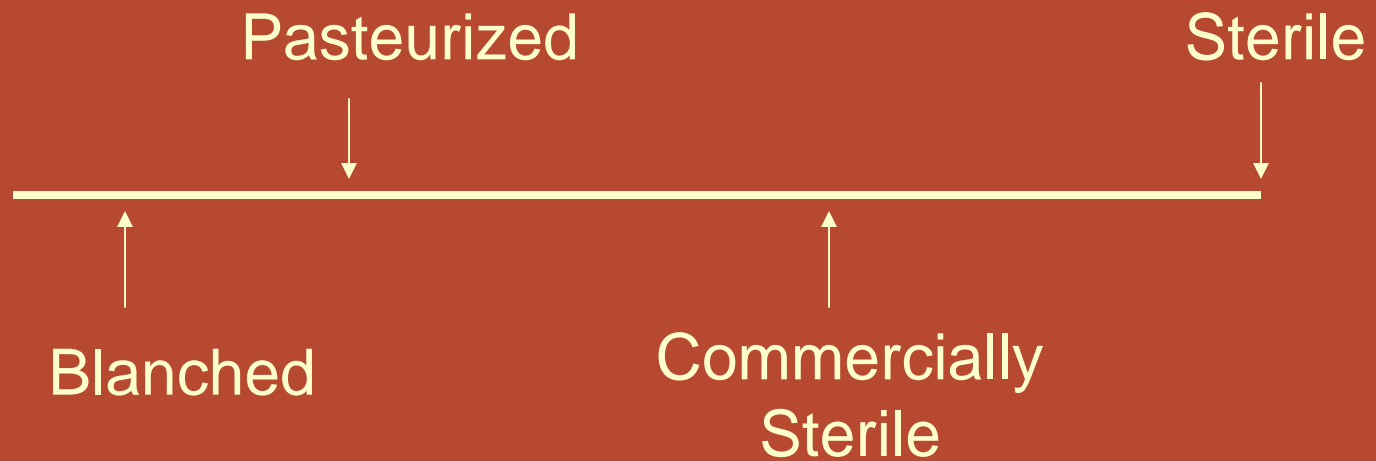


Risk Management for Thermally Processed Foods

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Thermal Processing Goals





Thermal Processing for Food Safety

- Commercially canned foods have the best safety record of any food
 - The odds of getting botulism or other serious foodborne diseases from commercially canned foods are less than 1 in 100 billion

Why is Canned Food Safe?

- The underlying science is complete
 - Physics heat transfer
 - Thermal bacteriology
 - Engineer heat processing equipment
 - Accurately and continuously measure the process
- Well-developed packaging systems
- Educated consumer



The Science of Heating Foods in Containers

- Methods to measure the rate of heating of various foods were developed more than 50 years ago
- Well-established standards for the design and construction of retorts
- Methods to verify the adequacy and uniformity of heating

Thermal Bacteriology

- Of the many species of bacteria that can be found in foods, only a small number are pathogens
 - We know all of the important target bacteria
 - We have studied their heat resistance and inactivation kinetics
 - We have established target values for the inactivation of these pathogens

Process Control

- The basic critical variables in thermal processing are easy to measure and document:
 - Temperature
 - Time
 - Flow rate
 - pH, a_w , viscosity, thermal diffusivity, heat and temperature distribution



Packaging Systems

- Long history with the metal can and glass jar
- Substantial experience with flexible pouches and cardboard laminates
- Durability standards for common packaging

Consumer Education

- Nearly every consumer is familiar with the metal can
 - Understand that a swollen or leaking can indicates a problem
 - Understand that a badly dented can is suspect
- Consumers translate their experience with cans to other forms of packaging