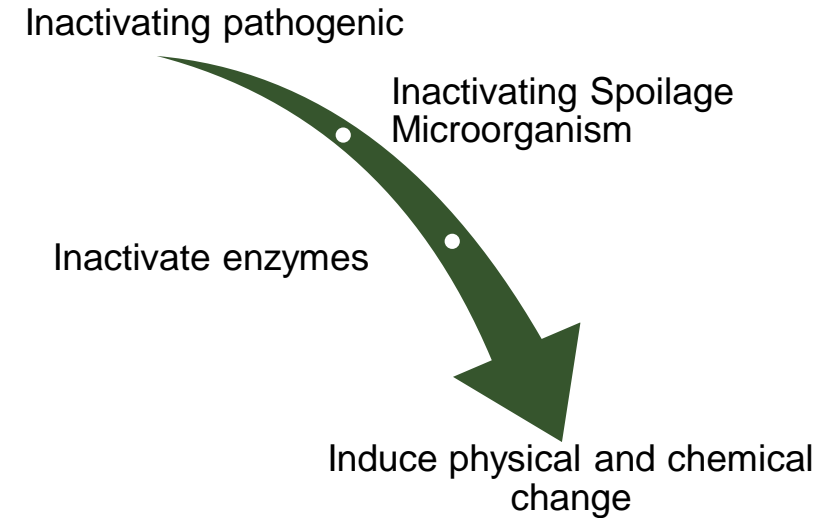
Technique to ensure that the food is heated adequately to eliminate the contamination

Images

Why is Processing Food...

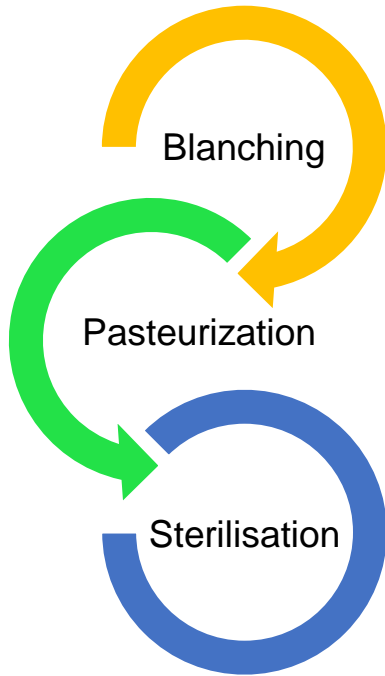


What is achieved



Type of Thermal Food Processing...

Key Food Processing



Mild processes

- Blanching
- Pasteurization

More severe processes

- Canning
- Baking
- Roasting
- Frying

Thermal Processing – Blanching...

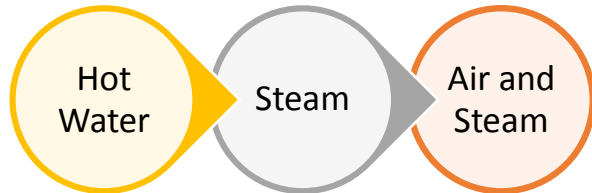
What is Blanching

The primary purpose of blanching is to destroy enzyme activity in fruit and vegetables.

- Reducing surface microbial contamination
- Softening vegetable tissues to facilitate filling into containers
- Removing air from intercellular spaces prior to canning

Methods of Blanching

Blanching takes place at temperature of 100°C.



Thermal Processing – Blanching...

Steam Blancher

Most common method specially for the large cut surface areas.

Food is transported in rotatory cylinder or mesh belt through steam stream.

Often poor uniformity of heating in the multiple layers of food, so attaining the required time-temperature at the centre results in overheating of outside layers.

Hot water Blancher

Immerses the food in hot water of temperature from 70 to 100°C for specified time duration.

Food is carried in drum which is submerged in the hot water.

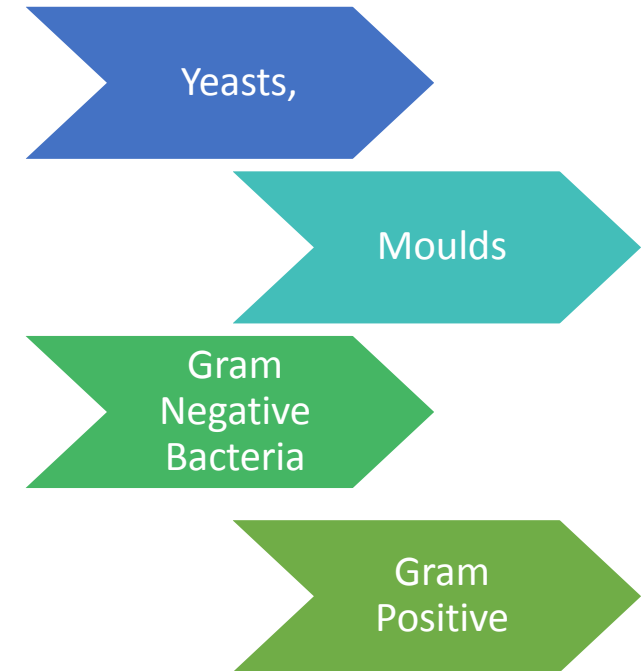


Thermal Processing – Pasteurization...

What is Pasteurization

- Pasteurization is the process of heating liquid to a specific temperature for a specific time period to reduce microbial growth.
 - Pasteurization is a relatively mild heat treatment in which food is heated to $<100^{\circ}\text{C}$.
 - It is widely used throughout the food industry and is frequently employed as a CCP in various HACCP plans.
 - Heat liquid to a set temperature below boiling point and then cool quickly.
 - Temperatures are equivalent and are sufficient to destroy the most heat sensitive of the non-spore-forming pathogenic organisms.

Milk Pasteurization Kill, All type of:



Thermal Processing – Pasteurization...

Methods of Pasteurization

1

Batch (holding)
Method

2

High-
temperature,
short-time (HTST)

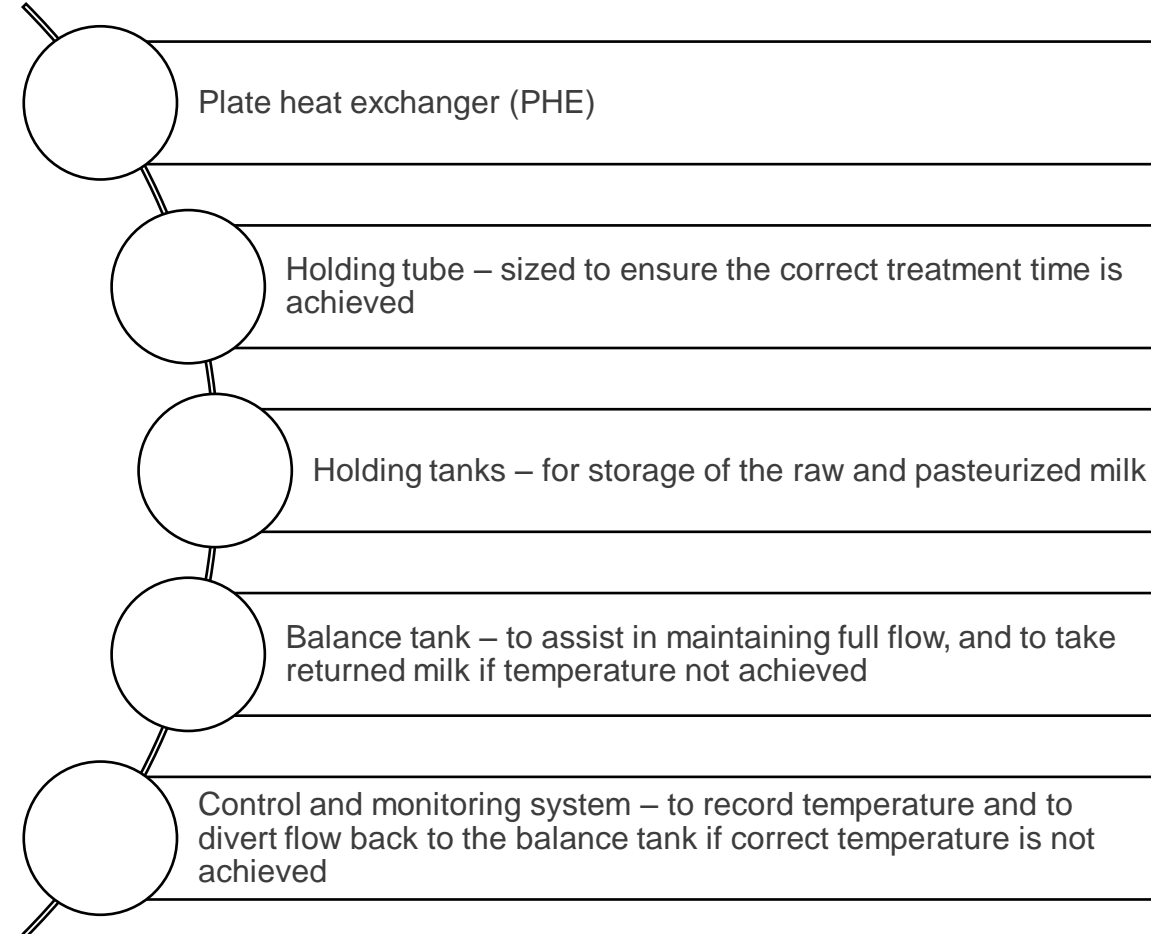
3

Ultra-high
temperature
processing (UHT)

4

Tunnel
Pasteurization

Typical Equipment in Pasteurization



Thermal Processing – Sterilization...

What is Sterilization

Sterilization is the process of eliminating all bacterial growth from various different objects.

Unlike pasteurized products where the survival of heat resistant microorganisms is accepted

Applying heat, irradiation, chemicals and applying high pressure

All various types of microbial growth including bacteria, fungi, viruses

All type of Food, Medical, Cleaning

What is Sterilization

Sterilization With Moist

Temperatures ranges from 110 to 130°C with sterilization times being from 20 - 40min.

Higher temperatures and shorter times may have similar effects

Sterilization By Chemical

Ethylene oxide is used to sterilize food, plastics, glassware, and other equipment.

Sterilization With Dry Heat

For killing bacterial endospores by dry heat, longer exposure times with moist heat.

Thermal Processing – Sterilization...

Sterilization is a more severe thermal treatment of foods

In the process of sterilization the foods are heated to sufficiently high temperature for a sufficiently long time to destroy microbial and enzyme activity

Sterilization process requires the technology that can offer sufficient heat in lesser time without causing any or reduce the damage to nutrients and sensory components

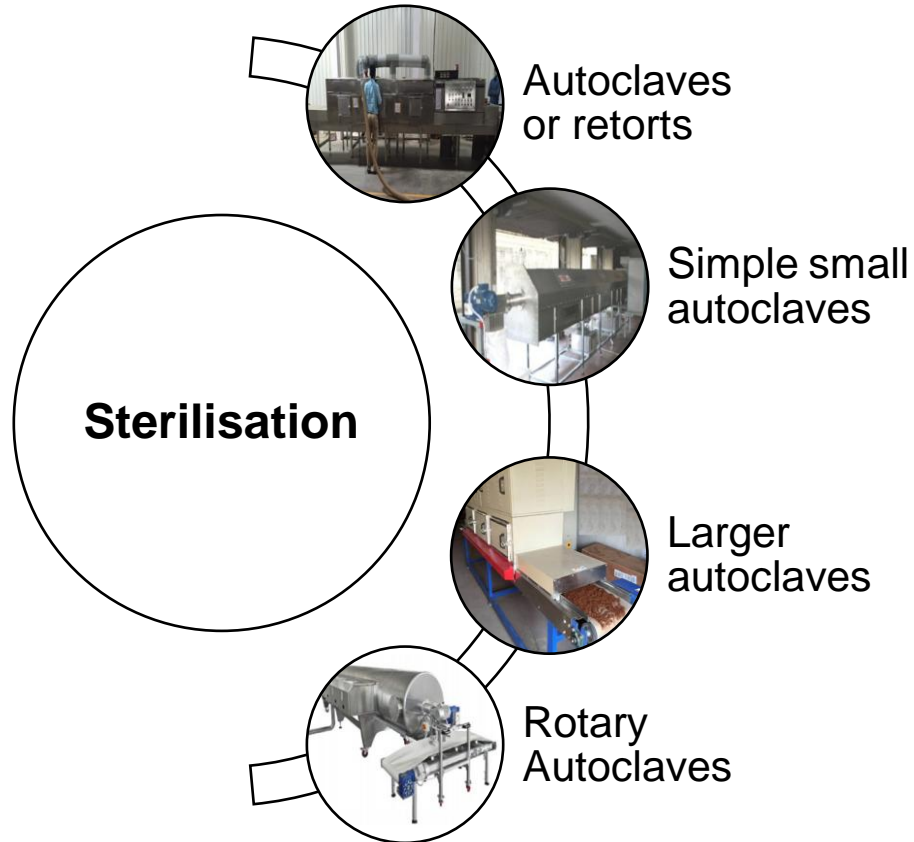
Microwave sterilization had some challenges in past such as unpredictable and non-uniform energy distribution

At Kerone, we have developed the control microwave sterilization solution that eliminates all previous hiccups

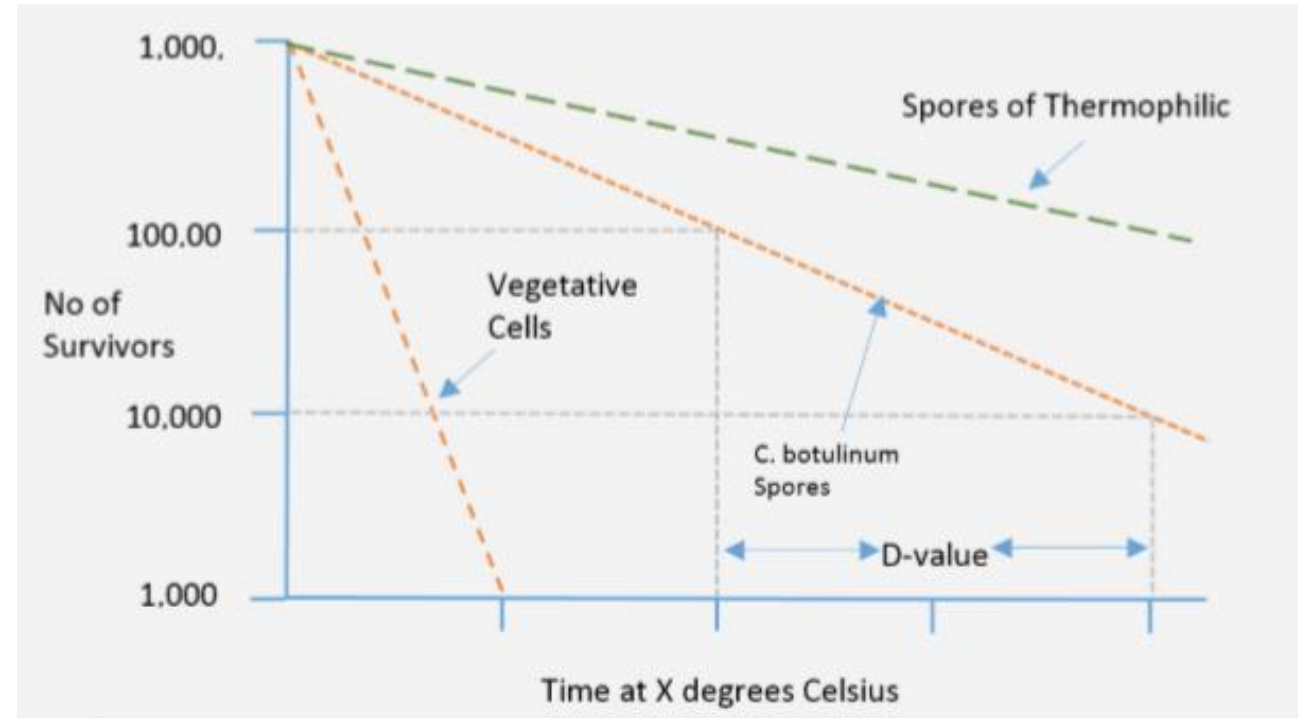


Thermal Processing – Sterilization...

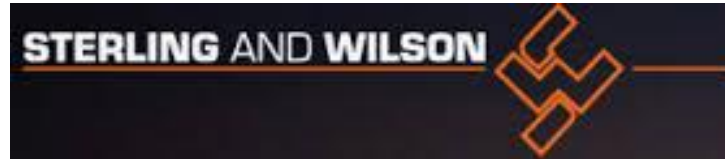
Sterilisation Process and Equipment



Thermal death time (TDT) curve



Trusted Partner of following consultants...



Our Clients...

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Serving Across Borders...





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